TRans And Non-binary Suicidality (TRANS): Microaggressions and Mental Health

Microaggressions and their associations with depressive symptoms, anxiety symptoms, non-suicidal self-harm, suicidal thoughts, and suicide attempts: a longitudinal project

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Declaration

I, Talen Elizabeth Julia Wright, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

THESIS ABSTRACT

Trans people are at an increased risk of developing mental health disorders, such as depression or anxiety, and of non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts, when compared to cisgender people. Several theoretical models have been proposed to explain this elevated risk, including minority stress theory. However, few studies have explored the mechanisms that underpin these mental health inequalities using epidemiological methods. One mechanism often overlooked is microaggressions, which have been shown to increase the risk of poor mental health in minority ethnic communities and among disabled people.

After outlining the background for this study (Chapter 1, introduction), I set out my study methods (Chapter 2) describing how I recruited a large sample of 1039 trans people to take part in an online cross-sectional survey to investigate whether microaggressions were associated with increases in depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. I also describe my second wave of data collection for those who provided their consent to be contacted for future research projects.

In Chapter 3 (baseline study), I describe my first cross-sectional, baseline, study of microaggressions and their associations with depression, anxiety, non-suicidal self-harm, suicidal thoughts, and suicide attempts. My findings infer that when trans people experience more microaggressions this was associated with an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt.

In Chapter 4 (follow-up study), I report findings from the follow-up sample of 209 people to investigate the longitudinal association between microaggressions and mental health outcomes, finding that those who experienced more frequent microaggressions at baseline had higher scores on depressive symptoms and anxiety one year later, as well as increased odds of suicidal thoughts. I did not find evidence to support longitudinal association with NSSH or suicide attempt.

In Chapter 5 (subscale study), I aimed to build on the findings of Chapters 3 and 4 and examine the mechanism in which microaggressions play within the high prevalence of common mental health disorders. Here, I investigated specific types of microaggressions

in both cross-sectional and longitudinal analyses to establish associations with specific mental health outcomes. I found evidence of cross-sectional associations between specific microaggression experiences and specific mental health outcomes but no evidence of longitudinal associations between specific microaggression experiences and mental health. In cross-sectional analyses, specific microaggressions were independently associated with specific outcomes: denial of gender identity with suicide attempts, misuse of pronouns with NSSH and suicidal thoughts, behavioural discomfort from others with depressive symptoms, and denial of societal transphobia with both depressive symptoms and anxiety symptoms. I found no evidence that invasion of bodily privacy was independently associated with any of the five mental health outcomes.

In my Discussion (Chapter 6), I suggest how microaggressions might play a role in the mental health burden of trans people. These commonplace, daily, slights, snubs, and insults regarding trans people appear to have serious effects on wellbeing. I discuss other important issues to address in future research on microaggressions and trans mental health, but also in developing and evaluating interventions. I consider the role that government and institutional policies could play in reducing discrimination against and harassment of trans people, and how this could benefit population mental health.

IMPACT STATEMENT

My work over the previous three years has had several policy, academic and public impacts, outlined below. I will outline the impact of the work in real-world settings.

Policy engagement:

I was approached alongside Dr Gemma Lewis by a research fellow from the Parliamentary Office for Science and Technology (POST) to discuss current research related to the increased incidence and prevalence of gender incongruence and gender dysphoria. I took this opportunity to pivot the discussion into the dissemination of my PhD findings. The evidence provided has been discussed within the parliamentary briefing and will be published online.

Academic conferences:

IASP 2021 – Conference (Australia) – Online – I gave an oral presentation to the International Association for Suicide Prevention in 2021, discussing the literature on microaggressions as well as non-suicidal self-harm, suicidal thoughts, and suicide attempts within the trans community. This was part of a wider symposium on LGBT suicidality.

ISSS 2021 – Conference – Online – I gave another oral presentation to the International Society for the Study of Self-injury as part of a symposium on LGBT self-harm and suicide. I gave a discussion of my PhD work as planned and a review of the literature on the issue of self-harm and suicide in the trans community.

EPA 2022 – Conference (Cambridge, UK) – In Person – A poster presentation of my baseline findings was delivered to the European Psychiatric Associations' section in Epidemiology and Social Psychiatry.

HEI Lectures:

London School of Hygiene and Tropical Medicine (2021/2022/2023) / Queen Mary University of London (2023) / University of Surrey (2022) / University of Edinburgh (2022) – During my tenure as a PhD student I have given several lectures to the Epidemiology and Sexual Health modules as part of the MSc in Public Health at London School of Hygiene and Tropical Medicine, as well as Queen Mary's, University of Surrey, and the University of Edinburgh's medical schools. Within these lectures, I have been able to directly disseminate current research findings related to my own PhD work around microaggressions and how they are associated with mental health outcomes, along with best practices within trans mental health research.

Media engagement

I have been fortunate during the PhD to be offered opportunities to engage with the media and develop my skills further within science communication. I have been given the opportunity to discuss my PhD work and related works about mental health in the trans community. These are listed below if these are of interest:

1. Zero Suicide Alliance - https://www.zerosuicidealliance.com/life-matters/life-matters-episode-3

For Zero Suicide Alliance, I was interviewed by the host to discuss microaggressions and their relationship to suicidal thoughts and suicide attempts. The interview can be found in the link above.

2. New York Times - https://www.nytimes.com/2021/09/28/health/transgender-health-care.html

For the New York Times, I was similarly asked for an interview about trans health care and placed emphasis on the UK trans healthcare system. Part of this interview was to also discuss healthcare access in relation to microaggressions. The link above details this interview along with others who participated.

Publications

There are several publications that I have either led on or provided critical feedback on that relate to the PhD work. I will first give the publication(s) that have arisen directly from the thesis and then I will present publications that have come from work outside the thesis but relate to trans health and mental health.

Publications from the thesis:

1. **Wright, T**., Lewis, G., Greene, T., Pearce, R., & Pitman, A. (under peer review). The association between microaggressions and mental health among UK trans people: a cross-sectional study.

Publications beyond the thesis project but related to trans health and mental health:

1. Witzel, T.C., **Wright, T.**, McCabe, L., Gabriel, M.M., Wolton, A., Gafos, M., et al. (2021) Impact and acceptability of HIV self-testing for trans men and trans women: a mixed-methods randomised controlled trial and process evaluation in England and Wales. *E-Clinical-Medicine*.
2. **Wright, T**., Nicholls, E.J., Rodger, A.J., Burns, F.M., Weatherburn, P., Pebody, R., McCabe, L., Wolton, A., Gafos, M., Witzel, T.C. (2021) Accessing and utilising transition-related healthcare in England and Wales: trans men and trans women's accounts of navigating gender identity services. *BMC Health Services Research*
3. Stynes, H., Lane, C., Pearson, B., **Wright, T.,** Ranieri, V., Masic, U., & Kennedy, E. (2021). Gender identity development in children and young people: A systematic review of longitudinal studies. Clinical child psychology and psychiatry, 13591045211002620.
4. McKay, K., Kennedy, E., Lane, C., **Wright, T**., & Young, B. (2021). Longitudinal outcomes of gender identity in children (LOGIC): a study protocol for a prospective longitudinal qualitative study of the experiences and well-being of families referred to the UK Gender Identity Development Service. *BMJ open*, *11*(11), e047875.
5. Kennedy, E., Spinner, L., Lane, C., Stynes, H., Ranieri, V., Carmichael, P., Omar, R., Vickerstaff, V., Hunter, R., **Wright, T**... & King, M. (2021). Longitudinal Outcomes of Gender Identity in Children (LOGIC): protocol for a prospective longitudinal cohort study of children referred to the UK gender identity development service. *BMJ open*, *11*(9), e045628.
6. McKay K, Kennedy E, **Wright T**, Young B. Thinking Time, Shifting Goalposts and Ticking Time Bombs: Experiences of Waiting on the Gender Identity Development Service Waiting List. *International Journal of Environmental Research and Public Health*. 2022; 19(21):13883.
7. Schlief, M., Stefanidou, T., **Wright, T**., Levy, G., Pitman, A., & Lewis, G. (2023). A rapid realist review of universal interventions to promote inclusivity and acceptance of diverse sexual and gender identities in schools. *Nature human behaviour*, 1-12.
8. Kirkbride,J., Anglin, D.M., Colman, I., Dykxhoorn, J., Jones, P.B., Patalay, P., Pitman, A., Soneson, E., Steare, T., **Wright, T**., Griffiths, S.L. (2024). The social

determinants of mental health and disorder: evidence, prevention, and recommendations. *World Psychiatry 23*(1).

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To my friends and colleagues at the Division of Psychiatry, for always being there for me through the challenges and the celebrations. To the wider trans community, this work would not be what it is without your trust and honesty. I am proud to be trans every day because I know the community is stronger than what the government, academic institutions, and fellow human beings throw at us.

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GLOSSARY OF DEFINITIONS

Term	*Definition*
Attrition bias	A form of selection bias whereby participants who take part in follow-ups of a study differ systematically from those who do not complete follow-ups.
Behavioural discomfort	Refers to occurrences whereby trans people are treated with disrespect or condemnation, here this may be a person acting uncomfortable when they find out someone, they are interacting with is trans.
Chance	The probability or likelihood of an event occurring. It is often used to describe the random variation or uncertainty associated with the occurrence or spread of a disease or health outcome within a population.
Cisgender (or cis)	Antonym to transgender, i.e., a person whose gender identity matches the one they were assigned at birth.
Comparator	Refers to a group or condition that is used as a reference or comparison when investigating the effect of an exposure or intervention.
Coproduction	Refers to the collaborative process in which researchers work with individuals or communities who have a stake in the research outcomes. This involves people with lived experience from the outset of research, through to research question selection, methodology (design), analysis, interpretation, and dissemination as active research team members
Denial of gender identity	The denial of gender identity is where a trans person is told that their gender identity is not correct.
Denial of societal transphobia	Refers to instances whereby a cis person refuses to acknowledge structural or societal biases against trans people.
Distal stressor	External stressors that result from societal attitudes, discrimination, and prejudice faced by trans individuals.
Everyday discrimination	This refers to ongoing and routine experiences of discrimination. An example includes receiving poor service in local business due to transness or being threatened and harassed.
Gender affirmation	Refers to behaviours or interventions that affirm a trans person's gender identity and/or expression, i.e., using correct pronouns, or a primary care physician providing transition-related healthcare.

Gender Dysphoria	A sense of unease that a person may have because of a mismatch between their biological sex and their gender identity.
Gender modality	This term refers to how one relates to their gender identity. This could be either as trans or as cis. For example, woman is a gender identity, whereas trans and cis are the gender modalities.
Genderqueer	This term encompasses many terms such as non-binary, androgynous, bigender, agender. The term refers to people whose gender identity does not fall into the binary gender identities (i.e., man or woman).
Gender Variance	Refers to gender identities, behaviours, and expressions that exist outside culturally prescribed norms.
Inductive bias	Refers to the prior knowledge, assumptions, or beliefs that researchers incorporate into their study design, data analysis, and interpretation of results
Invasion of bodily privacy	Refers to statements or behaviours in which cis people objectify a trans person's body, such as asking inappropriate questions about their genitals.
Microaggression	A microaggression is defined as brief commonplace daily verbal, behavioural, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative slights and insults towards marginalised communities.
Microassault	An overt and conscious-explicit or subtle slight and insult expressed to marginalised communities.
Microinsult	A statement or behaviour in which individuals unintentionally or unconsciously communicate discriminatory messages to members of target groups.
Microintervention	Defined as everyday words or deeds, whether intentional or unintentional, that communicate to targets of microaggressions (a) validation of their experiential reality, (b) value as a person, (c) affirmation of their racial or group identity, (d) support and encouragement, and (e) reassurance that they are not alone.
Microinvalidation	A verbal statement that denies negates or undermines the realities of members of marginalised communities.
Minority Stress	Unique and hostile stressors experienced by marginalised/minoritised individuals related to the individual's minoritised status in society.
P-hacking (data dredging/snooping	The practice of manipulating or analysing data in a way that increases the likelihood of obtaining statistically significant results.

Perceived gender	This refers to other people's perception on the gender with which a person is perceived to identify based on that person's appearance, behaviour, and expression.
Pronoun misuse	The misuse of pronouns involves other people using pronouns which do not correspond with the trans person's gender identity.
Proximal stressor	Stressors that arise from within the individual's immediate social environment, such as their family, peers, and workplace.
Residual confounding	Refers to confounding by variables that are unmeasured in the dataset or unadjusted for in analyses.
Reverse causation	Refers to a situation where the exposure is caused by the outcome, rather than the exposure causing the outcome.
Selection bias	Refers to systematic differences between the characteristics of those who take part in a study and those who do not.
Suicidality	Broadly defined as thinking about ending one's own life (suicidal thoughts), devising method and time to take one's own life (suicide plan), and making attempts to end one's own life (suicide attempt).
Thwarted belongingness	A psychologically painful mental state that results when the fundamental need for connectedness.
Transgender (or trans)	Used to describe people who do not identify with the gender they were assigned at birth. This is an umbrella term which can encompass many gender identities and expressions.

CHAPTER 1: BACKGROUND

1.1 Positionality statement

In choosing a PhD topic, I considered the motivations behind the research. This thesis is born from a large part from my own lived experience. I am a trans woman with lived experience of depression, anxiety, and suicidality. Furthermore, I have also been subject to microaggressive behaviours from the wider public. These microaggressions were often viewed as acts of overt discrimination and malice, however, the perpetrators often felt as though what they said was meaningless or from a sense of curiosity rather than maliciousness. The experience from my own perspective differed significantly, and would leave me feeling monstrous, othered, and most of all alone.

In preparation for my Economic and Social Research Council PhD studentship funding application, I consulted with my community and the literature to understand the extent to which microaggressions have been given a thorough examination within academic and general discourse. Experiences from other trans people, including friends and acquaintances suggested similarly detrimental effects from microaggressions, however the academic literature was quiet on the evidence. I was also struck by the breadth and depth of which microaggressions were being discussed within the literature when they were discussed. I was motivated to delve into this topic to gain a better understanding of my own lived experience and that of others.

It is also important to reflect on the current social climate faced by trans people in the United Kingdom, and arguably in many other areas of the world. Trans people have long been understood to occupy a minoritised state within the UK. With this minoritisation comes poor understanding from wider society, and has led to experiences of marginalisation, stigma, and discrimination. Hate crime statistics portray this very real and lived experience (Lopez, 2023). The social climate has always been one of difficulty, however, we are seeing a widespread increase in debates over how we exist within the wider community. These debates centre on human rights, healthcare access, and “threats” we pose on cisgender people. These debates have been linked to an increase in hate crimes against trans people, and especially people who are gender non-conforming. Writing about microaggressions in the face of societal pressure and oppression has been conflicting. The conflict I am alluding to is why focus on “small” experiences between people and not focus on these wider politic, sociocultural issues? I chose to focus on microaggressions under the impression that contrary to their definition, they are not micro in their impact on trans people, and instead given the social climate, these “micro” interpersonal hostilities have very substantial effects on we feel about ourselves, and on our positions within society.

The following work is therefore born from a concern for my community, both on an individual level but also on how this reflects how we are viewed and how people interact with us, and how these interactions affect us.

1.2 Defining the trans community.

Transgender and non-binary people are people whose gender identity does not match their sex assigned at birth (Wright et al., 2018). In this project, I use the term “trans” as a collective umbrella term incorporating various gender identities and expressions such as transgender, non-binary, genderqueer, gender creative/diverse, and any person who does not identify with their assigned sex at birth. Our understanding of what defines the trans community, and persons within, has evolved over the past couple of decades. Historically, terms such as transsexualism and transgenderism were used to distinguish between those who wish to medically transition (i.e., a *transsexual*), and those who wish to only transition socially (i.e., *transgender*).

Trans people are often medicalised and pathologised with emphasis placed on the diagnosis of gender identity disorder or Gender Dysphoria (based on the Diagnostic and Statistical Manual of Mental Disorders 4th Revision or 5th Revision) or Gender Incongruence (based on the International Classification of Diseases 10th Revision) (F. Beek et al., 2016; Witten et al., 2003). The process of medicalisation refers to in its simplest definition as taking human problems and bringing them under the control of medical authorities (Johnson, 2019). The primary goal of medicalisation is to diagnose, intervene, and cure human problems. Human problems are at the mercy of the time they are presented. Historically, those who are Lesbian, Gay, and/or Bisexual (LGB) were seen as immoral and a problem to society and subjected to medical treatments in an effort to “cure” their sexual orientation (previously seen as “perversion”, see conversion therapies). This maltreatment of LGB people has been outlawed in many countries, and efforts are ongoing to ensure a complete ban on conversion therapies. We can therefore understand that medicalisation of human sexual and gender behaviours and experience may not always reflect the needs of an individual but rather serves to ensure what is termed as cisheteronormativity. Cisheteronormativity refers to the assumption of a cisgender and heterosexual identity as default. This is problematic in several regards, however chiefly is the assumption of cisheteronormative presentations of gender, whereby clinicians are responsible for deciding who can receive gender-affirming medical interventions (Johnson, 2019).

Contemporary understanding places more emphasis on the multiplicity of gender identities, expressions, and modalities that transcend the binary options of *man* and *woman* (Ashley, 2021b; Buck, 2016; Vidal ‐ Ortiz, 2008). Gender modality is a term coined by bioethicists and sociologists to discuss how gender identity stands in relation to gender assigned at birth. Gender modality refers to the correspondence (or lack thereof) between a person's gender identity and gender assigned at birth: cisgender and transgender are the two primary gender modality terms, but the term overtly leaves open the door to discussions about other gender modalities. Gender modalities can be viewed as how we relate to a gender identity, i.e., when we refer to trans women and cis women, the terms trans/cis describe their gender modality but they share the same gender identity as a woman (Ashley, 2021b).

Gender variance has existed both historically and cross-culturally (Monro, 2019). Gender variance refers to gender identities, behaviours, and expressions that exist outside culturally prescribed norms. Gender variance includes terms such as transgender, non-binary, and genderqueer (Simons et al., 2014). Non-binary and genderqueer define several identity groups, which include 1) an individual whose gender identity falls between or outside male and female identities, 2) an individual who can experience being a man or woman at separate times, or 3) an individual who does not experience having a gender identity or rejects having a gender identity (Matsuno & Budge, 2017). Non-binary identities have been celebrated across several societies around the world. For example, there are several groups of Indigenous people in what is now known as the United States (US) who designate a two-spirit identity for people who are both masculine and feminine. Another example comes from the Samoan community who have a third gender known as fa'afafine. fa'afafine translates to "in the manner of a woman," and similarly fa'atane translates to "in the manner of a man." The fa'afanine are revered for having a dedication to the family and for working hard (McFall, 2013). Depending on the society or group to which the person belongs, there are different terms for two-spirit identities (e.g., nádleehí—Navajo; niizh manidoowag—Ojibwe; Bote/Bate/Bade—Apsáalooke, Wakawahine - Aotearoa) (McFall, 2013; Robinson, 2017, 2018). In contemporary times, indigenous people who live outside of the colonial binary of man and woman experience increases in marginalisation, which includes sexual violence, physical violence, poverty, and victimisation (Kanemasu & Liki, 2021; O'Sullivan, 2021; Robinson, 2018). Colonialism refers to colonial state influences and restrictions on indigenous communities and reducing cultural and societal practices with a view to superiority regarding colonising states practices (O'Sullivan, 2021). With regards to gender, a hallmark of coloniser states is the use of a gender binary, in which there are two distinct gender categories (men and women) with specific roles that accumulate into a nuclear family (mother and father with their biological offspring), have been imposed on indigenous communities with more expansive identities relating to gender, family, and social roles (O'Sullivan, 2021). To illustrate this point, the Fa'afafine experience a cultural legitimacy; however, are also faced with gendered discourse that results in further marginalisation (Kanemasu & Liki, 2021). Both of these examples are a result of colonisation which exalts the gender binary, and uses the binary system to restrict cultural and religious practices and freedoms of indigenous communities across the globe (O'Sullivan, 2021).

1.2.1 Estimation of the trans population in the UK

To understand the inequities the trans community face in the United Kingdom (UK), first we must be able to describe the size of the population affected. Retrieving accurate assessments of the trans population over the past couple of decades has been difficult given the lack of attention given to trans people in large representative cohort studies (Coleman et al., 2022). In 2009, an estimated 20 in 100,000 people in the UK were trans (based on survey data and health service activity data on transgender people who accessed gender identity clinics), making up roughly 0.02% of the population in the UK at the time (Reed et al., 2009). In 2007, the incidence was estimated to be 3 per 100,000 people aged 15 or older in the UK, equivalent to 1,500 people presenting for treatment that year. There was considerable geographic variability in the proportion of the local population identifying as trans people in the UK, with the highest proportion per

100,000 people being in Sussex and Nottinghamshire (45 and 43 respectively). The lowest proportion was estimated for the City of London, Fife, and Dumfries and Galloway (0, 3, and 7 respectively). The proportion of trans people living in certain areas might be related to population density, due to perceived improvements in social support and accessibility to transition-related healthcare (Paceley et al., 2017). However, the reverse was found with increased population density being correlated with a lower proportion of trans people (Reed et al., 2009). In 2011, the Gender Identity Research and Education Society (GIRES) estimated that 500’000 people in the UK were trans, based on a cross-sectional survey, with 1000 per 100’000 people being trans, or 1% of the general population (Gires, 2011). The Office for National Statistics (ONS) published results of the 2021 UK census that include its first ever question on gender diversity within England and Wales, finding that 262000 (0.5%) of the population identified as trans (ONS, 2023). There were many debates over the question posed for gender and in relation to trans people filling out the census. The primary concern from some related to data integrity regarding accurate information on sex and gender, and that guidelines for self-report on sex and gender were ultimately “anti-scientific” (Sullivan, 2020). These calls were rebutted with concerns of misrepresenting trans-inclusive gender theories and research which has elicited richer data on gender and sex (Fugard, 2020). The census asked the general population to record their sex but gave guidance for participants that indicated this may be different than what is officially recorded. The survey then gave the option to state whether this was the participant’s assigned gender at birth. However, it should be noted that non-binary people were not able to state that they are non-binary. This line of questioning around gender and sex is common in established surveys from leading LGBT charities and organisations (Fugard, 2020). These concerns raised the question of undercounting of trans people in England and Wales due to the ambiguity in how trans people should respond to both the sex and gender questions. Estimates for the number of trans people in other countries are similar, or slightly larger than the UK figures; for example, New Zealand at 1.2%, the Netherlands at 0.8-1.1%, the USA at 0.5%, and Belgium at 0.6% (Clark et al., 2014; Conron et al., 2012; Kuyper & Wijsen, 2014; Van Caenegem et al., 2015). As Scotland and Northern Ireland are not included in the ONS population data, a complete estimate for the number of trans people within the UK are currently unavailable. This is likely because no nationally representative study has included an expansion on gender questions that could identify trans and non-binary people across all devolved nations.

There are several pertinent issues regarding the sampling of trans people, with many studies within the literature making use of clinic level data, which identifies trans people based on diagnostic terms (Coleman et al., 2022). This may underestimate the number of people who are trans but do not have contact with services. Similarly, estimates are frequently made on differing definitions of transness with little harmonisation between studies (Coleman et al., 2022; Collin et al., 2016). There are two specific problems set out in relation to definitions from the Standards of Care for the Health of Transgender and Gender Diverse People, Version 8 (Coleman et al., 2022). The two problems relate to language, specifically terms which cannot be translated from English, and terms which cannot be translated into English (Coleman et al., 2022). To describe the former, the discourse on trans health is overwhelmingly based on the English language, with little consideration for other languages spoken by trans communities across the globe. An example here can be seen in the separation of *gender* and *sex.* In Urdu there is only one word for both gender and sex, this results in some identities being unrepresented (Coleman et al., 2022). I have spoken about identities outside of the gender binary, terms such as *fa'afafine*, and their relevance to cultures across the world. These terms typically do not have direct translations into English; thus, with the currently used terms, this may result in people with those identities feeling excluded from being counted in the trans population (Coleman et al., 2022; Davidson, 2007).

1.3 Mental health as a public health problem in the trans community

In this section, I will provide an overview of the prevalence of mental health problems experienced by the general population and within the trans community. These mental health problems relate to depression (Chapter 1.2.1), anxiety (Chapter 1.2.2), and non-suicidal self-harm, suicidal thoughts, and suicide attempts (Chapter 1.2.3).

1.3.1 Depression

Depressive disorders are commonplace within the general population and place a significant burden on healthcare systems across the world (Dettmann et al., 2022). In a recent systematic review of 30 studies, global estimates of depression in the general population were estimated at 28% (Mahmud et al., 2023). These estimates primarily come from countries such as China, Italy, India, and Spain, with one included study taking place in the UK (Shevlin et al., 2020). Pre-pandemic estimates of clinical depression in the UK indicated a prevalence of 18% in the general population, rising to around 27-32% during the first COVID-19 lockdown, and subsequently decreasing slightly post pandemic (Dettmann et al., 2022; Hajek et al., 2022; Jia et al., 2022; Mahmud et al., 2023; Organization, 2017). Often a myriad of depression measures are used to ascertain the prevalence of depression within a given population (Pettersson et al., 2015). The choice of scale, and therefore interpretation of their findings, depends on the whether a diagnosis is being reached or if screening for potential cases is adopted. The most commonly cited screening tools are the Patient Health Questionnaire – 9 item version (PHQ-9), the Center for Epidemiologic Studies – Depression Scale (CESD), Becks Depression Inventory (BDI), and the Hospital Anxiety and Depressions Scale (HADS) (Pettersson et al., 2015). The CESD and PHQ-9 specifically perform exceptionally well as screening tools for depressive disorders (Khamseh et al., 2011; Milette et al., 2010). However, the PHQ-9 has been reported as slightly advantageous due to its shorter form (Milette et al., 2010).

Trans people generally score higher in the measures of depression such as the PHQ-9 and the CESD compared to sexual minorities and have twice the risk of experiencing severe depressive episodes compared to cisgender people (Ferlatte et al., 2020; Tan et al., 2021). Overall, the depression burden was deemed as considerably higher when compared to cisgender populations (Stephanie L. Brennan et al., 2017; H. Lee et al., 2021; Lee et al., 2020; Mueller et al., 2018). In a study of 913 trans people in the United Kingdom, 11% were found to have probable depressive disorder, and 13% were found to have possible depressive disorder, with the odds of having probable depressive disorder being four times higher amongst those seeking hormone replacement therapy compared to those currently taking hormones (Witcomb et al., 2018). There are few large population-based studies that provide sole focus on trans people (Crissman et al., 2019; Tan et al., 2021; Witcomb et al., 2018). One example based in New Zealand recruited 1178 trans people to a cross-sectional study, and found significant increases in the burden of depression as age increased amongst trans and non-binary people (McNeil et al., 2012a; K. K. Tan et al., 2020). The authors also found the risk of having been diagnosed with depression by a mental health practitioner was three times higher than the general population (K. K. H. Tan, J. F. Veale, S. J. Ellis, et al., 2020). These surveys have an enriched diversity which is commonly missing in clinical and large comparative samples; for example, clinical samples tend to comprise of small numbers of trans people and under-represent key demographics at risk of mental health distress, such as those who are not living in their gender, and those isolated from supportive networks.

The research into trans people and depression suggests an overall high prevalence (Stephanie L Brennan et al., 2017; H. Lee et al., 2021; Lee et al., 2020; McNeil et al., 2012a; Mueller et al., 2018). However the majority of research is conducted on nonprobability samples, i.e., samples which are not drawn at random (Green et al., 2022). These samples are often self-selected, giving rise to biases which can only be mitigated through large probability samples which are generalisable to the wider community they are drawn from (Green et al., 2022). There is also a need to use well-validated measures of depression and other mental health outcomes to improve the comparability of studies of depression in the trans community (Reisner et al., 2016). Currently, research into trans mental health utilises small samples with varying measures of mental health outcomes, resulting in studies which are unable to be pooled together compared, thus relying on individual studies to draw inferences from.

1.3.2 Anxiety

Anxiety disorders are also commonplace within the general population and similarly saw a sharp increase in prevalence in recent years, likely because of the pandemic, with an increase from 5% pre-pandemic to 26% in the first lockdown, followed by a slight decrease in prevalence post pandemic (Dettmann et al., 2022; Hajek et al., 2022; Mahmud et al., 2023; Organization, 2017). Current estimates suggest the global prevalence of anxiety to be 25% of the general population.

Overall, the burden of anxiety is high amongst the trans community, with increased prevalence of anxiety when compared to the general population (Beckwith et al., 2019; Borgogna et al., 2019; Dawson et al., 2017; Hughto et al., 2020). When examining the clinical thresholds of anxiety disorders, a study in New Zealand recruited 1178 trans and non-binary people and reported that 72% of their participants manifested high or very high psychological distress symptoms and half had been told by a doctor that they had an anxiety disorder (K. K. H. Tan, J. F. Veale, S. J. Ellis, et al., 2020). When compared to a national household survey in New Zealand, transgender participants had a five times greater risk of reporting an anxiety diagnosis compared to cisgender participants.

Furthermore, a US based study recruited 54 trans people as part of a larger survey that included cisgender respondents (Dawson et al., 2017). They found that trans people reported significantly higher lifetime prevalence of being diagnosed with an anxiety disorder compared to cisgender participants (70.4% vs 41%). Similarly, the odds of being diagnosed with an anxiety disorder in one's lifetime was 3.34 times greater for trans people compared to cis people.

During the COVID-19 pandemic, several papers were published which examined the role of social disconnectedness and mental health in the trans community (Flentje et al., 2020; Gonzales et al., 2020; Jones et al., 2023; Tüzün et al., 2022). Trans youth recruited in the UK between the ages of 16 and 25 were recruited to a cross-sectional study and qualitative study. Those who reported a greater impact of the COVID-19 pandemic and social distancing measures, had poorer mental health outcomes, with lack of support and non-affirming environments and inability to access mental health support also. In qualitative interviews trans youth described the worsening of their anxiety as a consequence of the pandemic and that this was influenced by unwelcomed periods of self-reflection and rumination (Jones et al., 2023). Similarly, in the PRIDE study, a longitudinal cohort of 2288 sexual and gender minority people based in the United States found increased anxiety symptoms using the generalised anxiety disorder scale at the onset of the pandemic. This increase was driven by those without pre-existing symptoms (Flentje et al., 2020). Finally, in a longitudinal study of 49 trans youth in Turkey found increased anxiety and depression symptoms as a consequence of lockdown measures. The mechanism examined suggests the poor perceived social support and disconnectedness may be responsible for the increased anxiety and depression, as the authors highlight there may be fragile pre-existing social support systems that were disrupted (Tüzün et al., 2022).

Despite the apparent increased risk of anxiety in the trans community, the evidence has been reliant on treatment-seeking trans participants, that is, trans people who are either currently within transition-related healthcare services, or are known to services (Bouman et al., 2017). Those who are in contact with services may fundamentally differ compared to those who are not in contact with services, resulting in the findings of clinic only samples being ungeneralisable to the wider trans community (Reisner et al., 2016). As will be discussed in Chapter 1.4.3, sample size of studies within trans anxiety are limited with small samples (Millet et al., 2017), the use of small samples again makes comparison to the larger trans community difficult due to limitations in statistical power (Hill, 1998). Despite the apparent increased risk of anxiety in the trans community, the evidence has been reliant on treatment-seeking trans participants, that is, trans people who are either currently within transition-related healthcare services, or are known to services (Bouman et al., 2017). Those who are in contact with services may fundamentally differ compared to those who are not in contact with services, resulting in the findings of clinic only samples being ungeneralisable to the wider trans community (Reisner et al., 2016). This is because those who access healthcare services on average have access to support from primary care physicians, family and friends, financial support, and may not reflect the experiences of those who do not want to access services (Herrmann et al., 2023; Lee et al., 2018). Those who access services may also be presenting with more severe gender dysphoria. As will be discussed in Chapter 1.4.3, sample size of studies within trans anxiety are limited with small samples (Millet et al., 2017), the use of small samples again makes comparison to the larger trans community difficult due to limitations in statistical power (Hill, 1998).

1.3.3 Non-suicidal self-harm, suicidal thoughts, and suicide attempts

There has been an increase in suicidal behaviours in the UK over recent years (Edmondson et al., 2016; McManus et al., 2019; O'Connor et al., 2021). Evidence suggests an increase in non-suicidal self-harm (NSSH) in the general population from 2.4% in the year 2000 to 6.4% in 2014 (McManus et al., 2019). Similarly, population norms in the UK, derived from the nationally representative Adult Psychiatric Morbidity Survey (APMS), show that in 2014 the prevalence of suicidal thoughts in the past year was 7.3% in the general population, whilst suicide attempt in the past year was reported by 6.7% of the population (McManus et al., 2016). During the COVID-19 pandemic, one longitudinal study of 3077 adults from the UK found suicidal thoughts were higher amongst those with pre-existing mental health conditions and from socially and economically disadvantaged backgrounds compared to the wider population, suggesting concerning increased in suicidal thinking over the past few years.

The Trans Mental Health Study, conducted in the UK in 2012 recruited just under 1000 trans people and collected to a cross-sectional data on sociodemographic characteristics with gender identity questions that were notably more inclusive than other surveys.

Participants were asked about lifetime and past-year suicidal ideation and suicide attempt, from which deriving categorical variables were derived. Analyses of the data indicated that 82-88% of this sample of trans people in the UK had a lifetime history of suicidal ideation, and 56% of trans youth and 48% of trans adults had a lifetime history of suicide attempt (Austin et al., 2020; McNeil et al., 2012c). However, estimates from other samples vary widely, with other studies reporting lower estimates such as 56% having a lifetime prevalence of suicidal thoughts, and 29% having attempted to take their own lives (Adams et al., 2017). Most studies cited within this section of the Chapter have utilised cross-sectional survey methods to investigate mental health problems within the trans community. This has resulted in a lack of longitudinal research methods employed with a focus on the trans community and their mental health. Longitudinal research allows us to strengthen causal inferences and offer tangible insights into prevention and intervention of poor mental health. This is because longitudinal data allows for temporality, i.e., that the exposure proceeds the outcome, which is vital in understanding how the exposure cause the outcome. Whereas cross-sectional data represent one unique point in time, resulting in an inability to establish cause and effect. A recent systematic review of the global trans population suggests a pooled prevalence of 39% for past month suicidal thoughts, 45% for previous year, and 50% for over one's lifetime (Kohnepoushi et al., 2023). Similarly, we see increased prevalence of suicide attempt when compared to the general population, with a pooled prevalence of 16% for previous month suicide attempt, 11% for previous year (compared to 6.7% in the general population of the UK), and 29% over the course of one's lifetime. In another systematic review, the prevalence of lifetime non-suicidal self-harm appears to be high amongst trans people, particularly for trans men (58%) compared to trans women (26%) (Marshall et al., 2018). A common issue with the studies included within the systematic reviews cited is the exclusive use of cross-sectional studies. Whilst cross-sectional studies are an effective means of estimating prevalence, little is known about how NSSH, suicidal thoughts, and suicide attempts have changed over time.

Trans people have a higher risk of depression, anxiety, NSSH, suicidal thoughts, and suicide attempts compared to the cisgender (or cis) population, although this is based on little high quality epidemiological evidence. This suggests a need for better quality studies investigating this issue. Trans participation within studies tends to be combined within a wider Lesbian, Gay, Bisexual, and Transgender (LGBT) sample (Asscheman et al., 2011; De Cuypere et al., 2006; Johansson et al., 2010; Maguen & Shipherd, 2010; Marshall et al., 2016), conflating sexuality and gender identity by not providing subgroup analyses. Furthermore, most studies in this field examine mental health in a clinical population, i.e., trans people who attend Gender Identity Clinics (GICs), affecting potential generalisability to non-clinical samples (de Graaf et al., 2020; Sari L. Reisner et al., 2014; Witcomb et al., 2018). However, there are two pressing concerns related to methodology within trans mental health research, these are the issues of sample size and the lack of longitudinal methods for causal inference testing.

1.4 Gender Minority Stress Framework

I have grounded the work of this PhD within the Gender Minority Stress Framework (GMSF) proposed and developed by Testa and colleagues (Testa et al., 2015). The GMSF posits that victimisation, stigma, and discrimination based on an individual's trans identity negatively impacts the lives of trans people (Hoffman, 2014; Testa et al., 2015). These negative impacts include increased depression, anxiety, non-suicidal self-harm, suicidal thoughts, and suicide attempts, whereby increased exposure to minority stressors increases the development of poor mental health (Bry et al., 2018; de Lange et al., 2022; Jäggi et al., 2018; Jennifer M. Staples et al., 2018; Testa et al., 2017). Minority stressors are separated into two factors which are distal stressors and proximal stressors.

1.4.1 Proximal minority stressors

Proximal stressors are an important component of the Gender Minority Stress Framework, which seeks to understand and explain the stressors and challenges faced by trans individuals. Proximal stressors refer to internal experiences of minority stress (Helsen et al., 2022; Hunter et al., 2021; Lindley & Galupo, 2020). Examples of proximal stressors within the framework include negative expectations for the future, internalised transphobia, concealment, gender dysphoria, and intersectional stressors (Helsen et al., 2022; K. K. H. Tan, J. F. Veale, G. J. Treharne, et al., 2020). Intersectional stressors refer to stressors experienced by individuals with multiple marginalised/minoritised identities, e.g., black trans women will experience stressors related to their race and gender identity. Evidence suggests that those with marginalised intersectional identities experience compounded minority stressors compared to those with identities that do not compose of multiple marginalised identities (Fattoracci et al., 2021; Shangani et al., 2020). Discrimination in the form of rejection from family and friends and high rates of violent discrimination in the form of assault, sexual violence, and murder disproportionately effect trans people, specifically trans women of colour (Lee, 2017; Stotzer, 2009). Research based on the GMSF offers strong evidence on the relationship between trans people and anxiety (Bockting et al., 2013; Budge et al., 2013; Budge et al., 2020; Budge et al., 2021; K. B. Jackman et al., 2018; Kaplan et al., 2019; Klemmer et al., 2021; Tabaac et al., 2018). There are several factors which may influence the disparity in suicide rates between trans people and cis people, with the GMSF providing strong evidence for the suicide burden (Cogan et al., 2020; Cogan et al., 2021; Kaniuka & Bowling, 2021; Kota et al., 2020; Miller et al., 2015) in the trans community, and community connectedness and support playing a substantial role (Kasey B. Jackman et al., 2018; Kia et al., 2021; Lehavot et al., 2016) in preventing suicidal thoughts and attempts in the trans community.

1.4.2 Distal minority stressors

Distal stressors are another key component of the Gender Minority Stress Framework, and they refer to external stressors that result from societal attitudes, discrimination, and prejudice faced by trans individuals (K. K. H. Tan, J. F. Veale, G. J. Treharne, et al., 2020). These stressors are "distal" in the sense that they are situated further away from the individual but have a significant impact on their well-being. Examples of distal stressors within the framework include: violence and discrimination (Hunter et al., 2021; Pellicane & Ciesla, 2022). Distal stressors that might lead to anxiety include discrimination, victimisation, prejudice, community connectedness, heterosexist harassment, enacted stigma, and transnegativity (Bockting et al., 2013; Budge et al., 2013; Budge et al., 2020; Budge et al., 2021; K. B. Jackman et al., 2018; Kaplan et al., 2019; Klemmer et al., 2021; Tabaac et al., 2018). In one study of 149 trans people in Italy 43% and 51% of trans women and trans men respectively, met the clinical cut-off for anxiety using Beck Anxiety Inventory (Scandurra et al., 2018). Everyday discrimination was positively associated with anxiety, and shame, and negative associations were found between resilience and anxiety. Whilst studies provide some evidence to support the theory that minority stressors are potential targets for interventions, what is less clear are the temporal associations between trans people and the development of depression, anxiety, NSSH, suicidal thoughts, and suicide attempts, because all the studies described above were based on cross-sectional evidence. Cross-sectional data does not allow for causal inference testing, that is, we are unable to disentangle the relationship of exposure and its causes on the outcome(s) (VanderWeele, 2021). This is because cross-sectional data are collected at one time point and therefore we are unable to sequence the temporality, i.e., what came first (VanderWeele, 2021). Cross-sectional evidence can give an indication of causal relationships that may be worth exploring further, particularly when effect sizes are large. However, only methods which can capture temporality can provide insight into causality. Therefore, there is a need for more longitudinal observational studies that can ascertain the causal relationship between minority stress experience and depression in the trans community.

Several other theoretical frameworks exist which can also provide explanatory power for the trans mental health disparity such as the leading social determinants of mental health framework and the interpersonal psychological theory of suicide. The social determinants of mental health framework arose from its sibling the social determinants of health framework first developed by (Marmot & Wilkinson, 2005) The framework posits that social (and economic) factors drive health inequalities in the population and defines social determinants as “the circumstances in which we are born, grow-up, live, and work, and the systems in place to deal with illness” (Preda & Voigt, 2015). The framework has since been applied to mental health (Kirkbride et al., 2024), and has been applied to trans mental health and trans health inequalities more broadly (Blosnich et al., 2017; Glick et al., 2020; Hill et al., 2018; Katz-Wise et al., 2017). Social determinants, such as difficulties accessing legal name change, housing insecurity, financial strain, access/restrictions on gender affirming medicine, and violence have been shown to be associated with increased depression and suicide attempts (Katz-Wise et al., 2017). Whilst the social determinants of health framework has provided a good conceptual basis for the mental health disparity in the trans community, the social determinants mentioned are not always specific to trans people and do not account readily for the additional stressors that minority stress theory accounts for.

Another theory which needs examining is the interpersonal psychological theory of suicide. The interpersonal psychological theory of suicide posits that suicide is underpinned by a desire-capability combination. The desire mentioned is one of suicide and is caused by the combination of thwarted belongingness and perceived burdensomeness, and that there is the capability carry out suicidal actions. The two central components in this theory mention these being, thwarted belongingness and perceived burdensomeness, refers to an individual feeling disconnected from their interpersonal and social relationships (thwarted belongingness), and will also experience increases in perceived burdensomeness, that is, the individual will feel that they are a burden to those around them (Smith & Cukrowicz, 2010). The interpersonal psychological theory of suicide has been applied to trans mental health, particularly the suicide disparity seen in the trans community. The evidence base suggests that trans people experiencing increases in both thwarted belongingness and/or perceived burdensomeness will report more suicidal ideation as well as suicide attempts (Grossman et al., 2016; Phillip et al., 2022; Testa et al., 2017). The interpersonal psychological theory of suicide amongst trans people shows how two overarching concepts related to perceived relationship quality and of one's own value can have detrimental implications for poor mental health, however, the theory itself does not comment on the interpersonal aggressions that are experienced by minoritised people, particularly trans people. Furthermore, the gender minority stress framework reigns superior in relation to the interpersonal factors that not only touch on disconnectedness, but also the microaggressions and large-scale acts of discrimination and violence experienced by the trans community (Testa et al., 2017).

Whilst the literature relating to the social determinants of health framework and the interpersonal psychological theory of suicide provide a good theoretical basis to the trans mental health disparity, what is lacking are the interpersonal acts of violence enacted on trans people by cisgender people in a cisheteronormative society. The gender minority stress framework adds to these theoretical frameworks by building on the constructs in these frameworks and including further minority stressors which may explain the disparity with more detail. Evidence from the GMSF has demonstrated clear negative associations of minority stress on the mental health of trans people (Bockting et al., 2013; Budge et al., 2013; Budge et al., 2020; Budge et al., 2021; K. B. Jackman et al., 2018; Kaplan et al., 2019; Klemmer et al., 2021; Tabaac et al., 2018). However, all the studies cited have omitted the potential role of microaggressions as either proximal or distal minority stressors and their associations with mental health outcomes. In the next section I will detail the current state of microaggressions research amongst the trans community.

1.5 Microaggressions and mental health

1.5.1 Defining microaggressions

One hypothesised risk factor for NSSH, suicidal thoughts, and suicide attempts in the trans community that has been mentioned is microaggressions. Microaggressions are defined as brief commonplace daily verbal, behavioural, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative slights and insults towards marginalised communities (Nadal, 2013; Sue et al., 2007). The first use of microaggressions in the psychiatric literature was to describe experiences of Black African American people (Pierce, 1974). Pierce (1974) described microaggressions as “black-white racial interactions that are characterised by white put-downs, done in an automatic, preconscious, or unconscious fashion”. Microaggressions have been further categorised into three broad types: microinsults, microassaults, and microinvalidations (Nadal, 2014; Sue et al., 2007; Woodford et al., 2015). A microinsult is a statement or behaviour that individuals unintentionally or unconsciously communicate discriminatory messages to members of marginalised communities. A microassault is an overt and conscious-explicit or subtle slight and insult expressed to marginalised communities. A microinvalidation is a verbal statement that denies negates or undermines the realities of members of marginalised communities. Whilst some researchers have challenged the notion of microinvalidations as being a microaggression and instead represents an overt act of hostility (Lilienfeld, 2017), it is precisely why they are included under microaggressions, as they demonstrate an argument that microaggressions by nature are not micro, and instead have macro-level effects on marginalised communities (Sue et al., 2007; Williams, 2021a).

There is an overarching theme to microaggressions and their taxonomy. Microaggressions appear to differ in popular conceptualisations and operationalisations of prejudice and discrimination. As has been described in the literature, microaggressions are born from social prejudices, in that microaggressions are caused by socially conditioned biases towards marginalised and minoritised identities (Williams, 2020). Williams (2020) provides a comprehensive overview of microaggressions in relation to racial microaggressions. Their work discusses microaggressions as the driving vehicle for which social hierarchies are maintained. Social hierarchies preclude the dominance of an “in-group” and microaggressions are a means of ensuring dominance of the “in-group” at the expense of the “out-group”. Therefore, microaggressions can be seen as a tool of prejudice, or a means of enacting unconscious (or conscious) prejudices and biases on marginalised groups. Furthermore, a common critique for microaggressions is how these acts are defined (Lilienfeld, 2017). Lilienfeld (2017) discusses the term “micro” and interprets this to mean “barely visible”. However, the definition of “micro” in the context of microaggressions is to contrast with its opposite “macroaggression” which is an act resulting in tangible harm, such as physical assault (Williams, 2020). Similarly, the term “aggression” is often identified as a behaviour intended to cause harm to another. Whilst microaggressions often occur intentionally but also unintentionally, the definition of aggressions applies slightly differently here, by which the *aggression* is implied to occur when the target rejects the microaggressions, thereby making one afraid to confront the perpetrator for fear of reprisal (Williams, 2020). This fear of reprisal is common when an outcome is likely to have been experienced before, such as embarrassment on the perpetrators side and how this can manifest in defensive and angry behaviours, thus further denigrating the victim of the microaggression.

1.5.2 Associations with depression, anxiety, NSSH, suicidal thoughts, and suicide attempts

Other marginalised communities

Previous research on microaggressions in specific marginalised communities has found strong evidence that microaggressions increased risk of depression, anxiety, NSSH, suicidal thoughts, and suicide attempts (Chen et al., 2021; Gattis & Larson, 2017; T. Kaufman et al., 2017; Torres-Harding et al., 2012). Several studies have investigated the association of sexual orientation microaggressions and mental health, i.e., covert acts of sexual prejudice, were associated with increased anxiety and depression, and being indirectly associated with increased depression through self-identity disturbance (Abreu et al., 2023; Carone et al., 2023; Chen et al., 2023; Crane et al., 2022; Kalb, 2021; Nadal, 2023). For example, Chen et al. (2021) examined sexual orientation microaggressions using the Sexual Orientation Microaggression Inventory (SOMI), depression using the Centre for Epidemiological Studies – Depression Scale (CES-D), and anxiety using the State Subscale on the Chinese Version of the State-Trait Anxiety Inventory (STAI-S). The SOMI examines anti-gay attitudes and expressions, denial of homosexuality, and societal disapproval over six months. The authors examined the

SOMI, CES-D, and STAI-S in a cross-sectional study of 1000 participants (500 female and 500 male) in China, finding through structural equation modelling that microaggressions were both directly and indirectly associated with depression as well as anxiety. Another example, taken from racial microaggressions shows similar associations with mental health, finding that microaggressions were associated with increased depressive symptoms (Abreu et al., 2023; Gattis & Larson, 2017; Mereish et al., 2022). For example, Abreu et al. (2023) examined racial microaggressions through an intersectional lens with sexuality. In their cross-sectional study of 1292 Latinx sexual and gender minority youth the authors used the LGBT People of Color Microaggressions Scale to examine three facets of intersectional microaggressions, these comprising of: LGBTQ racism, people of colour (POC) heterosexism, and LGBT relational racism. Depressive symptoms were examined using the 11-item Kutcher Adolescent Depression Scale. All three subscales were associated with increased depressive symptoms suggesting that intersectional experiences of microaggressions, i.e. sexual orientation microaggressions together with racial microaggressions influenced mental health. Another marginalised group with elevated experiences of microaggressions are disabled people with greater ableist microaggressions being associated with greater depressive symptoms (Conover & Israel, 2019; Kattari, 2020; Lett et al., 2020). For example in Kattari (2020), 311 US adults with disabilities were recruited to a cross-sectional study. The authors used the Ableist Microaggressions Scale to assess ableist microaggressions, and the Mental Health Inventory 18-item scale to assess for anxiety, depression, behavioural control, and positive affect. The Ableist Microaggressions Scale contains 65 items related to ableist interactions. These interactions include the interpersonal (being told by others that you are burdensome, putting large amounts of effort into accommodation needs are met), and around visibility (seeing oneself portrayed negatively in the media). The authors analysed the data using correlation analysis finding that higher frequencies of ableist microaggressions were negatively correlated with the MHI 18-item version. This suggests that increased microaggressions resulted in diminished positive mental health.

In the trans community

Parallels are found within the experiences of trans people and microaggressions, and their associations with depression, anxiety, NSSH, suicidal thoughts, and suicide attempts. One scale of microaggressions has been developed and psychometrically validated within the trans community, the Gender Identity Microaggressions scale

(GIMS), and is currently based on the definitions as outlined by Sue et al. (2007). Only two studies were found to have used the GIMS in a sample of 292 trans women and men in the United States, finding positive correlations between microaggressions and feelings of shame and internalised transnegativity, and a negative correlation with mental wellbeing (Cascalheira & Choi, 2022, 2023). However, despite the dearth of research using validated measures of microaggressions, other studies using their own items studies found that microaggression experiences were common and frequent (Spatrisano, 2019; Woodford, Joslin, Pitcher, & Renn, 2017). One study of 152 trans people in the United States asked participants to report the frequency of environmental microaggressions with 80% of the participants reported experiencing microaggressions frequently or very frequently (Woodford, Joslin, Pitcher, & Renn, 2017). An environmental microaggression refers to environments which are constructed with the implicit or explicit exclusion of trans people. In a cross-sectional sample of trans people, microaggressions were commonly experienced with an average of 1.1 to 1.4 microaggressions experienced weekly.

Generally, evidence from the cross-sectional studies, suggests increases in suicide attempts as well as anxiety (including perceived stress), and depressive symptoms as a consequence of microaggressive experiences (Austin et al., 2022; Nadal, 2018; Seelman et al., 2017; Wike et al., 2021). In terms of mental health, some cross-sectional, small-scale work found associations between increased microaggressions and NSSH, suicidal thoughts, and suicide attempts (Austin et al., 2022; Matijczak et al., 2021; Wike et al., 2021). In one example of 1292 Latinx LGBT youth, Latinx trans youth experienced more intersectional microaggressions (microaggressions related to multiple aspects of one’s identity) and this was associated with increased depressive symptoms compared to Latinx sexual minority cisgender youth (Abreu et al., 2023). The experience of microaggressions have also been shown to predict self-esteem amongst trans and non-binary participants. For example, in one study exploring microaggressions and victimisation targeting Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) college students, 72 trans students were recruited and found that microaggressions predicted self-esteem (Seelman et al., 2017). Suggesting that for every increase in microaggression experience, a decrease in self-esteem was predicted.

Little evidence currently exists about the relationship between trans microaggressions and depression, anxiety, NSSH, suicidal thoughts, and suicide attempts. Calls have been made for the need for large quantitative studies to explore these relationships further as current research within trans microaggressions has employed small scale studies, taken a primarily qualitative method, and/or have not been adequately explored outside the wider LGBT spectrum (K. L. Nadal, K. C. Davidoff, et al., 2014; Nadal et al., 2016). Studies from other marginalised communities have provided evidence of a relationship between microaggressive experiences and anxiety, for example amongst lesbian, gay, and bisexual Taiwanese youth and among racial and ethnic minorities (Liao et al., 2016). As for suicidal thoughts and suicide attempts within the trans community, some evidence exists that nonaffirmation is associated with suicidal thoughts and attempt amongst trans people (Parr & Howe, 2019). More work has found this association between microaggressions and suicidal thoughts within the wider LGBTQ community, however evidence amongst trans people specifically is needed to understand microaggressions as a mechanism underpinning the suicide burden.

1.5.3 Methodological issues with microaggressions research

The main concern for the literature on microaggressions is the lack of available large scale epidemiological studies on the impact of microaggressions on mental health in the trans community (Nadal et al., 2016). Common issues relating to methodological quality in studies on microaggressions and mental health are the use of unvalidated measures of microaggressions, leading us to question the validity of the research (Singh et al., 2021). The issue of validity in conjunction with the little justification on the sample size, with no calculation given to ascertain power, leads us to question the robustness of the evidence.

Small sample sizes are a common problem within trans health research affecting statistical power (Anderssen et al., 2020; Hawke et al., 2021). Many samples are recruited from clinical populations as well as lack sampling from minoritised ethnic communities, disabled trans people, and those from lower socioeconomic statuses (de Graaf et al., 2020; Sari L Reisner et al., 2014; Witcomb et al., 2018), affecting our ability to generalise the findings to non-clinical samples, as well as introducing selection bias to the findings (Pruchno et al., 2008). Selection bias arises in the clinical samples, as those who attend gender identity clinics may differ from those who are unable/do not wish to attend clinics (Association, 2015; Thorne et al., 2019). Samples are also on the whole taken from non-random samples such as those in contact with charitable organisations, or services (Asscheman et al., 2011; De Cuypere et al., 2006; Johansson et al., 2010; Maguen & Shipherd, 2010; Mereish et al., 2014; Sari L. Reisner et al., 2014; Spack et al., 2012; Spittal et al., 2015). Sample demographics are also skewed towards those who are white, as trans people of colour often face disincentive from participating in research due to the lack of engagement from researchers with community members (De Vries, 2015). Therefore, there is a need to enhance our understanding of the mental health of the transgender community using large representative samples beyond those from gender identity clinics.

Longitudinal research is required to strengthen causal inferences on the association between microaggressions on the mental health of trans people. Currently the literature only offers cross-sectional analyses, and falls short on establishing key Bradford Hill criteria for causation, namely, dose-response and temporality (Hill, 1965). The Braford Hill criteria for causality is a set of assumptions which need to be met in order to assess the strength of an association's causal properties. The criteria set out the following assumptions: temporality (exposure proceeds the outcome), biological gradient (dose-response, i.e., more of the exposure means more of the outcome), plausibility (is there prior evidence or anecdotal evidence that exposure causes the outcome), strength (a large effect size may indicate causal properties of the exposure on the outcome), consistency (does the exposure-outcome association occur multiple epidemiologic studies), specificity (does the exposure occur specifically within population or could there be other explanations), coherence (does the exposure's impact on the outcome make sense with what is understood about the development of the outcome), experiment (has an appropriate study design been employed that can test for causal inferences, i.e., longitudinal observational data or randomised controlled trial), and analogy (is the exposure-outcome relationship similar to other relationships) (Schünemann et al., 2010). With reference to biological gradient as one of the Bradford Hills criteria for causality, It has been argued that microaggressions have a cumulative impact on mental health and wellbeing, therefore it is expected that as the frequency of microaggressions increases the greater the deleterious impact they will have on mental health (Kattari, 2019; K. L. Nadal, K. E. Griffin, et al., 2014). However, Bradford Hill's criteria does not explicitly account for threshold effects, i.e., that a certain level of exposure is required before an effect on the outcome is observed. Biological gradient (dose response) attempts to touch upon the concept by considering whether there is a proportional relationship between exposure and outcome. However, this does not specifically address the presence or absence of a threshold (Shimonovich et al., 2021). Despite this issue of threshold effects and causation, there is an argument for dose-response and microaggressions, in that microaggressions are not often experienced as solitary moments, rather as multiple moments throughout the course of a day, week, or month (Kattari, 2019). Experiencing several microaggressions within relatively quick succession may plausibly have a larger impact on an individual compared to those who experience one microaggression. Recent work has investigated microaggressions on depressive symptoms among medical students using a cross-sectional survey and found potential evidence for a dose response, i.e. those who experienced microaggressions daily had an increased odds of 9.38 (95%CI 3.71 to 26.69) of having depressive symptoms compared to those who never experienced microaggressions, and those who experienced microaggressions at least once weekly had a 3.87 increased odds of experiencing depressive symptoms compared to those who had never experienced microaggressions (Anderson et al., 2022). However, it is unclear what the temporal relationship for this association is and it therefore falls short on establishing causality.

Considering the methodological flaws of the research field there is a need to examine the associations between microaggressions and mental health using a large sample of trans people in the UK.

1.6 Thesis Aims

The overarching aim of my thesis is to further explore the relationship between microaggressions and the mental health of trans and non-binary people. To do this I aim to use longitudinal methods to improve our understanding of microaggressions and their associations with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts in the UK context. To do this, I will present three empirical chapters relating to the baseline findings of the survey, a follow-up longitudinal analysis of this work, and a subscale analyses to examine mechanisms underpinning microaggressions. This work will contribute to understanding the role of microaggressions as a putative causal factor that may lead to poorer mental health experienced by trans and non-binary people.

The overarching thesis aims are:

Aim one (covered in Chapter 3): To conduct a baseline cross-sectional study recruiting a large and demographically diverse sample of transgender and non-binary people in the UK to investigate the association between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts in the trans community.

Aim two (covered in Chapter 4): To conduct a longitudinal study, focusing on microaggressions, depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts to gain a more accurate understanding of the temporal relationship between microaggressions and the mental health of the trans community.

Aim three (covered in Chapter 5): To examine specific microaggression experiences taken from the Gender Identity Microaggressions Scale as separate risk factors for depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, to better understand specific microaggressions as mechanisms underpinning the mental health burden in the trans community.

1.7 Outline of Chapters

In the next Chapter, Chapter 2: Methods, I will outline the methods used for the empirical studies of this PhD thesis. I will reflect on my ethical position as an insider researcher and discuss the ethics of working with the trans community. In Chapter 3 I will begin my exploration of microaggressions using the baseline data from the TRANS: Microaggressions & Mental Health survey to assess associations between microaggressions and mental health outcomes at one time point. Following this, in Chapter 4, I will address the lack of longitudinal research within the field by repeating the survey with a sample taken from the baseline. This will allow me to examine any temporal relationships between microaggressions and mental health outcomes. In the final empirical study, Chapter 5, I will address questions on the underlying mechanisms microaggressions play in the associations between microaggressions and mental health.

CHAPTER 2: METHODS

2.1 Abstract

This chapter will describe the methods used in the TRANS: Microaggressions & Mental Health Project; a longitudinal study of trans and non-binary people in the United Kingdom. The study captured data at two time points, baseline and one-year follow-up, to test the following hypotheses:

Hypothesis one (results presented in Chapter 3): Those who experience more microaggressions will have higher scores on the depressive symptoms, anxiety symptoms, and higher odds of NSSH, suicidal thoughts, and suicide attempts compared to those who experience fewer microaggressions.

Hypothesis two (results in Chapter 4): Microaggressions experienced at baseline will be associated with an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts at one-year follow-up.

Hypothesis three (results in Chapter 5): I hypothesised that experiencing specific microaggressions would be associated with specific mental health outcomes, both at baseline and at follow-up.

Denial of gender identity, denial of societal transphobia, invasion of bodily privacy, and behavioural discomfort from others will be associated with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, both at baseline and at follow-up.

2.2 The role of coproduction

Coproduction in research refers to the collaborative process in which researchers work with individuals or communities who have a stake in the research outcomes (Verschuere et al., 2012). It involves sharing decision-making power and resources to ensure that the research is conducted in a way that is meaningful, relevant, and useful to those involved (Verschuere et al., 2012). The concept of coproduction recognizes that research should not be done to people but rather with people. By involving stakeholders in the research process from the beginning, researchers can ensure that the research questions are relevant to the community, that the research design and methods are appropriate, and that the findings are useful and accessible to the stakeholders.

A central tenet to coproduction can be summed up as “nothing about us without us”; a simplistic phrase which places those with lived experience at the centre of the research process. To meet this requirement, the survey questionnaire was coproduced with a group of five trans people with lived experience of microaggressions and mental health problems. I recruited coproduction group members through my connections with academics and activists within the trans community. All five members were white, under the age of 35, and had experiences of depression, anxiety, NSSH, suicidal thoughts, and suicide attempt, as well as experiences of transphobic microaggressions. Coproduction group members were approached by myself in informal conversations. This informal and relaxed approach likely drove the lack of diversity within the group, as I did not recruit through further networks to incorporate a wider range of demographic backgrounds. The coproduction group members were given an explanation of the coproduction process, informed that their participation would help guide the basis of the research, and that they would be invited to consult on the design of the study, as well as interpretation of the results. Due to funding limitations, coproduction team members were not paid for their participation. Paying for expertise through lived experience is an important facet of coproduction. It signifies that the group members’ experiences are valued within the research process and attempts to ensure that group members are treated as vital members of the research community. The lack of financial incentive had some impact on the success of the coproduction efforts. I was mindful to not overburden group members, however this may have resulted in my own voice dominating development of the survey materials, particularly the participant information leaflet and consent form. Work with this group is ongoing as I enter the dissemination phase of the thesis. After initial discussion of ideas around microaggressions, members were presented with the first questionnaire draft and asked to reflect on the acceptability of the survey tool, offer edits for clarification, and comment on the importance of the research questions. I piloted the instrument with the coproduction group to ensure functionality of the survey programme and clarity of instructions.

The group met initially to discuss the issue of microaggressions and how these have affected their lives with myself present for the discussion. This conversation elicited several factors which were pertinent to the thesis' research questions, but also to wider issues that may influence trans mental health, e.g., loneliness. Further to this, a coproduction approach was used to improve the acceptability of survey questions and comprehensiveness of the survey whilst also considering the overall question burden on participants. To achieve this the group members were sent copies of the survey and asked to comment on its length and how long it took for them to complete.

2.3 Baseline survey

2.3.1 Instrument

The baseline survey variables were selected to investigate social and psychological factors hypothesised to influence, and be associated with, the mental health of trans people and were identified in discussion with the coproduction group. The survey included validated measures of a) the exposure: Gender Identity Microaggressions, b) the five outcomes: depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, suicide attempt, and c) other variables hypothesised to influence trans mental health: gender minority stress, and rumination (for future analyses). All these measures are discussed in more detail, including psychometric properties, in section 2.2.5.

The survey was conducted using Opinio, a secure survey management software program. The collected data are directly saved onto a secure UCL server. I elected to use Opinio based on previous positive experiences of mental health researchers and research participants using this, and because the software was available to students and staff based at UCL at no cost. The software allowed for the branching of survey questions and was compliant with UK General Data Protection Regulations (Opinio, 2023).

Participants were included if they identified as trans, non-binary, and/or gender diverse, were aged eighteen or older at the start of the survey and had resided in the United

Kingdom for 12 months or longer. An age cut-off of 18 was chosen due to the ethical considerations around consent and assent in research studies involving children and young people under the age of 18 whereby obtaining informed consent from children and adolescents under the age of 16 must be accompanied by consent provided by a legal guardian or primary caregiver.

2.3.4 Sampling strategy

The baseline survey was launched in September 2021, and data collection closed in September 2022. I advertised the study on social media (Twitter, Facebook, and Instagram), with the support of large trans charities and organisations such as Gendered Intelligence in sharing the survey details. Gendered Intelligence did not have any input in the study design and were used to disseminate the baseline survey. Dissemination through these organisations' reach on social media has been considered a better recruitment strategy amongst minoritised and marginalised populations due to the interconnectivity of communities across social media compared to traditional recruitment methods such as multisite data collection (Dosek, 2021; Leighton et al., 2021). Achieving diversity was important because trans people of colour and disabled trans people are often overlooked and underrepresented in the research field (Barnett et al., 2019; Love et al., 2017). Under-representativeness of marginalised groups means that we are unable to offer tangible insights from inferential analyses, as the results of these analyses are would not be generalisable to the wider community (Asmal et al., 2022). I made efforts to recruit those who are historically neglected in trans and non-binary health research, in an effort to correct limitations related to generalising of research findings (Lett & Everhart, 2022). This includes people living in geographically diverse and neglected areas, people from minority ethnic communities, non-binary, and older trans people (Flanagan, 2017). (Flanagan, 2017). Recruitment of marginalised communities was conducted through advertisements via social media on the need for these groups to take part, and by providing mention of these groups within the participant information leaflet. Emphasis was placed on the processes taken to ensure participants' identities could not be discovered.

2.3.5 Ensuring Anonymity

The current social climate in the United Kingdom for trans and non-binary people is volatile, and there is also a considerable stigma around mental ill health. Therefore, it was important to reassure participants of the careful safeguards around anonymity and confidentiality that mental health researchers are required to follow, as described in my application for UCL ethical approval and in participant information leaflets. To ensure participants' data were pseudonymised, my dataset did not contain any information on the date of birth, names, addresses, or other highly identifiable information. I collected email addresses from those who wished to receive study outputs, the lay summary, and/or to correct or delete their submitted data. These email addresses were separated from the main dataset and stored in a separate dataset. This separate dataset is housed and protected within UCL's Data Safe Haven, which requires a user id login, password, and pin with randomly sequenced digits to access. Access is also restricted to myself and my principal supervisor to reduce the risk of data loss or theft.

2.3.6 Sample size calculation

I conducted several sample size calculations using Stata's power command. To calculate a sample size for a study using two means the following formula is used:

$$N = \frac{\left[(4\sigma 2)\left(Z\left(1-\left(\frac{\alpha}{2}\right)\right) \; + \; Z(1-\text{ß})\right)2\right]}{E2}$$

Where:

N = total sample size (number of experimental units within both treatments)

σ = assumed standard deviation of each treatment response (both treatments assumed equal)

$Z_{(1-(\alpha/2))}$= related to the chosen significance criterion α

$Z(_{1\text{-ß})}$= related to the chosen power, or sensitivity of the experiment;

E = minimum detectable difference between means

Initially I identified beta coefficients (*E*) reported in previous literature and used these to estimate sample size based on 80% power and an alpha of 0.05 (Bostwick et al., 2021; Fay, 2015; Keum & Wong, 2022; Lett et al., 2020; Lillian, 2020; Woodford et al., 2015). After consultation with a statistician, I produced a spread of sample sizes based on small to medium effects, to illustrate a range of sample sizes required to detect a range of beta coefficients. This was done by using small increments of the effect size (0.05 increases) between 0.1 and 0.5 under the assumption that the effect size would fall between a small and medium size, these are displayed in Table 2-1. For each sample size calculation, I replaced *E* with the corresponding hypothetical effect size figure, keeping the standard deviation, power level, and alpha consistent. The assumed standard deviation (*σ*) was assumed to be equal, the chosen power (b) was 80%, and the a was set at 5%. Sample size calculations were calculated using Stata's power function.

Table 2-1: Sample size for a continuous outcome 1

EFFECT SIZE	TOTAL SAMPLE SIZE
0.1	1047
0.15	463
0.2	259
0.25	165
0.3	113
0.35	82
0.4	62
0.45	48
0.5	38

For depressive symptoms, using the PHQ-9, I identified effect estimates taken from standardised regression estimates examined in other studies of marginalised participants as no studies currently exist to draw estimates from (Keum & Wong, 2022; Lett et al., 2020; Woodford et al., 2015). These estimates ranged from 0.28 to 0.38 and were associated with internalised racism, ableist microaggressions, and LGBQ microaggressions with depressive symptoms. Conventionally, a well-designed study is one that has calculated its power at 80% with and alpha of 0.05. The alpha is related to chance, and 0.05 indicates that there is a 5% likelihood that the finding is due to chance. Some studies may wish to increase the power to 90%, and power simply refers to the probability of rejecting the null hypothesis. Power is important to ensure studies have the ability to accurately detect significant differences in their statistical models, without which the findings will have little impact (Kraemer & Blasey, 2015; Suresh & Chandrashekara, 2012). Therefore, to have 90% power, assuming an alpha of 0.05, with a standardised regression estimate of 0.28 between microaggressions and PHQ-9, I calculated the required sample size of 130 participants. Similarly, with a coefficient of 0.38, the sample size was calculated at 69.

For anxiety symptoms, using the GAD-7, I similarly acquired correlation coefficients assessed in other studies of marginalised participants, as studies on microaggressions and anxiety symptoms in the trans population do not exist (Bostwick et al., 2021; Fay, 2015; Lillian, 2020). These regression estimates ranged from 0.28 to 0.33 and focused on associations between racial microaggressions, LGBQ microaggressions, and gendered microaggressions (against cis women) and anxiety symptoms. To have 90% power, assuming an alpha of 0.05, with a correlation coefficient of 0.28, the sample size was calculated at 130 participants. Similarly, with a standardised regression estimate of 0.33, the sample size was calculated at 92.

For the binary outcomes of NSSH, suicidal thoughts, and suicide attempts, no specific proportions are available from previous studies on microaggressions and suicidal thoughts. However, I estimated the required sample size based on the assumed effect size and desired statistical power. Given a correlation coefficient of 0.13 between suicidal thoughts scores and microaggressions observed in a similar study, I anticipated a weak relationship between the two variables. To detect a small effect size, I assumed that a per unit increase in exposure (microaggressions) would result in a 13% increase in the odds of experiencing NSSH, suicidal thoughts, or suicide attempt.

To achieve a statistical power of 90% with a significance level of 0.05, I performed a sample size calculation using appropriate statistical methods (e.g., power analysis). Based on these calculations, I determined that a sample size of 152 participants is required to detect the assumed effect size reliably.

It is important to note that since no specific proportions were available, the estimated sample size may therefore be subject to assumptions and limitations. Firstly, the assumption I am making is that the effect size will be small (0.13), however this may be larger than the true effect size, therefore the limitation here includes being underpowered to detect an even smaller effect size. However, this sample size estimation provides an initial guideline for conducting the study on microaggressions and their relationship with NSSH, suicidal thoughts, and suicide attempts.

To arrive at a decision on target sample size, I selected the largest estimate of sample size based on the smallest reasonable effect size to ensure all analyses were adequately powered. Therefore, the final sample size was selected at 463 participants to detect an effect size of 0.15 with 90% power and an alpha of 0.05. Whilst 463 would be considered a good sample size, it is important to reflect on some of the issues which arise from the use of convenience samples and how this relates to sample size calculations. First, convenience samples are on the whole non-representative, therefore leading to potentially biased results from hypothesis testing. Secondly, there is an increased risk of selection bias, i.e., certain groups being more likely to participate than others leading to an underrepresentation from specific groups. Thirdly, limitations in external validity. External validity related to whether the anticipated effect can be generalised to other populations. Because of the lack of representativeness, there may be an overestimation of the study's external validity, as the sample size calculation has not considered the reduced generalisability.

2.3.7 Measures

Outcomes

Depressive symptoms

Depressive symptoms were measured using the Patient Health Questionnaire – 9 item version (PHQ-9). The PHQ-9 has good psychometric properties and has been used to assess depressive symptoms in gender and sexual minorities, showing good convergent validity and internal consistency (Bazargan & Galvan, 2012; Nguyen et al., 2016; Timmins et al., 2018). The PHQ-9 is comparable to the gold standard diagnostic interview for the assessment of mild, moderate, and severe depressive symptoms (McMillan et al., 2010). This measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with nine items such as *"little interest or pleasure* *in doing things"* choosing from the following options "Not at all," "Several days," "More than half the days," and "Nearly every day." Scores range from 0-27 with cut-offs at 0-4 for no depressive symptoms, 5-9 for mild, 10-14 for moderate, 15-19 for moderately severe, and 20-27 for severe. The PHQ-9 is a widely used tool when assessing and screening for depressive symptoms both in research studies but also in clinical (general practice; secondary care; Increasing Access to Psychological Therapies (IAPT)) settings. This allows for comparability with depression scores from general population samples.

Anxiety symptoms

Anxiety symptoms were assessed using the Generalised Anxiety Disorder Scale – 7 item version (GAD-7). The GAD-7 has been well validated as a brief screening measure that is sensitive to change and acute symptom presentation (Richardson et al., 2010). The GAD-7 is also widely used and considered comparable to the gold standard assessment of the Structured Clinical Interview for Diagnostic Statistical Manual, or the Revised Clinical Interview for the assessment of mild, moderate, and severe anxiety (Plummer et al., 2016). As per the PHQ-9, the measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with seven items such as *"Feeling nervous, anxious, or on edge"* choosing from the following options "Not at all", "Several days", "More than half the days", and "Nearly every day". Scores range from 0-21, with 5 indicating mild anxiety symptoms, 10 moderate, 15 moderate-severe, and 20 severe. The GAD-7 has excellent internal consistency and validity (Rutter & Brown, 2017). The GAD-7 is widely used in research settings and secondary services such as IAPT but is also used in primary care settings as a screening and assessment tool for generalised anxiety. This allows for comparability with anxiety scores from general population samples.

Non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts

NSSH, suicidal thoughts, and suicide attempts were assessed using self-reported measures taken from the Adult Psychiatric Morbidity Survey (APMS) questionnaire (McManus et al., 2014). This questionnaire investigated the lifetime prevalence of suicidal thoughts, attempts, and NSSH. Using this survey allows for direct comparability with population norms i.e., APMS data on a representative sample of the general population. The question wording was as follows: *"Have you ever thought life was not worth living?"* (suicidal thoughts), and *"Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?"* (suicide attempt) and *"Have you* *ever deliberately harmed yourself in any way but not with the intention of killing yourself?"* (non-suicidal self-harm). Participants then responded with one of the following "Yes," "No," and "Prefer not to say." Scores were coded in a binary manner, with 0 relating to no suicidal thoughts, attempt, and/or NSSH, and 1 as having experienced suicidal thoughts, attempt, and/or self-harm. I created a binary measure denoting the presence or absence of each, acknowledging that outcome might precede exposure using a lifetime measure. Other measures which were considered were the Self-Efficacy to Avoid Suicidal action (SEASA). The SEASA assesses a person's capacity to refrain from attempting suicide, with lower scores indicating lower capacity. The measure has high content validity, construct validity, test-retest reliability, and convergent validity (Czyz et al., 2014). I also looked at the Adult Suicidal Ideation Questionnaire (ASIQ). The ASIQ has high internal consistency and test retest reliability and is a widely used measure (Reynolds, 1991). However, I decided to use the APMS measures on the basis that these standardised measures allow comparison with population samples, and for consistency in question wording for suicidal thoughts, suicide attempts, and NSSH.

Exposures

Gender Identity Microaggressions

To measure microaggressions I used the Gender Identity Microaggression Scale (GIMS). The GIMS is a 14-item scale with five subscales relating to lifetime experiences of a) denial of gender identity, b) misuse of pronouns, c) invasion of bodily privacy, d) behavioural discomfort, and e) denial of societal transphobia from others. There is good internal consistency within the scale and the five subscales (Nadal, 2018). Scores on the scale are summed to produce a total overall score and the five subscale scores can also be used as separate measures. Higher scores indicate more experiences of gender identity microaggressions.

Currently the GIMS lacks robust validity evidence likely due to its novelty and its focus on an under researched community. However, the GIMS is the only measure to explicitly measure microaggressions experienced by the trans community. Nadal's initial paper suggest strong Cronbach's alphas for the total scale (0.76), and medium to strong for each subscale (0.60 to 0.71) suggesting good internal consistency within the measure. I have defined each subscale in turn to provide important context.

The denial of gender identity is where a trans person is told that their gender identity is not correct. This may result in a trans person being told that they are not their affirmed gender, rather that they are their sex assigned at birth. The misuse of pronouns involves other people using pronouns that do not correspond with the trans person's gender identity. Invasion of bodily privacy refers to statements or behaviours where cis people objectify a trans person's body, such as asking inappropriate questions about their genitals. Behavioural discomfort refers to occurrences whereby trans people are treated with disrespect or condemnation, here this may be a person acting uncomfortable when they find out someone, they are interacting with is trans. Finally, denial of societal transphobia refers to instances whereby a cis person refuses to acknowledge structural or societal biases against trans people, for example, when a trans person discusses their anxieties of transphobia from public figures and how this is pervading wider society, only to be told that transphobia does not exist (K. Nadal et al., 2014).

The advantage of GIMS compared to other measures of microaggressions is that it is the only measure of microaggressions that has a focus on microaggressions experienced by trans people. Several other scales have been developed that places focus on the experiences of the wider LGBT community and non-binary people (Croteau & Morrison, 2022; Huynh et al., 2022). These measures differ from the GIMS by centring microaggression experiences such as invisibility or dismissal of identity, and similarly binary assumptions (assuming someone is either a man or a woman), as well as issues faced by cisgender LGB people (Huynh et al., 2022). This makes their applicability to trans experiences either irrelevant (as is the case in cisgender LGB microaggressions) or too narrow (as is the case for non-binary microaggressions). One disadvantage of the GIMS is that it captures lifetime experiences of each type of microaggression but without the ability to pinpoint their onset.

Confounders

To address the possibility of confounding, I identified potential confounders *a priori*, based on the literature describing their association with both exposure and outcomes. Confounders were selected from the basis of other studies which described similar analyses and standard epidemiological practice, but also through extensive consultation with the coproduction group and as a result of peer review (for the inclusion of stage of physical/social transition and loneliness).

Perceived gender

Perceived gender in this context is the participants' belief of how others perceive their gender to be. There is an understanding that those who felt they were more often perceived in a way different to how they feel, might experience different outcomes compared to those who believe they are perceived in the same manner as how they feel. Being visibly trans opens potential negativity from others, especially in transphobic and trans-hostile societies and communities. Conversely being perceived to be the gender one identifies with may offer some protection against trans-hostility, especially in the case of binary presenting trans people (i.e., those who present as women being identified as women by others). Whilst these examples highlight potential scenarios, the issue lies within the perceptions of others being incongruent with the individual's identity and therefore there are several potential configurations which may open up hostilities from a perpetrator.

Individuals who believe they are more frequently seen as a trans person, or as the sex they were assigned at birth, experience more microaggressive events (Parr & Howe, 2021). Furthermore, believing one is being perceived as trans or as the sex a trans person was assigned at birth has been linked to increased depressive symptoms (Aversa et al., 2021).

Age

Age has been identified as a factor associated with microaggressions, with a tendency for the experience of gender identity based microaggressions to decrease as age increases (Parr & Howe, 2021). However, this decrease in gender identity microaggressions may be replaced with increases in age-related microaggressions arising from ageism (Gietzen et al., 2023). Additionally, evidence suggests that age is associated with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts (de Lijster et al., 2017; Fairweather-Schmidt et al., 2010; Ramchand et al., 2022; Schaakxs et al., 2017). Population-based studies in the UK indicate that individuals aged 45-59 have a significantly higher prevalence of probable depressive disorder compared to those aged 16-29 (de la Torre et al., 2021). Despite decreases in gender identity based microaggressions, evidence suggests that factors such as age-related microaggressions may play a role in this increase, as well as other factors i.e., loneliness (Gietzen et al., 2023; S. L. Lee et al., 2021). Similarly, there are age-related associations with anxiety symptoms and NSSH, suicidal thoughts, and suicide attempts, with a decrease in suicidal thoughts, plans, and attempts as age increases (Ramchand et al., 2022). Moreover, anxiety symptoms tend to be higher in younger age groups compared to older age groups (Gambin et al., 2021). Given these findings, it is plausible that age may act as a confounding factor in the relationship between microaggressions and depressive symptoms within my sample.

Education

Education was selected as an indicator of socioeconomic status (SES). SES is defined as a person's work experience and of an individual's economic access to resources and social position in relation to others (Oakes & Rossi, 2003). Studies have often shown that as educational attainment increases, there is a decrease in prejudice (Carvacho et al., 2013). Carvacho et al. (2013) however, investigated this relationship further and hypothesised that the connection between social class (education and income) and prejudice is explained by system-legitimating ideological attitudes and namely right-wing authoritarianism. The authors found across Europe using cross-sectional surveys and longitudinal data that education and income did have negative effects on prejudice, i.e., as education and income increase, prejudice decreases. However, they found that right wing authoritarianism mediated the relationship. When considering this within microaggressions, there is evidence that education level may predict microaggressions considering microaggressions arise from prejudice and act as the vehicle for enacting prejudice against minoritised communities (Williams, 2020). Education is also a predictor of mental health distress, in which gaining additional educational achievements is associated with reductions in the risk of future depression (Araya et al., 2003; Chevalier & Feinstein, 2006).

Sexuality

Lesbian, Gay, and Bisexual (LGB) people are at a higher risk of adverse mental health conditions such as depressive symptoms, anxiety symptoms, and suicidal thoughts and behaviours when compared to heterosexual people (King et al., 2008; Kneale et al., 2021b). There is also evidence that LGB individuals experience specific forms of microaggressions relating to their sexuality (Miller & Smith, 2021; Nadal et al., 2016). These interpersonal and environmental microaggressions are manifested in the form of hostile messages towards sexual minorities (Woodford et al., 2015). There is evidence that LGB people are at increased risk of microaggressions (Wright & Wegner, 2012) and that these microaggressions may increase risk of depressive symptoms and anxiety symptoms (Wright & Wegner, 2012).There are a multitude of putative causes for the mental health disparity in sexual minority individuals. The leading theory is the minority stress theory. Where exposure to additional stressors related to stigma and discrimination are found to increase risk and prevalence of mental ill health. Intersectionally, bisexual people often fare worse in mental health given unique experiences of biphobia from the wider sexual minority community as well as heterosexual peers (Dunlop et al., 2020; Hertlein et al., 2016; Welzer-Lang, 2008). This unique experience of biphobia is also associated with bisexual specific microaggressions which have been associated with worse mental health (Bostwick & Hequembourg, 2014; Salim et al., 2019).

Disability

People with disabilities, including physical disability and neurodiversity, are at an increased risk of experiencing disability-specific microaggressions (Keller & Galgay, 2010). Examples of microaggressions specific to those with disabilities include patronisation, desexualisation, and second-class citizenship (Miller & Smith, 2021). People with disabilities also show an increased risk of developing poor mental health when compared to able-bodied people (Lai et al., 2019; Simonoff et al., 2008). People with disabilities who experienced ableist microaggressions had higher scores on depressive symptoms and anxiety symptoms measures compared to those who did not experience ableist microaggressions (Lett et al., 2020).

Ethnicity

There is evidence that supports a relationship between membership of ethnic minority communities and experiences of microaggressions (Nadal, King, Sissoko, Floyd, Hines, et al., 2021; Nadal, Wong, et al., 2015). Furthermore, there is evidence supporting a relationship between ethnicity and mental health distress, with ethnicity/race-related stressors increasing susceptibility to depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt. Furthermore, there is intersectional evidence whereby minority ethnic LGBT people experience several forms of microaggressions related to their ethnicity/race, their sexuality, and their gender identity/expression (Fattoracci et al., 2021). This increase in different microaggressions (from racism, sexism, homophobia, transphobia) have been associated with worse mental health (Bostwick et al., 2021; Cyrus, 2017).

Stage of physical and/or social transition

Physical transition was taken from the Trans Mental Health Study (2012) where participants are asked to state at which point they are currently on their physical transition. Participants can answer in the following ways: "*No, I have not undergone or propose to undergo any part of a process*", "*Yes, I have undergone a process*", "*Yes, I am currently undergoing a process*", "*Yes, I am proposing to undergo a process*", and "*Unsure*", "*Prefer not to say*", and "*Other*". Stage of social transition was a separate question and utilised the same response format.

Descriptive variables:

During the coproduction of the survey, the coproduction group highlighted several other measures as important factors relevant to the trans community. The majority of these variables were not analysed as part of this thesis, apart from one that we identified as a possible mediator of the association between microaggressions and poor mental health. The others were included for the completeness of the dataset in addressing other research questions separate from this thesis, which will be investigated in future studies. This included rumination, discrimination and stigma (as part of the gender minority stress framework), and thwarted belongingness/perceived burdensomeness. Below, I describe how these were measured:

Rumination

Following on from discussion with the wider coproduction team, as well as previous work I have conducted, rumination was understood to be a potential exposure that may exacerbate poor mental health in the trans community (Fernie et al., 2017). I have hypothesised previously that rumination may act as a mechanism which exacerbates poor mental health, by which external acts of discrimination and other minority stressors cause increased depressive symptoms, anxiety symptoms and suicidality through increased ruminative responses to those external stressors. Literature supports the mediating role of rumination within the relationship between microaggressions and mental health in other marginalised communities where microaggressions are frequent (Farber et al., 2021; T. M. Kaufman et al., 2017; Sarno et al., 2020). Rumination was measured using the Ruminative Response Scale (RRS). The RRS is a 10-item scale assessing the tendency to ruminate (Erdur-Baker & Bugay, 2010). Rumination is a metacognitive process involving repetitive thinking (Nolen ‐ Hoeksema & Jackson, 2001). Participants are given the following instruction: "*It is completely normal to feel* *low in mood at times. People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed Please indicate what you* generally *do, not what you think you should do*." Some examples taken from the RRS include: "How often do you think *"What am I doing to deserve this?", "How often do you think about a recent situation, wishing it had gone better?",* and "*How often do you go someplace alone to think about your feelings*?". Responses are coded from 1 (almost never) to 4 (almost always). The RRS had good reliability and validity in depressed populations (Parola et al., 2017), as well as sexual and gender minorities.

Trans Discrimination Scale

The coproduction group also suggested that it was important to measure discrimination. I had not initially included a discrimination scale, and the coproduction team felt it was necessary when discussing mental health in the trans community. This is supported by research within the field (Ehlinger et al., 2022; McCann & Brown, 2017). The Trans Discrimination Scale (TDS) is a 21-item scale covering five factors related to trans-related discrimination. The factors capture themes of 1) microaggressions and harassment, i.e., having others deny or minimise experiences of discrimination, 2) restricted career and work opportunities, i.e., experiencing limited mentorship in career settings, 3) Maltreatment in health care settings, i.e., discrimination whilst trying to access health care, 4) Harassment by law enforcement, i.e., being stopped by law enforcement and unfairly questioned, and 5) Bullying and harassment in educational settings, i.e., having teachers or instructors refuse to stop abuse or bullying directed towards participant. Each item is responded to on a 6-point Likert scale, with 1 "never" to 6 "almost all of the time". Scores are summed to a total scale score with higher scores indicating more experiences of discrimination or may be summed to the subscale. The scale has excellent internal consistency and incremental validity (Watson et al., 2019).

Whilst this scale includes a measure of microaggressions, the coproduction team felt that it didn't include a wide enough array of experiences, and so endorsed the GIMS for the main exposure. Future research from this dataset may wish to explore microaggressions in conjunction with other discriminatory behaviours and relationships to mental health.

Gender Minority Stress and Resilience

In discussion with the coproduction group and consulting the literature (K. K. H. Tan, J. F. Veale, G. J. Treharne, et al., 2020; Testa et al.; Tucker et al., 2019; Valentine et al., 2018), it was understood that minority stressors play a key role in the mental health burden of trans people. Microaggressions fall under the minority stress theory, however, further factors particularly those hypothesised to prevent mental health distress required more attention. Minority stress was therefore measured using the Gender Minority Stress Scale (GMSR). The GMSR measures four distal minority stressors, three proximal minority stressors, and two resilience factors (Testa et al.). In total, the measure contains 58 items, with five to nine items per factor. Each factor acts as a scale and relates to 1) gender-related discrimination, 2) gender-related rejection, 3) gender-related victimisation, 4) non-affirmation of gender identity, 5) internalised transphobia, 6) negative expectations, 7) nondisclosure, 8) community connectedness, and 9) pride. Each scale has four responses, these being “never”, “yes, before age 18”, “yes, after age 18”, and “yes in the past year”. Scores for “never” are 0, and all other categories are 1. Community connectedness and pride are scored from 0 (strongly disagree) to 4 (strongly agree). All scores are summed, to give a range of 0 to 182, with higher scores indicating more minority stressor experiences. There is good internal consistency within the scale overall and the subscales.

Social disconnectedness

When discussing the issue of suicidal thoughts and suicide attempts, a consensus was reached within the coproduction group that issues surrounding feeling disconnected from the trans community, as well as feeling disconnected from wider communities were important within the trans community in relation to suicidal thoughts and suicide attempt. Such feelings of disconnectedness are also acknowledged in theoretical work in relation to the development of suicidal thoughts and suicide attempts among transgender individuals (Grossman et al., 2016; Wolford - Clevenger et al., 2021). The wider literature also supports an association between loneliness and suicidal thoughts and suicide attempts.

There are various approaches to capturing poor social disconnectedness. The Interpersonal Needs Questionnaire (INQ) includes subscales that measure the constructs of thwarted belongingness and perceived burdensomeness, which are hypothesised to drive suicidal thoughts. These two constructs are closely related to minority stress and loneliness (already outlined in Chapter 1.3 for minority stress and Chapter 2.2.8 for loneliness). Thwarted belongingness refers to our need to feel as though we belong. Loneliness and social isolation can increase the risk of feeling that this need for belonging is not met, thus leading to feelings of disconnection with others and communities. Similarly, for perceived burdensomeness, experiences of minority stressors through discrimination and stigma can result in trans people feeling as though their existence is burdensome to those around them (Testa et al., 2017). Therefore, it is important to investigate these constructs within the trans community. The revised INQ contains 10 items: 5 capturing thwarted belongingness, and 5 capturing perceived burdensomeness (Hill et al., 2015). Examples of items capturing thwarted belongingness include: "*These days I am close to other people*", and "T*hese days I feel like I belong*". Examples of perceived burdensomeness include: *"*T*hese days, the people in my life would be better off if I were gone*", and "*These days, the people in my life would be happier without me*". Items are responded to on a 7-point Likert scale from 1 ("not at all true for me") to 7 ("very true for me"). Scores are then summed for a total scale score or subscale score. There is good factor structure within the INQ-10 when compared to the original 25 item INQ, and it demonstrates good internal consistency.

Loneliness can be measured using the University of California Los Angeles (UCLA) Loneliness Scale (3-item measure ULS-3). The ULS-3 asks participants to respond to fixed-choice options for three items: "*How often do you feel you lack companionship*?" "*How often do you feel isolated from others*?", and "*How often do you feel left out?*". Participants choose from "hardly ever/never" "some of the time", and "often", and are coded 1, 2, and 3 respectively. Scores are summed for a total possible score of between 3 and 9. Scores between 3 and 5 suggest no loneliness, whereas scores in excess of 6 or more indicate loneliness. The ULS-3 has good reliability and validity amongst sexual and gender minorities (Anderssen et al., 2020; Lin et al., 2022). Note that the items do not mention the term loneliness, given the potential for the stigma of loneliness to introduce social desirability bias.

Putative mediator

Given that poor social connectedness was identified by the coproduction team as an important measure that might explain the relationship between being trans and poor mental health, I decided to test for evidence that loneliness (measured within the baseline survey) might be a mediator of this association by adding this to final models.

Consent for future research

Participants were also asked in the baseline survey whether they would provide consent for future research arising from the TRANS: Microaggression & Mental Health project. Their details were kept on a secure database within the double authenticated UCL Data Safe Haven. Only my principal supervisor and I had access to these baseline survey data, and participants were made aware of these safeguards during the consent process.

2.4 Follow-up survey

A follow-up survey was conducted in place of an ecological momentary assessment study. EMA was primarily chosen as the method to investigate longitudinal changes in mood and wellbeing following exposure to microaggressions. However, during my PhD project's timescale it was not possible for the UCL contracts office to reach agreement for data sharing agreements. I therefore discussed with the wider research team and the coproduction group the best avenues forward. It was suggested that, due the existing infrastructure of the baseline study, I could instead employ a follow-up survey using either the same measures to gain an understanding of causality with microaggressions and mental health. The use of longitudinal methods was important in order to establish temporal associations between microaggressions and mental health outcomes, as reported in the introduction there is a dearth of evidence exploring the causal role of microaggressions and mental health.

2.4.1 Instrument

The TRANS: Microaggressions & Mental Health Project follow-up survey was conducted between February and March 2023; approximately one year after the baseline survey (between September 2021 and September 2022). The survey assessed depressive symptoms, anxiety symptoms, previous year NSSH, suicidal thoughts, suicide attempts, and microaggressions. The baseline survey was delivered via Opinio, a secure software programme for data collection. The data were saved directly to a secure UCL server.

2.4.2 Inclusion criteria

Participants who gave consent at baseline to be contacted for future research were eligible for inclusion in this study. Participants were required to be 18 years old or older, identify as trans, non-binary, and/or gender diverse, and usually reside in the United

Kingdom. Discussions took place amongst coproduction members with myself involved around age restrictions. It was felt that ethically including young people (those under the age of 18) would bring with it safeguarding issues, i.e., telling a caregiver about suicide risk, and due to the lack of available resources the inclusion of those under 18 was forgone.

2.4.3 Sampling strategy

Participants who provided consent in the first wave of data collection were contacted via email and sent the Participant Information Leaflet and the link to the follow-up survey (hosted on the Opinio server). Informed consent for participation in the second wave of data collection was established through the first question in the Opinio survey. Opinio was then used to send emails containing a personalised link for the follow-up survey. This link allowed for the participants' baseline data to be connected to their follow-up responses. Participants completed follow-up data collection between February and March 2023. Email reminders were sent once a week on a weekday morning to participants who had not responded to the initial invitation. At the end of the follow-up survey participants were asked if they would like to give their consent to be contacted for further research. Attrition was recorded as non-response to the follow-up survey with no attempts to follow-up on reasons for non-participation in the follow-up study.

2.4.4 Measures

Consistent with the baseline survey, I repeated the same measures in the follow-up survey; however, I did not repeat specific sociodemographic questions to decrease the amount of time required to complete the study. The demographics not needed were confirmation of trans status, country of residence, national identity, urbanicity, ethnicity, sexuality, and religion/spirituality. For these, I used baseline variables assuming a low probability of change. There is a low risk that these variables may have changed since the baseline study due to changes in personal circumstances around finances, beliefs, or otherwise. However, to ensure the survey was not burdensome to participants the low risk was assumed in order to reduce research fatigue.

I also used amended outcome measures slightly to specify timescale and reflect past year experiences rather than lifetime. This allowed for temporal sequencing between exposure (at baseline) and outcomes (at follow-up). The amendments are described in brief below and relate to all NSSH and suicidality measures and my exposure measure. No new measures were included to keep the survey as brief as possible and reduce participant burden.

Outcomes

As for the baseline survey, my main outcomes were depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts. For the follow-up study, the NSSH, suicidal thoughts, and suicide attempts outcomes and GIMS exposure variable required some changes in wording to reflect the period prevalence, as follows:

NSSH, suicidal thoughts, and suicide attempts (follow-up)

For the follow-up survey, I used an adapted version of the APMS questionnaire to investigate the previous year's suicidal thoughts, attempts, and NSSH. The question wording was as follows: *"Have you thought life was not worth living during the last year?", "Have you deliberately harmed yourself in any way but not with the intention of killing yourself during the last year?",* and *"Have you made an attempt to take your life, by taking an overdose of tablets or in some other way during the last year?"*. Participants then respond with one of the following "Yes," "No," and "Prefer not to say." Scores were coded in a binary manner, with 0 relating to no past-year suicidal thoughts, attempt, and/or NSSH, and 1 as having experienced past-year suicidal thoughts, attempt, and/or NSSH.

Exposure

Gender Identity Microaggressions (baseline and follow-up)

Measured using the Gender Identity Microaggression Scale (GIMS). This was assessed at baseline and follow-up and has been described in more detail in Chapter 2.2.8. As a reminder the GIMS is a 14-item scale with five subscales relating to lifetime experiences of a) denial of gender identity, b) misuse of pronouns, c) invasion of bodily privacy, d) behavioural discomfort, and e) denial of societal transphobia. Scores are summed to achieve a total scale score for microaggression experiences or may be summed to produce a total score per scale of the instrument. In the follow-up study, an adapted version was used to reflect previous year experiences of microaggressions. In this survey the items are unaltered, however participants are asked to reflect on the previous year rather than across their lifetime.

Confounders

For the follow-up study, I did not measure any additional confounders as the analysis plan was to use baseline covariates. For my longitudinal models, I used the same list of confounders as for my cross-sectional analysis, based on previous research (Aversa et al., 2021; Nadal, Davidoff, et al., 2015; Parr & Howe, 2021) and theoretical assumptions: age, perceived gender, and highest educational qualification. I additionally adjusted for ethnicity, sexuality, disability, and stage of physical/social transition as these all influence microaggression experiences (Miller & Smith, 2021; Nadal, King, Sissoko, Floyd, & Hines, 2021) and are associated with poor mental health outcomes (King et al., 2008; Kneale et al., 2021a; Lett et al., 2020; Williams, 2018). I also hypothesised that baseline measures of mental health could confound the relationship between microaggressions at baseline and mental health outcomes at follow-up, and therefore used baseline measures of mental health as covariates in models.

2.5 Ethical considerations

Full ethical approval was given by UCL's Research Ethics Committee (20485/001). Throughout this Chapter, I have outlined additional ethical considerations that were considered central to the PhD project and addressed in the safeguarding arrangements implicit in the ethics application (see Appendix 1). I will start with a positionality statement related to myself as an insider researcher.

2.5.1 Insider and outsider perspectives in trans health research

Insider and outsider research perspectives refer to the researcher's relationship to the community or group they are studying. An insider researcher is someone who is a member of the community or group being studied, while an outsider researcher is someone who is not a member of that community or group (Kerstetter, 2012; Milligan, 2016). An insider researcher has the advantage of being able to access and understand the community or group from a unique and intimate perspective (Kerstetter, 2012). They have first-hand knowledge and experience of the cultural norms, values, beliefs, and practices that exist within that community. This insider knowledge can lead to a deeper understanding of the people being studied and help the researcher to ask more relevant questions and generate insights that may not be apparent to an outsider researcher. Furthermore, being a member of the community may enable the insider researcher to gain access to sensitive information or experiences that an outsider researcher may not be able to access. Furthermore, insider researchers may help aid in increasing recruitment, as insider researchers may create feelings of safety and representation. On the other hand, an outsider researcher may bring a perspective to the study and has been traditionally understood to offer an objective viewpoint that an insider researcher may not be able to provide (Kerstetter, 2012). Both insider and outsider perspectives have their strengths and weaknesses. In some cases, a combination of insider and outsider perspectives may be used, where the researcher collaborates with members of the community or group being studied to gain a more comprehensive understanding of the subject.

Within this project, I offer an insider perspective on the research questions, design, and interpretation. My wider supervisory team and thesis committee includes outsider researchers with experience working with the LGBT community. The project benefits from a balance of both insider and outsider researcher perspectives with expertise from clinical and epidemiological backgrounds, along with community understanding and awareness of pressing issues faced by the wider trans community. These perspectives formed the foundation of the work and have been taken into account from the project's inception.

2.5.2 Choice of measures to minimize research fatigue

Research fatigue is a common ethical issue within trans health research and arises from taking part in a large number of studies, particularly those with little perceived value or utility to the community (Ashley, 2021a). The trans community are frequently invited to take part in research studies that have not given sufficient thought to community benefit. These projects may also be burdensome to trans and non-binary people, by expecting community members to provide accounts of emotionally traumatic experiences, and insights into healthcare experiences, together with outdated language that may offend, and measures which are irrelevant to the experiences of the trans and non-binary community. Research fatigue can be mitigated by ensuring deep consultation with the trans community to identify key areas for investigation, this will reduce the amount of time required to fill surveys and avoid questions with little translative power to the community. Another avenue is open science and sharing of datasets with researchers keen on investigating similar phenomena. Open science methods reduce the burden of repetitive surveys within the same group of participants, allowing for novel investigations to become more accessible and welcomed (REF).

Finally, due to the nature of the work in this thesis, participants were signposted frequently to support services and charitable organisations that serve the needs of the trans and non-binary community, where mental health support was described.2.2.4 Inclusion criteria.

2.5.3 Use of diagnostic measures within survey research

The use of diagnostic tools within quantitative survey research should be examined ethically. Firstly, participants should be fully informed about the use of mental health diagnostic tools, along with risks and any benefits of their use. To ensure participants were fully informed I provided a participant information leaflet (see appendix 2). Participants were informed that there would be questions on depression, anxiety, and suicidality (including NSSH). Further ethical considerations arose over the professional competence of the team in relation to the use of diagnostic tools within research. I have had close supervision with my principal supervisor who is both an associate professor and consultant psychiatrist. Therefore, risk management and mitigation were central to the implementation of these tools within the survey. Another key consideration is the security of the data in relation to mental health scores as well as anonymity of those who provided the scores. I discussed this in section 2.2.6, all data were stored in the Data Safe Haven and only accessible by my principal supervisor and myself. This requires information governance training and can only be accessed using login credentials and a randomly generated code in addition to a PIN number. Finally, participants were not given any feedback on their PHQ-9 or GAD-7 scores. This was done as the wider research team and I would not be able to offer intervention, however participants were signposted to mental health organisations and support services should they experience any distress from the survey material.

2.5.4 Open Science and the Open Science Framework

Analysis plans throughout the thesis were not uploaded to the Open Science Framework (OSF) (Foster & Deardorff, 2017). The underlying principle of the OSF is to tackle the replication crisis within scientific research. The replication crisis refers to studies within the social and life sciences failing to replicate previous findings, i.e., one study reporting a significant result and another not (Maxwell et al., 2015). The OSF attempts to counteract this crisis through transparency of research and analytical plans (including code) often together with an independently reproduced analysis prior to publication (Hicks, 2023). There are several benefits of the OSF, it can strengthen the reproducibility of research findings and provide further robustness of the data (Hicks, 2023). Open science can also allow other researchers to see what datasets exist and what analysis has been planned for them (Foster & Deardorff, 2017). This gives rise to potential collaboration and reduces the need for replicating recruitment of the same measures and data from the population. Furthermore, having pre-registered plans reduces the risk of p-hacking, that is running multiple analyses looking for significant findings to report (Frias-Navarro et al., 2020). This is a problem as it relates to inflated chance findings. There are several challenges related to open science, the first are restrictions on flexibility. Here, restrictions on flexibility relates to the issue of having hypotheses set prior to seeing the data, this restricts researchers from participating in exploratory analysis (Allen & Mehler, 2019). Furthermore, timelines are typically fixed meaning there is an onus on researchers to start data collection or analysis as soon as possible after submitting their research and analytical plans to an open science repository. This can hamper flexibility around learning new techniques and applying these to the data (Allen & Mehler, 2019). Furthermore, there is a cost associated with open science, particularly when it comes to time. Researchers must upload and archive methodological and analysis plans, code, and results, all of which requires considerable time. This will result in fewer projects being completed due to the burden of time open science demands from researchers (Allen & Mehler, 2019). I did not submit work to the OSF due to time constraints related to PhD work, and the need to take time to think flexibly regarding methods. Whilst I did not include open science methods, I adhered to the ethos of open science and ensured all statistical analysis work was carried out with a priori decisions to ensure the results of this study are replicable.

2.6 Recap and link to next Chapter

In this chapter, I have outlined the methods used to collect data from my baseline and follow-up studies, and the ethical issues I addressed in my study design. In Chapter 3, I present the first step of my findings from my baseline study entitled "**The association between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts in the trans community: A cross-sectional investigation**.".

CHAPTER 3: THE ASSOCIATION BETWEEN MICROAGGRESSIONS AND DEPRESSIVE SYMPTOMS, ANXIETY SYMPTOMS, NSSH, SUICIDAL THOUGHTS, AND SUICIDE ATTEMPTS IN THE TRANS COMMUNITY: A CROSS-SECTIONAL INVESTIGATION

3.1 Abstract/Overview

Background/Aims: Previous studies have reported an increased risk for depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts among trans and non-binary people compared with cisgender people. However, many have methodological limitations, such as inadequate sample sizes, affecting our ability to draw strong conclusions about the mental health burden in the trans community nor mechanisms explaining these associations, for example microaggressions.

Methods: I conducted a cross-sectional survey of mental health among trans adults in the UK, measuring exposure to microaggressions using the continuous Gender Identity Microaggressions Scale (GIMS). Using univariable and multivariable linear and logistic regression models I tested for an association of microaggressions with five outcomes: depressive symptoms (PHQ-9), anxiety symptoms (GAD-7), NSSH, suicidal thoughts, and suicide attempt (standardised questions). Missing data were treated using multiple imputation by chained equations and analyses were re-run on the imputed data to compare with the complete case analysis.

Results: Of the 787 participants, 574 (73%) provided complete data. In adjusted analyses, increased microaggression scores were associated with increased depressive symptoms (Coefficient: 1.86 (95% CI 1.35 - 2.36; $p<0.001$)), anxiety symptoms (Coefficient: 1.57 (95% CI 1.09 - 2.05)) and with increased odds of NSSH (OR_{adj} 1.83 (95% CI 1.45 – 2.30)), suicidal thoughts (adjusted Odds Ratio $[OR]_{adj}$ 2.18 (95%CI 1.52 - 3.13)) and suicide attempt (OR_{adj} 1.59 (95% CI 1.32 – 1.92)). Little change was present within the imputed analysis suggesting the estimates were robust.

Conclusions: In a sample of trans and non-binary adults there was evidence of associations between microaggressions and adverse mental health outcomes. Longitudinal work is needed to test causal hypotheses about microaggressions and mental health outcomes. It is possible that public health interventions could prevent microaggressions, for example through education.

3.2 Introduction

In Chapter 1, I discussed several limitations within the research on microaggressions and mental health in the trans community. The following chapter seeks to address these limitations by expanding on the microaggressions literature and applying epidemiological methods outlined in Chapter 2, to improve our understanding of microaggressions and their associations with depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts.

Evidence from observational studies suggests that when comparing trans to cis people, trans people have an estimated threefold greater magnitude of probable anxiety disorder, and a fourfold greater magnitude of probable depressive disorder (Witcomb et al., 2018). Trans people also have a high prevalence of suicidality when compared to cisgender peers across the lifespan, particularly for trans young people (Clark et al., 2014; Johns et al., 2019; Vance et al., 2021; White et al., 2023), but also for young trans adults, and older trans adults (Blosnich et al., 2013; Boyer et al., 2021). Suicidality is broadly defined as thinking about ending one's own life (suicidal thoughts), devising method and time to take one's own life (suicide plan), and making attempts to end one's own life (suicide attempt) (McLaughlin et al., 2012). Some definitions of suicidality also refer to suicide death within their research on suicidality (Han et al., 2021). This paper focuses on two facets of suicidality namely suicidal thoughts and suicide attempts, and separately on non-suicidal self-harm (NSSH). Estimates of suicidality within trans people range from 45% to 81% for suicidal thoughts, 18% to 41% for lifetime suicide attempt, and 9% to 19% for past year suicide attempt (Maguen & Shipherd, 2010; McNeil et al., 2012b; McNeil et al., 2017; Mereish et al., 2014). The evidence within trans mental health research tends to focus on prevalence of mental health burden whilst evidence for mechanisms underlying the mental health disparity remain under researched, preventing understanding of prevention and intervention and stifling recommendations.

One potential mechanism that may contribute to increased prevalence of these mental health problems in the trans community is their exposure to microaggressions. Microaggressions are defined as brief commonplace daily verbal, behavioural, or environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory, or negative slights and insults towards marginalised communities

(Nadal, 2013; Sue et al., 2007). The first use of microaggressions in the psychological literature was to describe experiences of ethnic minorities (Nadal, 2013; Sue et al., 2007). There is a well-established evidence base linking racial microaggressions with poor mental health (Williams, 2020). The evidence base indicates that microaggressions increase the risk of depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts in ethnic minority groups when compared to white groups (Gattis & Larson, 2017; Nadal, King, Sissoko, Floyd, & Hines, 2021). Microaggressions also fall under the broader theory of minority stress. The minority stress theory posits that lesbian, gay, bisexual, and transgender (LGBT) people face stressors in addition to those experienced by their cisgender and heterosexual counterparts (Brooks, 1981; Hendricks & Testa, 2012; Meyer, 1995). These stressors relate to discrimination, stigma, cisheteronormativity (the assumption of a cisgender and heterosexual identity), rejection, internalised homophobia/biphobia/transphobia, and microaggressions (Meyer, 2003). There is evidence for associations between microaggressions and mental health outcomes for sexual minority groups, when compared to heterosexual peers (Chen et al., 2021; T. Kaufman et al., 2017).

There is a scarcity of research that investigates microaggressions among trans people and their associations with mental health outcomes. Of the relevant literature, an average of 1.1 to 1.4 microaggressions are experienced by trans people weekly (Parr & Howe, 2021). In cross-sectional studies, there is an association between microaggressions and poor wellbeing, with those who experience higher microaggressions having worse wellbeing compared to those who do not experience microaggressions among trans people (Austin et al., 2022; Wike et al., 2021). One scale of microaggressions has been developed and psychometrically validated within the trans community, the Gender Identity Microaggressions scale (GIMS), and is currently based on the definitions as outlined by and Sue et al. (2007). Only one study was found to have used the GIMS in a sample of 292 trans women and men in the United States, finding positive correlations between microaggressions and feelings of shame and internalised transnegativity, and a negative correlation with mental wellbeing (Cascalheira & Choi, 2022). Whilst the evidence suggests associations with mental health, these previous studies have several methodological limitations that need to be taken into consideration when drawing inferences. Firstly, the research has relied on the use of unvalidated measures of microaggressions that have varying definitions and examples (Singh et al., 2021). The use of unvalidated measures and unstandardised terminology results in questions over its validity and reliability in measuring microaggressions accurately, and in abilities to directly compare studies of gender identity microaggressions (Reisner et al., 2016). Secondly, sample sizes within this literature tend to be small, with the largest study recruiting 292 participants (Cascalheira & Choi, 2022). Finally, participants are often combined within a wider sexual minority sample as well as a wider trans category (Matijczak et al., 2021; Nadal et al., 2016; Wike et al., 2021). Conflating sexuality with gender identity ignores specific risk factors associated within minoritised gender identities and their respective health outcomes, particularly mental health experiences, which have been shown to differ according to gender identity (Burgwal et al., 2020; Stanton et al., 2021). For example, in a cross-sectional study of 3587 trans people in the US, trans women and non-binary people often reach a clinical threshold for depression using the Patient Health Questionnaire – 9 item version, whereas trans men did not (Stanton et al., 2021). Furthermore, when non-binary participants are compared to binary trans participants, non-binary people report worse self-reported health and worse general wellbeing (Burgwal et al., 2020).

In this study I sought to investigate the association between microaggressions and mental health, using validated measures of microaggressions and mental health outcomes, in a sample of trans people in the UK.

3.3 Research aim and hypothesis

Aim: To investigate the association between gender identity microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts amongst trans people.

Hypothesis: Those who experience more microaggressions will have higher scores on the depressive symptoms, anxiety symptoms, and higher odds of NSSH, suicidal thoughts, and suicide attempts compared to those who experience fewer microaggressions.

3.4 Methods

I have detailed the methods of this Chapter in Chapter 2.2. The following section (3.4) acts as a reminder of the instrument, inclusion criteria, sampling strategy, measures, and statistical analysis plans for the baseline survey.

3.4.1 Instrument

The survey questionnaire was coproduced with a group of trans people with lived experience of microaggressions and mental health problems in order to improve acceptability of survey questions and comprehensiveness of the survey whilst also considering overall question burden on participants. The coproduction group was comprised of five volunteers, recruited through the first author's connections with the academics and activists within the trans community. All five members were white, under the age of 35, and had experiences of depression, anxiety, NSSH, and suicidal thoughts, as well as experiences of transphobic microaggressions. Due to funding limitations, coproduction team members were not paid for their participation. Group members discussed measures to be included with the questionnaire draft and then asked to reflect on the acceptability of the survey tool, offer edits for clarification, and comment on the importance of the research questions. I piloted the instrument with the coproduction group to ensure functionality of the survey programme and clarity of instructions.

3.4.2 Inclusion criteria

Participants were included if they identified as trans, non-binary, and/or gender diverse, were aged eighteen or older at the start of the survey and resided in the United Kingdom for 12 months or longer.

3.4.3 Sampling strategy

Social media recruitment strategies were implemented via Twitter, Facebook, and Instagram, with large trans charities and organisations such as Gendered Intelligence sharing the survey details. Social media sampling has been considered a better recruitment strategy amongst minoritised and marginalised "hard to reach" populations due to the interconnectivity of communities across social media.

In the absence of published effect sizes in the literature, I conducted ten *a priori* sample size calculations using estimated effect sizes which incrementally increased by 0.05 up to an effect size of 0.50. 0.50 was chosen as the upper limit to assume a conservative estimate of the effect size. Assuming an effect size of 0.15 a sample of 463 participants was required for 90% power at an alpha level of 0.05.

3.4.4 Measures

All measures are described in detail in Chapter 2.2.8, the following are brief summaries of each measure.

Outcomes

Depressive symptoms

Measured using the Patient Health Questionnaire – 9 item version (PHQ-9). The PHQ-9 assesses the severity of depressive symptoms, with scores ranging from 0 to 27. The PHQ has good psychometric properties (Chilcot et al., 2018; Kroenke et al., 2016), and good convergent validity and internal consistency (Nguyen et al., 2016; Timmins et al., 2018).

Anxiety symptoms

Assessed using the Generalised Anxiety Disorder Scale – 7 item version (GAD-7). The GAD-7 assesses the severity of anxiety symptoms, with possible total scores ranging from 0 to 21. The GAD-7 has been well validated as a brief screening measure, and is sensitive to change and acute symptom presentation.

Lifetime history of suicidal thoughts and suicide attempt

Measured using self-report measures from the Adult Psychiatric Morbidity Survey (APMS), thereby providing population norms for a representative sample of the UK household population (McManus et al., 2014). I created a binary measure denoting the presence or absence of each, acknowledging that outcome might precede exposure using a lifetime measure. I justified this choice on the basis that these standardised measures allow comparison with other samples, and the difficulties in establishing the onset of microaggressions. The question wording was as follows: “Have you ever thought life was not worth living?”, and “Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?”. Participants then respond with one of the following “Yes,” “No,” and “Prefer not to say.” Scores were coded in a binary manner, with 0 relating to no suicidal thoughts or suicide attempt, and 1 as has experienced suicidal thoughts or suicide attempt.

Lifetime history of non-suicidal self-harm

As per my measures on suicidal thoughts and suicide attempts. I used an APMS measure on NSSH, the question working was as follows *“Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself?”.* Participant scores were binary with 0 relating to no history of NSSH, and 1 relating to a history of NSSH.

Exposure

Gender Identity Microaggressions

Measured using the Gender Identity Microaggression Scale (GIMS). The GIMS is a 14-item scale with five subscales assessing a) denial of gender identity, e.g., refusing to recognise trans people's gender identity b) misuse of pronouns, e.g., consciously, or unconsciously, referring to a trans person with the wrong pronoun (he, she, and/or they for example) c) invasion of bodily privacy, e.g., asking inappropriate questions about a trans person's genital configuration d) behavioural discomfort from others, e.g., acting in an uncomfortable manner with a trans person in any setting, and e) denial of societal transphobia, e.g., telling a trans person that experiences of transphobia – such as losing or being refused a job because they are trans – do not exist. Scores on the scale are summed to produce a total overall score, with higher scores indicating more experiences of gender identity microaggressions. The total scale ranges from 14 to 70 points. The scale has good internal consistency (Nadal, 2018).

Confounders

The following confounders were selected based on previous research (Aversa et al., 2021; Lin et al., 2022; McNeil et al., 2012b; Miller & Smith, 2021; Nadal, Davidoff, et al., 2015; Parr & Howe, 2021) and theoretical assumptions: age, perceived gender, ethnicity, sexuality, disability, education, stage of physical/medical transition, and stage of social transition. These last two variables were chosen as proxies for access to gender—affirming care.

3.5 Statistical Analysis Plan

I described the socio-demographic (including age, gender identity, ethnicity, and perceived gender) and clinical characteristics (including measures of depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt) of the sample, using the GIMS split into two categories based on the median score to compare those with high versus low microaggression scores and their sociodemographic distributions. Each sociodemographic variable was then explored for its composition as well as to provide mean scores on the PHQ-9 and GAD-7 as well as the GIMS, and proportions for NSSH, suicidal thoughts, and suicide attempts to compare categories within each sociodemographic variable. In the main analysis and sensitivity analysis the GIMS total scale score was used in place of the binary median split GIMS variable.

3.5.1 Main analysis

Descriptive statistics: I described the characteristics of the sample who provided complete data on exposure, confounders, and all five outcomes (a complete case analytic sample, see Figure 3-1). I reported characteristics using means and standard deviations, and medians and inter-quartile ranges as appropriate. To aid interpretation, I reported these based on a median split of the GIMS, describing differences in the sample characteristics and potential confounders between those who experienced high and low levels of microaggressions. A median split was chosen as there was no reported cut-off scores to constitute "high" and "low" frequencies of microaggression experiences. In the inferential analyses the total scale was included as a continuous variable and transformed into standard deviation units. The median split was used for purposes of displaying the descriptive data. Another method of describing this data could have been through interquartile ranges of the GIMS scale. Whilst this approach would provide further granularity, it would also reduce the legibility of the descriptive statistics.

Regression analyses: I transformed the GIMS exposure variable into standard deviation units as the unit increase was small relative to the range of the variable, and to help aid in interpretation (Bring, 1994; Gelman, 2008). I used linear regression models with depressive symptoms (PHQ-9) and anxiety symptoms (GAD-7) scores as two separate continuous outcomes and the transformed microaggressions scale (GIMS) as a continuous exposure. I used logistic regression models with NSSH, suicidal thoughts, and suicide attempt as three separate outcomes and the transformed microaggressions scale as a continuous exposure.

I also included an analysis of the GIMS scale separated into those regarded as a proximal stressor and a distal stressor in line with the Gender Minority Stress Framework (see Chapter 1.4.1). Here, I grouped the subscales of the GIMS into distal stressors (behavioural discomfort from others and denial of societal transphobia) and proximal stressors (misuse of pronouns, invasion of bodily privacy, and denial of gender identity). These groupings were selected based on the theoretical underpinnings of the GMSF which states that proximal stressors occur within the intrapersonal, i.e., internalised stressors, whereas distal stressors are based on the interpersonal, i.e., forms of stress which occur outside of the individual. This was done to explore mental health outcomes in relation to the GMSF and microaggression experiences.

All analyses were reported before and after adjustment.

3.5.2 Sensitivity analysis

Missing data: To assess the potential influence of missing data when modelling the association between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts I investigated differences between participants with complete data and those with missing data, (Sterne et al., 2009). Auxiliary variables were selected if they; were correlated with the exposure and outcomes, were hypothesised to help keep the missing process random, and were not included in the analysis. Here, the auxiliary variables were social transition status, physical transition status, and whether the participant is living in their affirmed gender. I used Multiple Imputation by Chained Equations (MICE) to impute twenty-five datasets, which were then combined using Rubin's rules. I imputed on the exposure (GIMS), outcomes, and confounders. In my analyses I first restricted the sample to those with complete cases on the exposure. Next, I used the imputed data on the exposure, outcomes, and confounders, however this sample was not restricted to those with complete cases on the exposure, instead using all imputed data. Imputing on outcome data does have several problems. The first being that imputing missing outcome data can lead to biased estimates in regression models. Particularly in this case it may exaggerate the effect of the exposure (microaggressions) on outcomes (mental health). Secondly by not imputing and relying on a complete case analysis, this may exaggerate imbalances in the sociodemographic variables within the dataset. Therefore, imputing on outcomes is a common approach within epidemiology, especially when there is a pattern of missingness in the exposure. The key here is to provide comparisons with the complete case analysis to highlight any deviations which could suggest that the assumptions of multiple imputation have been violated, that is, that the data are missing at random. However, it is also important to consider what is being assumed when imputing missing outcome values and how they may not reflect the lived experience of the participant to whom the data is missing. In circumstances where there is missingness in the exposure, the outcome may have vital information about the potential value of the missing. In circumstances where there is missingness in the exposure, the outcome may have vital information about the potential value of the missing exposure. I restricted the analysis of the imputed dataset to those who provided complete exposure data (microaggressions) to account for some potential biases from imputing these missing values on the outcome. I also provided a complete case analysis to compare the imputed models to. This is another best practice method within epidemiology to highlight any discrepancies from the imputation method (White & Carlin, 2010).

Loneliness as a putative mediator: I also added a *post hoc* sensitivity analysis to assess for evidence that poor social connectedness might help explain the association between microaggressions and the mental health outcomes, based on the possibility that this might lie on the causal pathway from microaggressions to mental health distress. This was based on my theory that experiencing more frequent microaggressions might lead to low perceived social connectedness, and in turn could worsen mental health. I used loneliness to capture social connectedness, measured using the ULS-3, a validated measure capturing the subjective experience of loneliness (Lin et al., 2022). I added loneliness, as a putative mediator, to my final adjusted models and compared the coefficients from this sensitivity analysis to those in my main analyses.

All analyses were conducted using Stata 17.1 (StataCorp., 2021).

3.6 Ethics

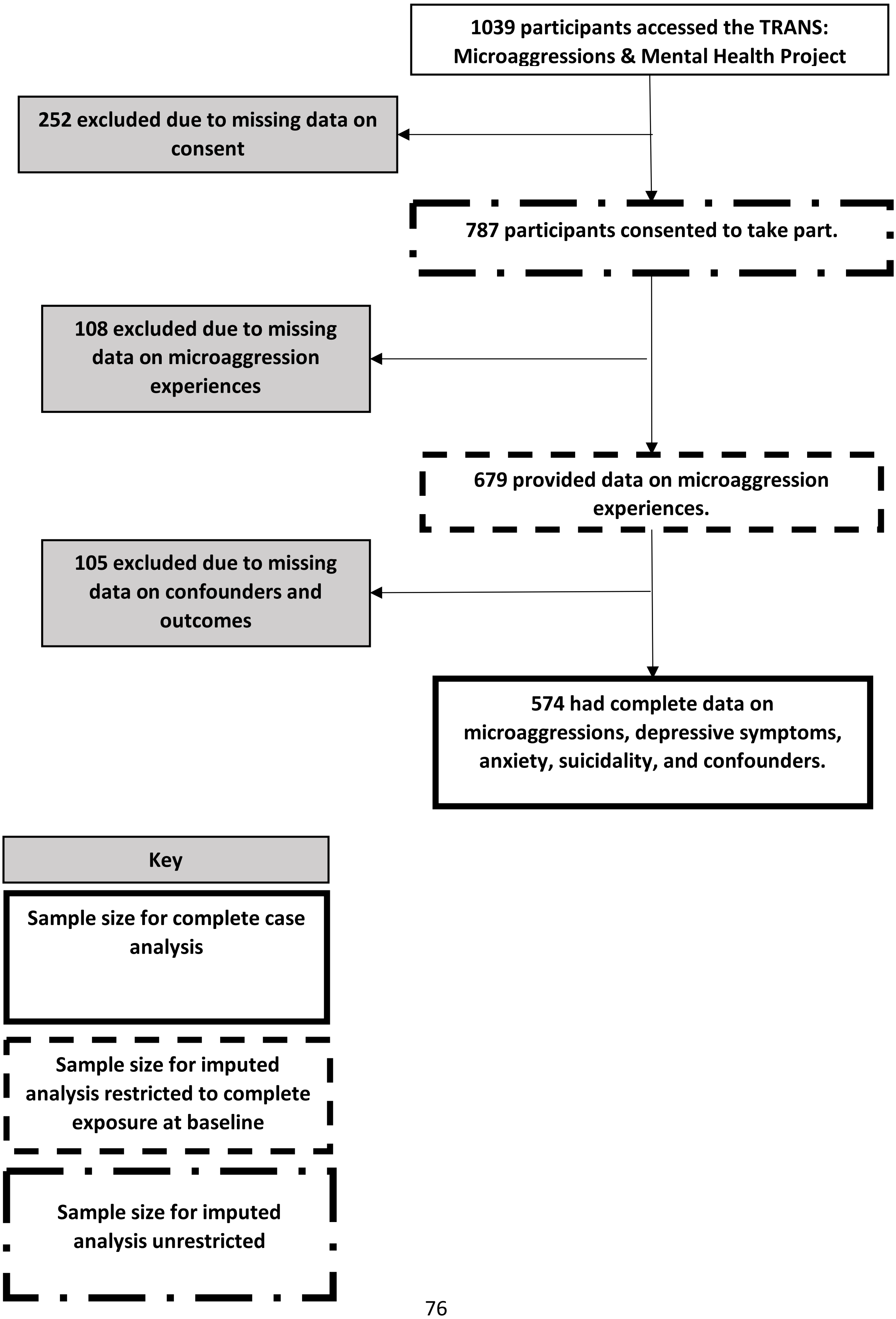
This study received ethical approval by UCL Research Ethics Committee (200485/001).

3.7 Results

3.7.1 Demographics

A total of 1039 participants responded to an online post about the TRANS: Microaggressions & Mental Health Project, and 787 (75.7%) took part in the cross-sectional study, of whom 574 (79%) provided complete data on exposure, outcomes, and confounders, comprising my complete case analytical sample. see Figure 3-1 for a flow diagram of participants in the study.

Figure 3-1: Sample flow diagram of participants in the TRANS: Microaggressions & Mental Health baseline study 1



All baseline characteristics have been reported in Table 3-1 and 3-2. A full and comprehensive examination of each characteristic against the exposure and outcomes has been provided in Appendix 2 here, I will provide an overview of demographic and clinical characteristics relevant to the wider. The highest endorsed gender identity category was non-binary (251, 46.2%), followed by trans women (188, 34.6%). The majority of participants were currently living in their affirmed gender either all or most of the time (476, 82.9%). Most participants were aged under 35 (418, 72.8%). With regards to ethnicity, the participants were overall white (525, 91.5%) with underrepresentation from minority ethnic communities (49, 8.5%). Over half of participants had acquired a university degree, master's degree, and/or PhD (367, 63.9%). With regards to sexuality, participants were evenly distributed between all sexual orientation options, with slightly more representation from bisexuals (185, 32.2%). Finally, there is a large proportion of the cohort who stated their religious/spiritual beliefs as atheistic (426, 74.2%).

Table 3-1 Demographic distribution of study participants 2

Sociodemographic	Overall sample (n=574; 100%)	Low microaggressions (n=268; 46.7%)	High microaggressions (n=306; 53.3%)
Gender			
Trans women	188 (34.6%)	49 (19.1%)	55 (19.2%)
Trans men	104 (19.2%)	81 (31.5%)	107 (37.4%)
Non-binary	251 (46.2%)	127 (49.4%)	124 (43.4%)
Currently living in affirmed gender			
No, not living in affirmed gender	98 (17.1%)	56 (20.9%)	42 (13.7%)
Yes, either all or most of the time	476 (82.9%)	212 (79.1%)	264 (86.3%)
Perceived gender by others			
As a trans person	114 (19.9%)	38 (14.2%)	76 (24.8%)
As the gender identified	116 (20.2%)	53 (19.8%)	63 (20.6%)
As the sex assigned at birth	247 (43.0%)	133 (49.6%)	114 (37.3%)
Does not know	49 (8.5%)	27 (10.1%)	22 (7.2%)
Other	48 (8.4%)	17 (6.3%)	31 (10.1%)
Physical transition			
No, has not undergone/not relevant	70 (12.2%)	46 (17.2%)	24 (7.8%)
Yes, proposing to undergo	123 (21.4%)	58 (21.6%)	65 (21.2%)
Yes, currently undergoing	200 (34.8%)	71 (26.5%)	129 (42.2%)
Yes, undergone	113 (19.7%)	52 (19.4%)	61 (19.9%)
Unsure/Prefer not to say/Other	68 (11.9%)	41 (15.3%)	27 (8.8%)
Social transition			
No, has not undergone/not relevant	13 (2.3%)	9 (3.4%)	<5 (1.3%)
Yes, proposing to undergo	44 (7.7%)	26 (9.7%)	18 (5.9%)
Yes, currently undergoing	161 (28.1%)	81 (30.2%)	80 (26.1%)
Yes, undergone	335 (58.4%)	135 (50.4%)	200 (65.4%)
Unsure/Prefer not to say/Other	21 (3.7%)	17 (6.3%)	<5 (1.3%)
Age			
18 to 25	225 (39.2%)	97 (36.2%)	128 (41.8%)
26 to 34	193 (33.6%)	92 (34.3%)	101 (33.0%)
35 to 44	87 (15.2%)	44 (16.4%)	43 (14.1%)
45+	69 (12.0%)	35 (13.1%)	34 (11.1%)
Ethnicity			
Ethnic minority	49 (8.5%)	25 (9.3%)	24 (7.8%)
White	525 (91.5%)	243 (90.7%)	282 (92.2%)

Education			
No education	11 (1.9%)	<5 (1.5%)	7 (2.3%)
GCSEs or equivalent	35 (6.1%)	14 (5.2%)	21 (6.9%)
A level(s), Scottish Highers or equivalent	115 (20.0%)	49 (18.3%)	66 (21.6%)
University Degree	193 (33.6%)	91 (34.0%)	102 (33.3%)
Master's Degree	135 (23.5%)	66 (24.6%)	69 (22.6%)
Doctorate	39 (6.8%)	20 (7.5%)	19 (6.2%)
Vocational Qualifications	46 (8.0%)	24 (9.0%)	22 (7.2%)
Employment			
Unemployed and unable to work	56 (9.8%)	20 (7.5%)	36 (11.8%)
Unemployed and looking for work	40 (7.0%)	28 (10.5%)	12 (3.9%)
Employed, part time	66 (11.5%)	28 (10.5%)	38 (12.4%)
Employed, full time	282 (49.1%)	131 (48.9%)	151 (49.4%)
Student	96 (16.7%)	41 (15.3%)	55 (18.0%)
Full time homemaker/Carer	13 (2.3%)	8 (3.0%)	5 (1.6%)
Temporarily off work/Retired	21 (3.7%)	12 (4.5%)	9 (2.9%)
Country currently residing in			
England	483 (84.2%)	224 (83.6%)	259 (84.6%)
Northern Ireland	6 (1.1%)	<5 (1.5%)	<5 (0.7%)
Scotland	66 (11.5%)	31 (11.6%)	35 (11.4%)
Wales	19 (3.3%)	9 (3.4%)	10 (3.3%)
National identity			
British	218 (38.0%)	85 (31.7%)	133 (43.5%)
English	242 (42.2%)	124 (46.3%)	118 (38.6%)
Northern Irish	5 (0.9%)	<5 (1.1%)	<5 (0.7%)
Scottish	52 (9.1%)	23 (8.6%)	29 (9.5%)
Welsh	21 (3.7%)	12 (4.5%)	9 (2.9%)
Other	36 (6.3%)	21 (7.8%)	15 (4.9%)
Urbanicity			
Urban	423 (73.7%)	200 (74.6%)	223 (72.9%)
Rural	133 (23.2%)	59 (22.0%)	74 (24.2%)
Don't know/Other	18 (3.1%)	9 (3.4%)	9 (2.9%)
Religion/Spirituality			
Buddhist	7 (1.2%)	5 (1.9%)	<5 (0.7%)
Christian (all denominations)	34 (5.9%)	16 (6.0%)	18 (5.9%)
Hindu	<5 (<0.9%)	<5 (<1.9%)	<5 (0.3%)
Jewish	8 (1.4%)	<5 (<1.9%)	6 (2.0%)
Muslim	5 (0.9%)	-	5 (1.6%)
Pagan	50 (8.7%)	25 (9.3%)	25 (8.2%)

No religion and/or spiritual beliefs	426 (74.2%)	198 (73.9%)	228 (74.5%)
Any other religion	42 (7.3%)	21 (7.8%)	21 (6.9%)
Sexuality			
Asexual	32 (5.6%)	20 (7.5%)	12 (3.9%)
Bisexual	185 (32.2%)	87 (32.5%)	98 (32.0%)
Gay	78 (13.6%)	32 (11.9%)	46 (15.0%)
Heterosexual	26 (4.5%)	16 (6.0%)	10 (3.3%)
Lesbian	75 (13.1%)	38 (14.2%)	37 (12.1%)
Pansexual	72 (12.5%)	27 (10.1%)	45 (14.7%)
Queer	84 (14.6%)	37 (13.8%)	47 (15.4%)
Questioning	11 (1.9%)	6 (2.2%)	5 (1.6%)
Not listed	11 (1.9%)	5 (1.9%)	6 (2.0%)

Table 3-2 Clinical outcome distributions of study participants 3

Clinical Characteristics	**Overall sample mean (SD), or n (%)**	**Low microaggressions mean (SD), or n (%)**	**High microaggressions mean (SD), or n (%)**
PHQ-9 (depressive symptoms, past two weeks)	12.06 (6.49)	10.41 (6.13)	13.52 (6.46)
GAD-7 (anxiety symptoms, past two weeks)	10.07 (6.02)	8.46 (5.76)	11.49 (5.90)
Disability (physical or mental health condition that lasts 12 months or more)			
No			
Yes	138 (24.0%)	81 (30.2%)	57 (18.6%)
	436 (76.0%)	187 (69.8%)	249 (81.4%)
Disability reducing ability to carry out day to day activities			
Not at all	7 (6.7%)	11 (5.9%)	15 (6.0%)
Yes, a little	69 (66.4%)	128 (68.5%)	145 (58.2%)
Yes, a lot	28 (26.9%)	48 (25.7%)	89 (35.7%)
Ever been diagnosed with anxiety or depressive condition, or drug or alcohol problem			
No	26 (4.5%)	18 (6.7%)	8 (2.6%)
Yes	511 (89.0%)	226 (84.3%)	285 (93.1%)
Don't know/Prefer not to say	37 (6.5%)	24 (9.0%)	13 (4.3%)
Lifetime history of suicidal thoughts (thoughts to attempt suicide)			
No			
Yes	49 (8.5%)	35 (13.1%)	14 (4.63%)
	525 (91.5%)	233 (86.9%)	292 (95.4%)
Lifetime history of suicide attempts			
No	343 (59.8%)	187 (69.8%)	156 (51.0%)
Yes	231 (40.2%)	81 (30.2%)	150 (49.0%)
Lifetime history of NSSH			
No	126 (21.9%)	85 (31.7%)	41 (13.4%)
Yes	448 (78.1%)	183 (68.3%)	265 (86.6%)

NSSH – Non-suicidal self-harm

PHQ-9 – Patient Health Questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

The GIMS had a mean score of 42.46 (SD 13.28). Of the 574 participants who provided complete data, 97.6% (n=560) had endorsed at least one form of microaggression experience at some point their lifetime. The most common specific microaggression was misuse of pronouns (n=544, 94.8%), and the least endorsed was behavioural discomfort from others (n=389, 67.8%). When asked about experiences of having had passive death wishes, 528 (92%) endorsed ever having thought life was not worth living, and 513 (89%) reported having wished they were dead.

After splitting participants into high and low microaggression experiences, based on a median split of the GIMS (median=42, IQR=33 to 52), we see that those who experienced high microaggressions had a mean score on the PHQ-9 of 13.52 (SD 6.46). A mean score of 11.49 (SD 5.90) on the GAD-7. A higher proportion of participants experienced a lifetime history of lifetime history of NSSH (86.6% vs 68.3%), lifetime history of suicidal thoughts (95.4% vs 86.9%), and lifetime history of suicide attempts (49.0% vs 30.2%). See Table 3-1 and 3-2 for more demographic distributions and clinical outcome comparisons between high and low microaggression groupings.

In a simple one-way analysis of variance, I looked at any group differences between gender identities and microaggression experiences. I did not find any significant differences between different gender identity categories and microaggressions ($F_{(2,637)}$=2.61 p=0.074).

Depressive symptoms

Of those who provided complete data on microaggressions, the mean score on PHQ-9 was 11.76 (SD (Standard Deviation): 6.59). Amongst those who experienced a high frequency of microaggressions (n=357, 52.6%) the mean score on depressive symptoms was 13.22 (SD: 6.43) and for those in the low microaggression grouping (n=322, 47.4%) the mean score was 10.14 (SD: 6.38) indicating the presence of moderate depression in both groups. in simple analysis of variance tests there were significant group differences between the high microaggression and low microaggression group ($F_{(1,677)}$=39.04 p<0.001).

Looking specifically at differences between gender identity categories, there were no statistically significant group differences found ($F_{(2,653)}$=2.23 p=0.108). in a simple linear regression however, non-binary participants scored 1.44 points fewer than trans men (coefficient -1.44 (95%CI -2.79 to -0.09)). No statistically significant difference was found for trans women compared to trans men (coefficient -0.85 (95%CI -2.28 to 0.59)).

Anxiety symptoms

The mean score on GAD-7 anxiety symptoms amongst the total sample was 9.88 (SD: 6.09). amongst the high microaggression frequency group the mean was 11.22 (SD: 5.91). Amongst those in the low microaggression group the mean score on GAD-7 was 8.40 (SD: 5.94). in simple analysis of variance tests there were significant group differences between the high microaggression and low microaggression groups ($F_{(1,677)}$=38.36 p<0.001).

Similarly, I looked at group differences between gender identity categories using a one-way analysis of variance and found no evidence of group differences in relation to anxiety symptoms ($F_{(2,653)}$=0.29 p=0.751).

NSSH, suicidal thoughts, and suicide attempts

Amongst the total sample with complete microaggression data (N=679) 91.0% (n=618) have experienced suicidal thoughts in the form of thinking that life was not worth living. 88.1% (n=598) have wished they were dead, 90.1% (n=612) have thought about attempting suicide, with 268 (39.5%) having made a suicide attempt. For NSSH, 77.0% (n=523) have harmed themselves with no intention of dying. Across all five suicidal outcomes, those in the high microaggression group experienced more higher rates of NSSH, suicidal thoughts, and suicide attempts. In chi-square tests of associations there were significant group differences in history of non-suicidal NSSH ($X^2(1) = 28.11$, p<0.001), suicidal thoughts ($X^2(1) = 17.49$, p<0.001), and a history of attempting suicide ($X^2(1) = 25.46$, p<0.001).

As I have provided for depressive symptoms and anxiety symptoms, I investigated group difference between gender identity categories and suicidality and NSSH outcomes using one-way analysis of variance test. I found no group differences for suicidal thoughts ($F_{(2,666)}$=1.48 p=0.228), or suicide attempts ($F_{(2,666)}$=2.18 p=0.113). I did however find group differences for NSSH ($F_{(2,666)}$=14.05 p<0.001). in a simple logistic regression model, it was found that trans women had fewer odds of experiencing NSSH compared to trans men (OR 0.33 (95%CI 0.19 to 0.57)). No evidence was found for non-binary participants when compared to trans men (OR 0.79 (95%CI 0.45 to 1.37)).

3.7.2 Associations between total GIMS score and specific mental health outcomes.

Depressive symptoms

I found evidence of an association between microaggressions and depressive symptoms, whereby as microaggression experiences increased by one standard deviation (13.28-points) of the GIMS scale, this was associated with an increase in depressive symptom scores (unadjusted coefficient: 2.09, 95%CI 1.59 to 2.60; adjusted coefficient: 1.86, 95%CI 1.35 to 2.36; see Table 3-3).

Anxiety symptoms

I found evidence of an association between microaggressions and anxiety symptoms, whereby when scores on microaggression experiences increased by one standard deviation of the GIMS scale, this was associated with an increase in anxiety symptom scores (unadjusted coefficient: 1.76, 95%CI 1.28 to 2.23; adjusted coefficient: 1.57, 95%CI 1.09 to 2.05).

Lifetime non-suicidal self-harm, suicidal thoughts, and suicide attempt

I found evidence of an association between microaggression experiences and lifetime NSSH (OR_{crude} 1.95, 95%CI 1.57 to 2.42; OR_{adj} 1.83, 95%CI 1.45 to 2.30), lifetime suicidal thoughts (odds ratio $[OR]_{crude}$ 2.59, 95%CI 1.85 to 3.62; OR_{adj} 2.18, 95%CI 1.52 to 3.13), and lifetime suicide attempts (OR_{crude} 1.66 95% CI 1.39 to 1.99; OR_{adj}, 1.59, 95%CI 1.32 to 1.92).

Table 3-3 Complete Case analysis of GIMS and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts 4

	Gender Identity Microaggressions (GIMS)					
	Unadjusted			***Adjusted****		
	Model N	**Coefficient (95%CI)**	**P-value**	**Model N**	**Coefficient (95%CI)**	**P-value**
PHQ-9 – Depressive symptoms ***Past two weeks***	574	2.09 (1.59 to 2.60)	<0.001	574	1.81 (1.32 to 2.31)	<0.001
GAD-7 – Anxiety symptoms ***Past two weeks***	574	1.76 (1.28 to 2.23)	<0.001	574	1.55 (1.08 to 2.02)	<0.001
	Model N	**Odds Ratio (95%CI)**	**P-value**	**Model N**	**Odds Ratio (95%CI)**	**P-value**
Lifetime suicidal thoughts (thoughts of attempting suicide)						
No	574	1	<0.001	574	1	
Yes		2.59 (1.85 to 3.62)			2.21 (1.55 to 3.16)	<0.001
Lifetime suicide attempt						
No	574	1	<0.001	574	1	
Yes		1.66 (1.39 to 1.99)			1.58 (1.31 to 1.90)	<0.001
Lifetime non-suicidal NSSH						
No	574	1	<0.001	574	1	
Yes		1.95 (1.57 to 2.42)			1.84 (1.47 to 2.32)	<0.001

*Adjusted for age, ethnicity, perceived gender, education, sexuality, and disability

**Restricted to those with complete cases on microaggressions, mental health outcomes, and confounders

PHQ – Patient Health Questionnaire; GAD = Generalised Anxiety Disorder Scale

3.7.3 Microaggressions and minority stress

Microaggressions as proximal stressors

In complete case analysis (n=574), proximal stressors (misuse of pronouns, invasion of bodily privacy, and denial of gender identity) were associated with a 1.88-point increase in depressive symptoms (95%CI 1.37 to 2.38). After adjusting for confounders there was a slight attenuation in the association (adjusted coefficient 1.63 (95%CI 1.11 to 2.14)). Proximal stressors were also associated with a 1.59-point increase in anxiety symptoms (95%CI 1.12 to 2.07). After adjusting for confounders there was a slight attenuation in the association (adjusted coefficient 1.38 (95%CI 0.89 to 1.87)). Proximal stressors were associated with an increase of 2.35 odds in suicidal thoughts (95%CI 1.72 to 3.20). After adjusting for confounders there was a slight attenuation in the association (OR_{adj} 1.99 (95%CI 1.41 to 2.80)). Similarly, for suicide attempts there was an increase in 1.71 odds (95%CI 1.43 to 2.06)), and a slight attenuation after adjusting for confounders (OR_{adj} 1.66 (95%CI 1.36 to 2.02)). For NSSH, proximal stressors were associated with an increase in 1.97 odds for NSSH (95%CI 1.60 to 2.44). After adjusting for confounders, the association attenuated slightly (OR_{adj} 1.85 (95%CI 1.47 to 2.33)).

Microaggressions as distal stressors

In complete case analysis (n=574), distal stressors (behavioural discomfort from others and denial of societal transphobia) were associated with a 2.01-point increase in depressive symptoms (95%CI 1.51 to 2.51). After adjusting for confounders there was a slight attenuation in the association (adjusted coefficient 1.81 (95%CI 1.33 to 2.31)). Distal stressors were also associated with a 1.66-point increase in anxiety symptoms (95%CI 1.19 to 2.13). After adjusting for confounders there was a slight attenuation in the association (adjusted coefficient 1.53 (95%CI 1.07 to 2.00)). Distal stressors were associated with an increase of 2.47 odds in suicidal thoughts (95%CI 1.71 to 3.58). After adjusting for confounders there was a slight attenuation in the association (OR_{adj} 2.15 (95%CI 1.45 to 3.16)). Similarly, for suicide attempts there was an increase in 1.43 odds (95%CI 1.20 to 1.69)), and a slight attenuation after adjusting for confounders (OR_{adj} 1.37 (95%CI 1.15 to 1.63)). For NSSH, distal stressors were associated with an increase in 1.65 odds for NSSH (95%CI 1.33 to 2.04). After adjusting for confounders, the association attenuated slightly (OR_{adj} 1.57 (95%CI 1.25 to 1.97)).

Table 3-4: analysis of proximal and distal microaggressions with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts 5

Model N=574	**Proximal Stressors (misuse of pronouns, invasion of bodily privacy, and denial of gender identity)**				**Distal Stressors (behavioural discomfort from others and denial of societal transphobia)**			
	Unadjusted		**Adjusted**		**Unadjusted**		**Adjusted**	
	Coefficient (95%CI)	**P-value**	**Adjusted Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**	**Adjusted Coefficient (95%CI)**	**P-value**
Depressive Symptoms (PHQ-9 – previous two weeks)	1.88 (1.37 to 2.39)	<0.001	1.63 (1.11 to 2.14)	<0.001	2.01 (1.51 to 2.51)	<0.001	1.82 (1.33 to 2.31)	<0.001
Anxiety symptoms (GAD-7 - Previous two weeks	1.59 (1.12 to 2.07)	<0.001	1.38 (0.89 to 1.87)	<0.001	1.66 (1.19 to 2.13)	<0.001	1.53 (1.07 to 2.00	<0.001
	Odds Ratio (95%CI)	**P-value**	**Adjusted Odds Ratio (95%CI)**	**P-value**	**Odds Ratio (95%CI)**	**P-value**	**Adjusted Odds Ratio (95%CI)**	**P-value**
Suicidal thoughts (lifetime)								
No	1		1		1		1	
Yes	2.35 (1.72 to 3.20)	<0.001	1.99 (1.41 to 2.80)	<0.001	2.47 (1.71 to 3.58)	<0.001	2.15 (1.45 to 3.16)	<0.001
Suicide attempts (lifetime)								
No	1		1		1		1	
Yes	1.71 (1.43 to 2.06)	<0.001	1.66 (1.36 to 2.02)	<0.001	1.43 (1.20 to 1.69)	<0.001	1.37 (1.15 to 1.63)	<0.001
Non-suicidal self-harm (lifetime)								
No	1		1		1		1	
Yes	1.97 (1.60 to 2.44)	<0.001	1.85 (1.47 to 2.33)	<0.001	1.65 (1.33 to 2.04)	<0.001	1.57 (1.25 to 1.97)	<0.001

<0.001* Adjusted for age, ethnicity, perceived gender, education, sexuality, and disability

**Restricted to those with complete cases on microaggressions, mental health outcomes, and confounders

PHQ – Patient Health Questionnaire; GAD = Generalised Anxiety Disorder Scale

3.7.4 Sensitivity analysis

Comparisons of sociodemographic characteristics between those with missing and complete data on microaggressions were generally consistent. There were some variables with inconsistencies, for example currently living in affirmed gender, where those with missing data were more likely to not be living in their affirmed gender (see Table 3-1 for full comparison). Similarly, those who with missing data were more likely to not have undergone a social transition (akin to the not living in affirmed gender). Moreover, those with missing data were more likely to be living in urban settings (83.6% vs 73.7%). All other variables had no imbalances in missingness. For clinical characteristics, across the NSSH, suicidal thoughts, and suicide attempt outcomes, a general trend that those with suicidal thoughts, and lifetime history of non-suicidal self-injury were more likely to have complete data, missingness in the suicide attempt variable was balanced suggesting that those who attempt suicide are not more or less likely to have missing data. When looking specifically at microaggression missingness, currently not living in affirmed gender, and having not undergone a social transition predicted missingness, as well as suicidal thoughts (wishing one were dead), lifetime history of non-suicidal self-injury, depressive symptoms, and anxiety symptoms. Suggesting that those who had complete data on microaggressions scored higher on PHQ-9 and GAD-7 as well as having larger proportions of suicidality outcomes. All other variables were balanced.

sTable 3-1: Missing and Complete data comparison for overall sample and those with cases on microaggressions 6

	Overall sample		
Variable	Missing (%)	Complete (%)	P-value
Gender Identity			
Trans men	33 (19.2%)	104 (19.2%)	0.194
Trans women	46 (27.4%)	188 (43.6%)	
Nonbinary	89 (53.0%)	251 (46.2%)	
Currently living in affirmed gender			
Yes, either all or most of the time	145 (81.5%)	476 (82.9%)	0.652
No, not living in affirmed gender	33 (18.5%)	98 (17.1%)	
Perceived gender by others			
As a trans person	26 (14.6%)	114 (19.9%)	0.568
As the sex assigned at birth	35 (19.7%)	116 (20.2%)	
As the gender identified	83 (46.6%)	247 (43.0%)	
Does not know	16 (9.0%)	49 (8.5%)	
Other	18 (10.1%)	48 (8.4%)	
Physical transition			
No, has not undergone/not relevant	28 (15.7%)	70 (12.2%)	0.444
Yes, proposing to undergo	36 (20.2%)	123 (21.4%)	
Yes, currently undergoing	61 (34.3%)	200 (34.8%)	
Yes, undergone	27 (15.2%)	113 (19.7%)	
Unsure/Prefer not to say/Other	26 (14.6%)	68 (11.9%)	
Social transition			
No, has not undergone/not relevant	8 (4.5%)	13 (2.3%)	0.005
Yes, proposing to undergo	11 (6.2%)	44 (7.7%)	
Yes, currently undergoing	55 (30.9%)	161 (28.1%)	
Yes, undergone	87 (48.9%)	335 (58.4%)	
Unsure/Prefer not to say/Other	17 (9.6%)	21 (3.7%)	
Age			
18-25	76 (38.0%)	225 (39.2%)	0.946
26-34	71 (35.5%)	193 (33.6%)	
35-44	28 (14.0%)	87 (15.2%)	
45+	25 (12.5%)	69 (12.0%)	
Country of current residence			
England	124 (86.1%)	483 (84.2%)	0.296
Northern Ireland	<5 (2.8%)	6 (1.1%)	
Scotland	12 (8.3%)	66 (11.5%)	
Wales	<5 (2.8%)	19 (3.3%)	
Urbanicity			
Urban	122 (83.6%)	423 (73.7%)	0.039
Rural	20 (13.7%)	133 (23.2%)	
Don’t know/Other	<5 (2.7%)	18 (3.1%)	
Ethnicity			
Ethnic minority	6 (18.2%)	49 (8.5%)	0.061
White	27 (81.8%)	525 (91.5%)	
Education			
No formal education	4 (2.7%)	11 (1.9%)	0.495
GCSEs or equivalent	5 (3.4%)	35 (6.1%)	
A’ Levels, Scottish Highers	29 (19.9%)	115 (20.0%)	
University Degree, e.g., BSc BA	43 (29.5%)	193 (33.6%)	
master’s degree or equivalent	43 (29.5%)	135 (23.5%)	
Doctorate, e.g., MD or PhD	13 (8.9%)	39 (6.8%)	
Vocational qualifications	9 (6.2%)	46 (8.0%)	

Sexuality			
LGB/Queer/Questioning/Asexual/Aromantic	131 (91.6%)	548 (95.5%)	0.065
Heterosexual	12 (8.4%)	26 (4.5%)	
Disability expected to last 12 months or longer			
No	36 (25.2%)	138 (24.0%)	0.777
Yes	107 (74.8%)	436 (76.0%)	
Disability reducing ability to carry out day to day activities			0.663
Not at all	7 (6.7%)	26 (6.0%)	
Yes, a little	69 (66.4%)	273 (62.6%)	
Yes, a lot	28 (26.9%)	137 (31.4%)	
Diagnosed mental health condition			
No	9 (6.7%)	26 (4.5%)	0.675
Yes	116 (86.6%)	511 (89.0%)	
Prefer not to say/don't know	9 (6.7%)	37 (6.5%)	
PHQ-9 (depressive symptoms, past two weeks)	9.84 (6.81)	12.06 (6.49)	0.001
GAD-7 (anxiety symptoms, past two weeks)	8.75 (6.32)	10.07 (6.02)	0.03
Lifetime history of thinking life is not worth living (passive suicidal thoughts)			
No	20 (14.9%)	46 (8.0%)	0.013
Yes	144 (85.1%)	528 (92.0%)	
Lifetime history of wishing one were dead (passive suicidal thoughts)			
No	28 (20.9%)	61 (10.6%)	0.001
Yes	106 (79.1%)	513 (89.4%)	
Lifetime history of suicidal thoughts			
No	24 (17.9%)	49 (8.5%)	0.001
Yes	110 (82.1%)	525 (91.5%)	
Lifetime history of suicide attempts			
No	89 (66.3%)	343 (59.8%)	0.155
Yes	45 (33.6%)	231 (40.2%)	
Lifetime history of NSSH			
No	42 (31.3%)	126 (21.9%)	0.021
Yes	92 (68.7%)	448 (78.1%)	

NSSH – non-suicidal self-harm

PHQ-9 – Patient Health Questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

Items in bold reflect significant differences between the groups

Multiple Imputation by Chained Equations

After imputation, I found similar estimates of the coefficients and odds ratios in the main analysis and in my two MICE models, with subtle attenuation in the coefficients as sample sizes increased between the two models (see sTable 3-2 for comparison of MICE models in the main analysis).

sTable 3-2: Multiple imputed analysis of GIMS and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts 7

	Gender Identity Microaggressions (GIMS) Model one†				***Gender Identity Microaggressions (GIMS) Model two††***			
	Unadjusted		***Adjusted†††***		***Unadjusted***		***Adjusted†††***	
	Model N	**Coefficient (95%CI)**	**Model N**	**Coefficient (95%CI)**	**Model N**	**Coefficient (95%CI)**	**Model N**	**Coefficient (95%CI)**
PHQ-9 – Depressive symptoms (past two weeks)	679	2.09* (1.62 to 2.57)	679	1.75* (1.29 to 2.23)	787	1.88* (1.40 to 2.36)	787	1.55* (1.06 to 2.04)
GAD-7 – Anxiety symptoms (past two weeks)	679	1.69* (1.24 to 2.13)	679	1.42* (0.97 to 1.87)	787	1.51* (1.06 to 1.96)	787	1.25* (0.80 to 1.70)
	Model N	**Odds Ratio (95%CI)**	**Model N**	**Odds Ratio (95%CI)**	**Model N**	**Odds Ratio (95%CI)**	**Model N**	**Odds Ratio (95%CI)**
Lifetime suicidal thoughts (thoughts to attempt suicide) No Yes	679	1 2.57* (1.93 to 3.43)	679	1 2.18* (1.60 to 2.97)	787	1 2.27* (1.71 to 3.01)	787	1 1.93* (1.44 to 2.59)
Lifetime suicide attempt No Yes	679	1 1.68* (1.42 to 1.99)	679	1 1.59* (1.34 to 1.89)	787	1 1.60* (1.35 to 1.89)	787	1 1.51* (1.26 to 1.80)
Lifetime NSSH No Yes	679	1 1.85* (1.53 to 2.24)	679	1 1.72* (1.40 to 2.12)	787	1 1.74* (1.43 to 2.10)	787	1 1.62* (1.33 to 1.99)

† Model one contains imputed confounders and outcomes and is restricted to complete cases on exposure (GIMS)
†† Model two contains imputed exposure, confounders, and outcomes, and is not restricted to complete cases
††† Adjusted for age, ethnicity, perceived gender, education, sexuality, and disability
* Significant at p<0.001
NSSH – non-suicidal self-harm
PHQ – Patient Health Questionnaire
GAD – Generalised Anxiety Disorder Scale

Loneliness as a putative mediator

After adding loneliness to my five main fully adjusted models, I found no significant attenuation of any of the associations (sTable 3-3).

sTable 3-3: Associations between microaggressions (total GIMS score) and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts adjusting for loneliness. 8

	Unadjusted (model 1)			*Final fully adjusted* (model 2)*			*Model 2 further adjusted for loneliness***		
	Model N	**Coefficient (95%CI)**	**P-value**	**Model N**	**Coefficient (95%CI)**	**P-value**	**Model N**	**Coefficient (95%CI)**	**P-value**
PHQ-9 – Depressive symptoms Past two weeks	511	1.96 (1.42 to 2.50)	<0.001	511	1.71 (1.17 to 2.25)	<0.001	511	1.30 (0.79 to 1.80)	<0.001
GAD-7 – Anxiety symptoms Past two weeks	511	1.59 (1.09 to 2.09)	<0.001	511	1.41 (0.90 to 1.92)	<0.001	511	1.04 (0.55 to 1.53)	<0.001
	Model N	**OR$_{crude}$ (95%CI)**	**P-value**	**Model N**	**OR$_{crude}$ (95%CI)**	**P-value**	**Model N**	**OR$_{adj}$ (95%CI)**	**P-value**
Lifetime suicidal thoughts No Yes	511	1 2.87 (1.95 to 4.21)	<0.001	511	1 2.48 (1.62 to 3.78)	<0.001	511	1 2.34 (1.52 to 3.61)	<0.001
Lifetime suicide attempt No Yes	511	1 1.73 (1.43 to 2.10)	<0.001	511	1 1.69 (1.37 to 2.08)	<0.001	511	1 1.64 (1.33 to 2.02)	<0.001
Lifetime non-suicidal self-harm No Yes	511	1 1.85 (1.48 to 2.33)	<0.001	511	1 1.68 (1.32 to 2.15)	<0.001	511	1 1.65 (1.29 to 2.11)	<0.001

* Linear and logistic regression models were fully adjusted for baseline mental health outcomes as well as perceived gender, sexuality, ethnicity, age, sexuality, stage of physical and/or social transition, and disability

** Linear and logistic regression models fully adjusted for confounders plus with the addition of loneliness as a putative mediator

PHQ – Patient Health Questionnaire

GAD – Generalised Anxiety Disorder

GIMS – Gender Identity Microaggressions Scale

3.8 Discussion

3.8.1 Summary of findings from cross-sectional study

Analysing data from a large sample of trans people from across the UK, I found that experiences of microaggressions were common and were associated with increased severity of depressive symptoms and anxiety symptoms, and increased odds of lifetime NSSH, suicidal thoughts, and suicide attempts. This supported my hypothesis that experiencing more microaggressions would be associated with greater mental health symptoms in trans people compared to those who experienced fewer microaggressions, tested for the first time using validated measures. I also applied the Gender Minority Stress Framework to examine the effect of proximal microaggressions and distal microaggressions, finding that both proximal and distal microaggressions were associated with increased mental health outcomes.

3.8.2 Findings in the context of other studies

My findings are generally consistent with other empirical evidence on microaggressions, which have been shown to be associated with poorer mental health and wellbeing in other minoritised and marginalised communities, such as minority ethnic communities and LGB communities (Chen et al., 2021; Gattis & Larson, 2017; T. Kaufman et al., 2017; Nadal, Davidoff, et al., 2015). This study corroborates the evidence found in the literature of an association between microaggressions and their associations with mental health and wellbeing more specifically within trans people (Cascalheira & Choi, 2022; Parr & Howe, 2021; Wike et al., 2021; Woodford, Joslin, Pitcher, & Renn, 2017). However, this study went beyond previous literature by the framing these associations using the Gender Minority Stress Framework through validated measures of microaggressions and mental health, including depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts. I found associations between proximal and distal microaggressions and all five mental health outcomes, suggesting that microaggressions which occur both directly and indirectly to the individual have a similar impact on their mental health. This provides evidence for not only the microaggression theory which posits that microaggressions will have an effect both directly and indirectly (Nadal et al., 2012), but also the gender minority stress theory which highlights minority stressors having interpersonal and intrapersonal effects.

3.8.3 Limitations of the study

Strengths of this study include a sample size that is larger than other studies examining microaggressions using the GIMS (N=292), the use of a measure of microaggressions psychometrically validated in the trans community, and the use of including validated measures of mental health (Cascalheira & Choi, 2022). I used robust statistical models, with confounders chosen *a priori*, and used a range of sensitivity analyses to test for the influence of missing data on estimates.

Whilst I provided some investigations into gender identity category differences in microaggressions and mental health outcomes suggesting some differences in experience in relation to NSSH, further investigation is required into the unique experiences of different gender groups and further consideration of the role of microaggressions within this relationship. It is plausible that the nature of associations of microaggressions with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts differ between these groups, with clinical implications for each. For example, the needs of trans women may differ from trans men in relation to microaggressive experiences and how this manifests in mental health outcomes. Whilst it is arguable that the overarching experience of microaggressions may have similar impacts on the clinical progression of mental health outcomes, the unique experience related to transmisogyny and microaggressions that intersect between sexism and transphobia may have confounding effects increasing the associations found.

My sampling method carries a risk of selection bias and digital exclusion. Selection bias may have arisen due to selective avoidance and selective sharing of the recruitment call. My comparison of samples with missing and complete data suggests that those at an earlier stage of transition were more likely to drop out and had higher scores on NSSH suicidal thoughts, and suicide attempt outcomes, but lower depressive symptoms and anxiety scores. There may have been overrepresentation of those with poor mental health thus inflating the reported prevalence of mental health conditions. However, my estimates of the associations of poor mental health with microaggressions should remain valid.

Recent ONS census data on gender diversity within the UK suggests that 16-24 year olds were the age group most likely to indicate that their gender identity was different to their sex assigned at birth, followed by 25–34 year-olds (Statistics, 2023). This is consistent with the 73% of respondents to my survey who were aged under 35. However, this study has an under-representation from minority ethnic communities when compared to the general population distribution (ONS, 2022). This under-representation may have been influenced by the socio-demographic composition of the coproduction team and the wider research team. I lacked advice from trans people of colour during the design stage and therefore could have neglected issues salient to this community within my survey as well as sampling considerations that would have improved ethnic minority representation. Future research should prioritise diversity within research and coproduction teams and make efforts to ensure adequate sampling from minority ethnic communities to improve the diversity and representativeness of the study sample. These might include, for example, appropriate incentivisation and outreach efforts.

It is important to recognise the role of intersectionality between ethnicity, disability, and sexuality when considering microaggressions (Singh et al., 2021). Multiple intersecting identities increase the risk of exposure to microaggressions, and in turn the risk for mental ill health (Singh et al., 2021). Whilst I collected data on ethnicity, disability, and sexuality I lacked statistical power to investigate the effects of intersectionality. I lacked statistical power as the sample sizes of these groups to investigate each separately, e.g., 49 participants identified as ethnic minorities. Producing analyses on the basis of 49 participants in the case of ethnicity would be inappropriate given the likely biases in the estimates and drawing conclusions on this would be ethically flawed. This is because the results are not likely to be representative and so making recommendations on unrepresentative data would likely not serve the wider community. Further work is needed to explore associations within intersecting identities with regards to microaggression experiences and mental health outcomes. To boost recruitment to marginalised communities, further work is needed to build connections between research teams and organisations/charities that cater specifically to marginalised communities to improve the experience of research participation and to make research appropriate to the needs of the community.

I adjusted my final models for stage of physical transition and stage of social transition but ideally would have liked to have collected primary data on access to gender—

affirming care. Similarly, my sensitivity analyses tested the effect of adding loneliness to final models, as a putative mediator, finding no evidence to support this hypothesis. However, ideally, I would have liked to conduct formal mediation analysis using longitudinal data and a validated measure of social support, which in the context of my further reading may be a more plausible mediator.

Another limitation of the analysis was my lack of Bonferroni correction. Bonferroni correction is used in cases of multiple hypothesis testing, this is because with multiple analytical models there is an increased chance of finding significant results by chance. To correct this, a more conservative estimate of significance is employed. Whilst I did not correct using Bonferroni, future research into microaggressions should employ this correction to multiple hypothesis testing.

Finally, the cross-sectional nature of the study means I was unable to establish temporality in the associations observed. The measures I used to capture microaggression experiences, NSSH, suicidal thoughts, and suicide attempts related to lifetime experiences, whereas depressive symptoms and anxiety symptoms were assessed over the previous two weeks. With data collection at one time point, I was unable to establish whether the exposure (microaggression experiences) preceded the symptoms. I therefore cannot rule out reverse causality in the association between microaggressions and mental health outcomes. There is potential for a bi-directional relationship between microaggressions and mental health, (Britton et al., 2011). Longitudinal studies are needed to examine the directionality of these associations. Furthermore, as with any observational study, I am unable to rule out any residual confounding from unmeasured variables or confounders measured imperfectly, which may partially explain the associations observed in this study.

3.8.4 Implications and future directions

Public policy and education could reduce the occurrence of microaggressions. Research to develop our understanding of why microaggressions are enacted and how best to reduce their occurrence would lead to better interventions, and furthermore to better mental health outcomes for trans people. Interventions developed for ethnic minority communities include workshops that include the targeted minority alongside the wider community, and other interventions that promote social connectedness, familiarity, closeness, and management of uncomfortable feelings, and reduce social distance

(Williams et al., 2020). Findings suggest that white students randomized to a Racial Harmony Workshop were less likely to perpetrate microaggressions towards minority ethnic students (Williams et al., 2020). However, as highlighted in critiques of the literature on the effectiveness of interventions to address microaggressions, we need more research on effectiveness and acceptability.

Further research is needed to strengthen our understanding of causal inferences relating to these associations. Longitudinal studies are needed to answer questions about whether experiencing microaggressions increases the risk of subsequent depressive and anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts. Understanding the temporal relationship between microaggressions and mental health using longitudinal designs will help researchers and clinicians better understand both the short and long-term associations of microaggressions with mental health, NSSH, suicidal thoughts, suicide attempts, and any reciprocal influences, and tailor intervention design around this. Given the complexity of microaggression experiences, I also recommend further qualitative work through focus groups and interviews to understand how microaggressions interact with each mental health outcome.

3.9 Recap and link to next Chapter

In this Chapter, I have provided evidence of associations between microaggressions and mental health outcomes using cross-sectional analyses. In Chapter 4, I will present the next step in this examination of microaggressions and their relationship with depressive symptoms, anxiety symptoms, and NSSH, suicidal thoughts, and suicide attempts. Chapter 4 entitled "**The temporal relationship between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts in the trans community: A longitudinal study.**" intends to examine the causal nature of microaggressions and their relationship to mental health. As already highlighted in the discussion of this chapter, there is strong evidence of an association between microaggressions and mental health outcomes. However, as discussed in Chapter 1 there is a dearth of robust longitudinal data within trans mental health research, specific to microaggressions, and therefore evidence needs to be strengthened as to the temporality of the relationship between microaggressions and subsequent mental ill health.

CHAPTER 4: THE TEMPORAL RELATIONSHIP BETWEEN MICROAGGRESSIONS AND DEPRESSIVE SYMPTOMS, ANXIETY SYMPTOMS, NSSH, SUICIDAL THOUGHTS, AND SUICIDE ATTEMPTS IN THE TRANS COMMUNITY: A LONGITUDINAL STUDY

4.1 Abstract

Background/Aims: There is evidence that trans people are at an increased risk of depression, anxiety, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. Microaggressions are associated with these mental health outcomes (as shown in Chapter 3). The cross-sectional study design I used is unable to establish the temporality between microaggressions and mental health. Therefore, the aim of this chapter is to examine longitudinal associations of microaggressions with mental health in trans people using validated measures of depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts.

Methods: I collected and analysed follow-up data from participants in the TRANS: Microaggressions & Mental Health baseline study from September 2021 to September 2022 and who had given consent for follow-up. Of the 574 individuals who had provided the original complete case baseline data, 200 participants gave complete follow-up data one year later on the five mental health outcomes (depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt). Data collection took place between February and March 2023.

Results: After adjusting for baseline mental health outcomes, I found evidence that baseline microaggression experiences were associated with an increase in depressive symptoms (adjusted coefficient: 0.82 (95%CI 0.12 to 1.51)). Similarly evidence was found for anxiety symptoms (adjusted coefficient: 0.69 (95%CI 0.11 to 1.28), previous year suicidal thoughts (OR_{adj} 1.53 (95%CI 1.12 to 2.09)), previous year suicide attempts (OR_{adj} 2.52 (95%CI 1.03 to 6.12)), no evidence was found for previous year NSSH after adjusting for baseline NSSH (OR_{adj} 1.20 (95%CI 0.90 to 1.62). After adjusting for baseline outcomes as well as confounders, all evidence had attenuated for depressive symptoms, anxiety symptoms, and previous year suicidal thoughts, and suicide attempts.

Conclusions: In this longitudinal analysis, I found evidence of a temporal relationship between microaggressions and depressive symptoms, anxiety symptoms, and suicidal thoughts. Further work is needed to understand the underlying mechanisms of these

associations with a view to developing interventions to relieve the mental health burden of trans people.

4.2 Introduction

In Chapter 3, I reported the findings of my analyses of cross-sectional data from a sample of trans and non-binary people in the United Kingdom, and the associations found between microaggressions and depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. This analysis of the baseline data suggests that when microaggression experiences increase, there is an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt outcomes. These associations were consistent with cross-sectional evidence from other studies exploring microaggressions in other minoritised and marginalised groups, such as ethnic minorities and LGBT communities (Cascalheira & Choi, 2022; Nadal, Wong, et al., 2015; Parr & Howe, 2021; Seelman et al., 2017). However, I provided further evidence of microaggressions' associations with clinical symptoms of depressive symptoms and anxiety symptoms, as well as NSSH, suicidal thoughts, and suicide attempts.

Given the possibility of reverse causality in cross-sectional data, questions remain as to the nature of any potential causal relationship between microaggressions and mental health in trans people. Prospective cohort studies are well suited to assessing causal hypotheses as they allow for temporal sequencing, i.e., that the exposure precedes the outcome (Twisk, 2013). Very few prospective cohort studies have been conducted within the literature on microaggressions. However, some longitudinal research has shown that microaggressions are associated with poorer mental health among minoritised ethnic groups (Loyd et al., 2022; Ong & Burrow, 2018). In one example, 199 Black adolescent girls and 199 Black women were recruited to a longitudinal study finding that specific microaggression experiences such as assumptions of criminality were associated with a 3% increase in externalising symptoms (e.g., rule-breaking) one year later (Loyd et al., 2022). For Black women specifically, experiencing microaggressions was associated with a 14% increase in mental health symptoms over a one-year period (Loyd et al., 2022). A study sampling 488 individuals from sexual and gender minorities using four waves of data collection over a six-month period found a longitudinal association between microaggressions and mental health (Dyar et al., 2020). In subgroup analyses of the 26.2% sample who were gender minorities, more frequent exposure to microaggressions was associated with greater psychiatric symptoms (Dyar et al., 2020). However, this study investigated microaggressions based on sexual orientation, and whilst minority stress theory may suggest assumptions can be made across minority identity groupings, these findings have little power in relation to the role and mechanisms that transphobic microaggressions play and therefore cannot extrapolate its findings to experiences of transphobic microaggressions.

Currently, there are no longitudinal studies of microaggressions and their associations with mental health in the trans community. both in the United Kingdom and globally This is a considerable research gap that needs to be addressed to better understand the role microaggressions play in the mental health burden of trans people.

4.3 Research aim and hypothesis

Aim: This study sought to strengthen temporal evidence of the relationship between microaggressions and poor mental health in trans people by overcoming uncertainties about reverse causality as highlighted by cross-sectional designs through the use of a longitudinal approach.

Hypothesis: Microaggressions experienced at baseline will be associated with an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts at one-year follow-up.

4.4 Methods

I have detailed the methods of this Chapter in Chapter 2.3. The following section (4.4) acts as a reminder of the instrument, inclusion criteria, sampling strategy, measures, and statistical analysis plans for the follow-up survey.

4.4.1 Instrument

As described in Chapter 2, the TRANS: Microaggressions & Mental Health Project is a survey of trans and non-binary people in the United Kingdom. First wave data collection was completed between September 2021 and September 2022, with the majority of participants participating up until February 2022. The survey assessed depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, suicide attempts, microaggressions, gender minority stress, rumination, and loneliness. The survey was delivered via Opinio, a UCL based software programme for data collection. Participants completed follow-up data collection between February and March 2023.

4.4.2 Inclusion criteria

Participants were asked in the first wave to provide consent for future research arising from the TRANS: Microaggression & Mental Health project. Of the 1039 participants in the dataset, 395 (38%) provided consent and were therefore eligible for inclusion within this longitudinal study. Participants were required to be 18 years old or older, identify as trans, non-binary, and/or gender diverse, and usually reside in the United Kingdom.

4.4.3 Sampling strategy

Participants who provided consent in the first wave of data collection were contacted via email in February 2023 and sent the Participant Information Leaflet and the link to the follow-up survey (hosted on the Opinio server, see appendix 2). Opinio was used to store participants' email addresses and their unique participant identifiers. Reminders were sent once a week at 11 am on a weekday to participants who had not responded to the initial invitation, reminding them that the survey would close on the 22nd of March 2023. Consent was collected through the Opinio survey for participation in the second wave of data collection. Those who completed the follow-up survey were asked for consent to be contacted for further research.

4.4.4 Measures

Consistent with the baseline survey (Chapter 3), I used the same sociodemographic measures in the follow-up study; however, I removed specific sociodemographic questions to decrease the amount of time required to complete the study. The demographics removed were confirmation of trans status, resident country, national identity, urbanicity, ethnicity, sexuality, and religion/spirituality. These variables are available from the baseline survey. The following outlines each outcome and exposure measure individually and relates to microaggressions and adapted measures of depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts. Whilst capturing more up-to-date outcome measures is vital to establishing temporality, I measured microaggressions at follow- up to examine temporal changes in microaggression experiences. For my main inferential analyses I will only refer to the baseline measurement of microaggressions to examine longitudinal changes in mental health

Outcomes

Depressive symptoms (follow-up)

Depressive symptoms were measured using the Patient Health Questionnaire – 9 item version (PHQ-9). This measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with nine items such as *"little interest or pleasure in doing things"* choosing from the following options "Not at all," "Several days," "More than half the days," and "Nearly every day." Scores range from 0-27 and were treated as a continuous outcome, with higher scores indicating more severe depressive symptoms.

Anxiety symptoms (follow-up)

Anxiety symptoms were assessed using the Generalised Anxiety s Disorder Scale – 7 item version (GAD-7). As per the PHQ-9, the measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with seven items such as *"Feeling nervous, anxious, or on edge"* choosing from the following options "Not at all", "Several days", "More than half the days", and "Nearly every day". Scores range from 0-21 and were treated as a continuous outcome, with higher scores indicating more severe anxiety symptoms. The GAD-7 has excellent internal consistency and validity.

Past year non-suicidal self-harm

Previous year NSSH was measured as any form of deliberate harm to oneself without the intention of killing oneself. I used an adapted version of the APMS questionnaire to ask participants *"Have you deliberately harmed yourself in any way but not with the intention of killing yourself during the last year?"*. Participant scores were coded as 0 relating to no past year NSSH, and 1 as past year NSSH.

Past year suicidal thoughts, and suicide attempts (follow-up)

Previous year NSSH, suicidal thoughts and suicide attempts were assessed using self-reported measures taken from the Adult Psychiatric Morbidity Survey's (APMS) questionnaire (McManus et al., 2014). I used an adapted version of this questionnaire to investigate the previous year's NSSH, suicidal thoughts, and suicide attempts. The question wording was as follows: *"Have you thought life was not worth living during the last year?",* and *"Have you made an attempt to take your life, by taking an overdose of* *tablets or in some other way during the last year?"*. Participants then respond with one of the following "Yes," "No," and "Prefer not to say." Scores were coded in a binary manner, with 0 relating to no past-year suicidal thoughts or attempt, and 1 as having experienced past-year suicidal thoughts or attempt.

Exposure

Gender Identity Microaggressions (baseline)

Measured using the Gender Identity Microaggression Scale (GIMS). The GIMS is a 14-item scale with five subscales capturing a) denial of gender identity, e.g., refusing to recognise trans people's gender identity b) misuse of pronouns, e.g., consciously, or unconsciously, referring to a trans person with the wrong pronoun (he, she, and/or they for example) c) invasion of bodily privacy, e.g., asking inappropriate questions about a trans person's genital configuration d) behavioural discomfort, e.g., acting in an uncomfortable manner with a trans person in a sex segregated space (such as public facilities) and e) denial of societal transphobia, e.g., telling a trans person that experiences of transphobia does not exist (e.g., losing a job, or being refused a job, because they are trans). Items were responded to on a 1 to 5 Likert scale, with higher scores indicating more frequent experiences of that microaggression experience. Scores on the scale were summed to produce a total overall score, and ranges from 14 to 70, with higher scores indicating more experiences of gender identity microaggressions. The scale has good internal consistency (Nadal, 2018). In the main longitudinal analysis, as in the baseline cross-sectional analysis, I used the continuous whole scale score as an exposure, to investigate the association with each mental health outcome.

In the follow-up survey, I repeated this measure but adapted it to capture previous year microaggression experiences. I used this measure only to explore temporal changes in microaggression experiences across a one year timespan.

Confounders

The following confounders were selected at baseline and based on previous research (Aversa et al., 2021; Lin et al., 2022; McNeil et al., 2012b; Miller & Smith, 2021; Nadal, Davidoff, et al., 2015; Parr & Howe, 2021) and theoretical assumptions: age, perceived gender, ethnicity, sexuality, disability, education, stage of physical/medical transition, and stage of social transition. These last two variables were chosen as proxies for access to gender—affirming care. For more details on confounders refer to Chapter 2.2.8.

4.5 Research aim and hypothesis revisited.

Aim: This study sought to strengthen temporal evidence of the relationship between microaggressions and poor mental health in trans people by overcoming uncertainties about reverse causality as highlighted by cross-sectional designs through the use of a longitudinal approach.

Hypothesis: Microaggressions experienced at baseline will be associated with an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts at one-year follow-up.

4.6 Statistical Analysis

4.6.1 Main analysis

Descriptive statistics: As planned and described in Chapter 3.6.1, I followed the same statistical protocol here. I described normally distributed variables using means and standard deviations, and skewed variables using medians and inter-quartile ranges of the complete case sample. I used a median split of GIMS at baseline to describe differences in the sample characteristics and potential confounders between high and low levels of microaggression experiences to assist interpretation, although used the continuous measure in my main analyses.

Regression modelling using the total GIMS scale: Firstly, I provided a longitudinal analysis of microaggression changes over the one year follow-up period using a linear regression model with GIMS at baseline for the exposure and GIMS at follow-up as the outcome, which does not take into consideration any confounders. I did this to display any temporal changes in microaggression experiences prior to addressing associations with mental health outcomes. Secondly, I conducted longitudinal analyses using separate linear regression models with microaggressions (GIMS, at baseline) as a continuous exposure and depressive symptoms and anxiety symptoms (PHQ-9 and GAD-7, at follow-up) as continuous outcomes. Maintaining a consistent approach with the baseline paper in Chapter 3, I divided the GIMS scale into its standard deviation units for purposes of meaningful interpretation of the findings. This means the coefficients or odds are an influence of a one standard deviation increase in the baseline value of microaggressions on the mental health outcomes at follow-up. Following this unadjusted model, I partially adjusted for depressive symptoms and anxiety symptoms (baseline) and inspected their influence on effect estimates. After this partial adjustment, I made full adjustments for confounders (age, perceived gender, highest educational qualification, ethnicity, sexuality, disability, and baseline mental health outcomes). Similarly, to investigate NSSH, suicidal thoughts, and suicide attempts, I ran unadjusted logistic regression models for microaggressions (GIMS at baseline) and NSSH, suicidal thoughts, and suicide attempt items (APMS, at follow-up). I partially adjusted these for baseline NSSH, suicidal thoughts, and suicide attempts and then fully adjusted with confounders as above (age, perceived gender, highest educational qualification, ethnicity, sexuality, disability, and baseline mental health outcomes).

As has been described in Chapter 3.5.1 I also grouped the subscales of the GIMS into proximal and distal stressors. I explored the longitudinal associations of proximal and distal microaggressions with mental health outcomes using linear and logistic regression models both unadjusted and adjusted for confounders. To examine changes in microaggression experiences, I used an unadjusted linear regression model to identify any linear trend in microaggressions from baseline to follow-up.

4.6.2 Sensitivity analyses

Missing data: to assess the potential impact of missing data on the association between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, I investigated differences between participants with complete data on microaggressions and those with missing data, as well as complete and missing on depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt outcomes (Sterne et al., 2009). Variables not used in the analytic models but were predictive of missing data were included in the models as auxiliary variables to improve the estimates of the imputed values. These variables were the stage of social transition, if the participant was living in their affirmed gender or not, and the stage of physical transition. I used Multiple Imputation by Chained Equations (MICE) to impute missing data and created twenty-five datasets, and then combined using Rubin’s rules. I then reran all analyses and restricted them to those with complete cases of microaggressions at baseline. This was done to compare the precision of the estimates across imputations as well as the complete case analysis.

Loneliness as a putative mediator: As described in Chapter 3, I also added a *post hoc* sensitivity analysis to assess for evidence that poor social connectedness might help explain the association between microaggressions and the mental health outcomes, based on the possibility that this might lie on the causal pathway from microaggressions to mental health distress. I used loneliness at baseline to capture poor social connectedness, measured using the ULS-3, a validated measure capturing the subjective experience of loneliness (Lin et al., 2022). I added loneliness, as a putative mediator, to my final adjusted models and compared the coefficients from this sensitivity analysis to those in my main analyses (Lin et al., 2022).

All analyses were conducted using Stata 17.1 (StataCorp., 2021).

4.7 Ethics

An amendment was made to the Research Ethics Committee (see appendix 1). The amendment sought to gain approval to contact participants who gave consent in the baseline study. The amendment also sought to condense and revise the baseline survey to reduce the amount of time taken to complete the follow-up survey, as well as to assess current mental health outcomes. This study received ethical approval from UCL (University College London) Research Ethics Committee (200485/001).

4.8 Results

4.8.1 Demographics

Response to the follow-up survey

Of the 787 participants from the first wave of data collection, 602 (76.5%) of participants answered a question about participating in follow-up studies. Of these participants, 405 (67.3%) provided consent to be contacted. There were general similarities across sociodemographic and clinical characteristics between those who gave consent and those who did not give consent at baseline (see Table 4-1). Of the 405 who consented, 253 (62.5%) responded to the invitation for this follow-up study, with 200 (49.4%) providing complete data on the exposure, confounders, and outcomes, comprising my analytical sample. See Figure 4-1 for a sample flow diagram of participants in the follow-up study.

Figure 4-1: Sample flow diagram of participants from baseline to follow-up 2

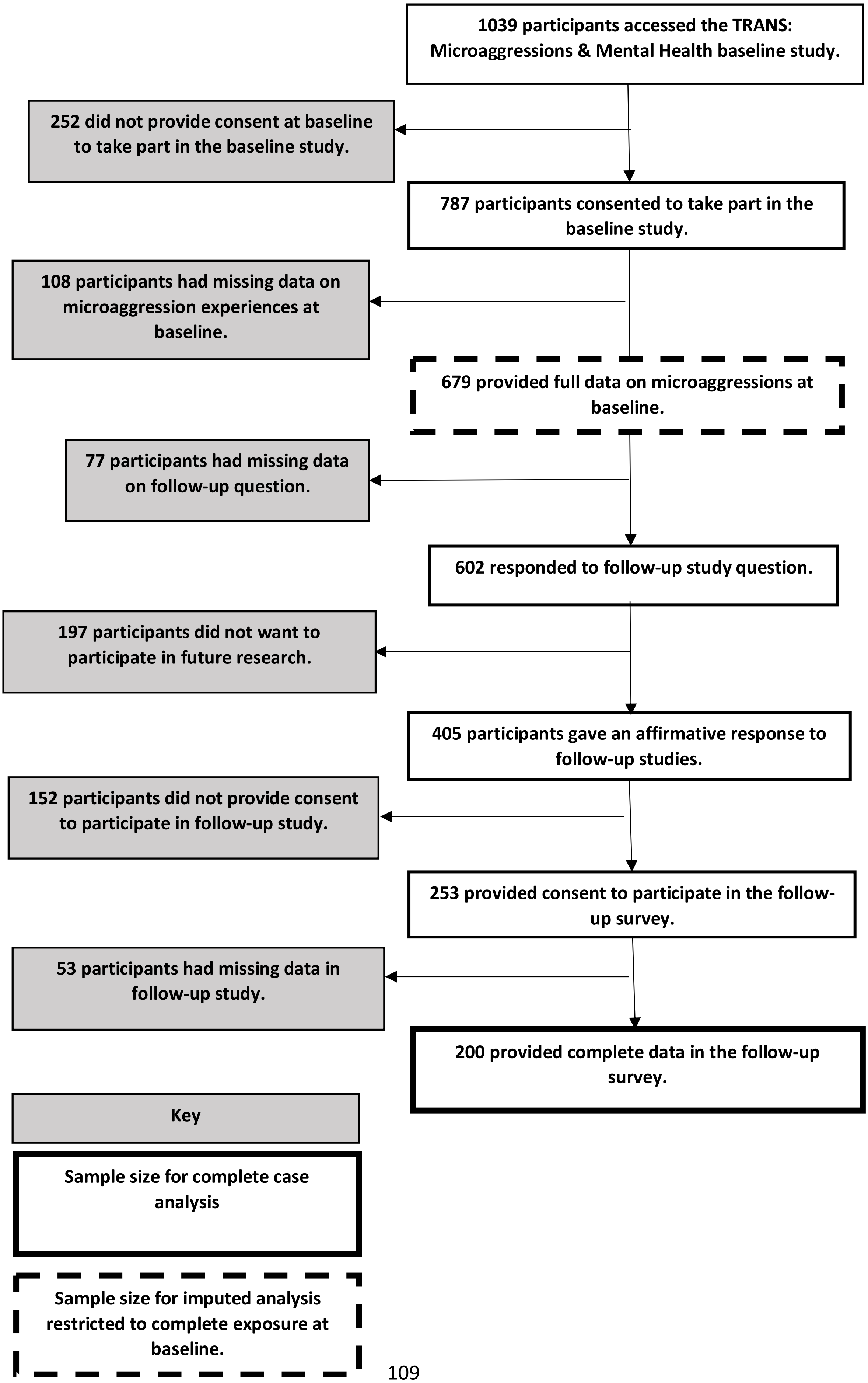


Table 4-1: Comparison of sociodemographic and clinical characteristics for those who consented to take part in follow-up research at baseline 9

	Overall sample (N=602)		
Variable (baseline)	No consent, n (%) or mean (SD)	Consent given, n (%) or mean (SD)	P-value
Gender Identity			
Trans men	42 (22.7%)	75 (19.4%)	0.542
Trans women	64 (34.6%)	130 (33.6%)	
Nonbinary	79 (42.7%)	185 (47.0%)	
Currently living in affirmed gender			
Yes, either all or most of the time	163 (82.7%)	349 (86.2%)	0.268
No, not living in affirmed gender	34 (17.3%)	56 (13.8%)	
Perceived gender by others			
As a trans person	40 (20.3%)	82 (20.3%)	0.633
As the sex assigned at birth	36 (18.3%)	88 (21.7%)	
As the gender identified	91 (46.2%)	166 (41.0%)	
Does not know	12 (6.1%)	34 (8.4%)	
Other	18 (9.1%)	35 (8.6%)	
Physical transition			
No, has not undergone/not relevant	32 (16.2%)	41 (10.1%)	0.091
Yes, proposing to undergo	43 (21.8%)	79 (19.5%)	
Yes, currently undergoing	61 (31.0%)	160 (39.5%)	
Yes, undergone	42 (21.3%)	77 (19.0%)	
Unsure/Prefer not to say/Other	19 (9.6%)	48 (11.9%)	
Social transition			
No, has not undergone/not relevant	9 (4.6%)	2 (0.5%)	**0.006**
Yes, proposing to undergo	13 (6.6%)	28 (6.9%)	
Yes, currently undergoing	50 (25.4%)	121 (29.9%)	
Yes, undergone	120 (60.9%)	236 (58.3%)	
Unsure/Prefer not to say/Other	5 (2.5%)	18 (4.4%)	
Age			
18-25	83 (42.1%)	149 (36.8%)	0.243
26-34	63 (32.0%)	142 (35.1%)	
35-44	23 (11.7%)	67 (16.5%)	
45+	28 (14.2%)	47 (11.6%)	
Country of current residence			
England	168 (85.3%)	346 (85.4%)	0.999
Northern Ireland	3 (1.5%)	6 (1.5%)	
Scotland	20 (10.2%)	40 (9.9%)	
Wales	6 (3.1%)	13 (3.2%)	
Urbanicity			
Urban	152 (77.2%)	301 (74.3%)	0.751
Rural	39 (19.8%)	90 (22.2%)	
Do not know/Other.	6 (3.1%)	14 (3.5%)	
Ethnicity			
Ethnic minority	14 (8.6%)	25 (7.3%)	0.608
White	149 (91.4%)	318 (92.7%)	
Education (at baseline)			
No formal education	7 (3.6%)	4 (1.0%)	0.267
GCSEs or equivalent	15 (7.6%)	21 (5.2%)	
A’ Levels, Scottish Highers	40 (20.3%)	76 (18.8%)	
University Degree, e.g., BSc BA	58 (29.4%)	138 (34.1%)	
master’s degree or equivalent	51 (25.9%)	104 (25.7%)	
Doctorate, e.g., MD or PhD	14 (7.1%)	31 (7.7%)	
Vocational qualifications	12 (6.1%)	31 (7.7%)	

Sexuality (at baseline) LGB/Queer/Questioning/Asexual/Aromantic Heterosexual	 187 (94.9%) 10 (5.1%)	 381 (94.1%) 24 (5.9%)	 0.672
Disability expected to last 12 months or longer No Yes	49 (24.9%) 148 (75.1%)	93 (23.0%) 312 (77.0%)	0.604
Disability reducing ability to carry out day to day activities Not at all Yes, a little Yes, a lot.	11 (7.4%) 107 (72.3%) 30 (20.3%)	17 (5.5%) 190 (60.9%) 105 (33.7%)	**0.012**
Diagnosed mental health condition No Yes Prefer not to say/do not know.	 14 (7.1%) 173 (87.8%) 10 (5.1%)	 13 (3.2%) 362 (89.4%) 30 (7.4%)	 0.061
PHQ-9 (depressive symptoms, past two weeks)	11.53 (6.65)	11.94 (6.50)	0.479
GAD-7 (anxiety symptoms, past two weeks)	9.68 (6.05)	10.05 (6.04)	0.479
Past year thinking life is not worth living (passive death wish) No Yes	19 (9.6%) 178 (90.4%)	30 (7.4%) 375 (92.6%)	0.346
Past year wishing one were dead (passive death wish) No Yes	28 (14.2%) 169 (85.8%)	36 (8.9%) 369 (91.1%)	**0.047**
Past year suicidal thoughts No Yes	 22 (11.2%) 175 (88.8%)	 31 (7.7%) 374 (92.4%)	 0.153
Past year suicide attempts No Yes	 127 (64.5%) 70 (35.5%)	 238 (58.8%) 167 (41.2%)	 0.179
Past year NSSH No Yes	 54 (27.4%) 143 (72.6%)	 83 (20.5%) 322 (79.5%)	 0.058

NSSH – non-suicidal self-harm

PHQ-9 – Patient Health Questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

Demographic and clinical description of the follow-up data

Demographics at follow-up

Here I am providing a cross-sectional analysis of the sociodemographic information of the follow-up study participants. Of the 200 participants who participated in the follow-up study, the most endorsed gender identity was non-binary (n=90, 45.0%), with a further 57 (28.5%) identifying as trans women, and 43 (21.5%) as trans men. Most participants were White (n=189, 94.5%), with 11 (5.5%) participants within Black, Asian, and Minority Ethnic communities. Most participants endorsed a physical or mental health condition that was expected to last a year or longer (n=151, 75.0%), with most participants indicating that this affected them a little (n=88, 58.2%) or a lot (n=54, 35.8%). Most participants were in full time employment (n=121, 60.5%), and a further 21 (10.5%) were students, and 21 (10.5%) were employed part time. See Table 4-2 for full demographics of the follow-up sample.

Mental health outcomes at follow-up

I also provide a cross-sectional analysis of the sample's clinical characteristics in the follow-up data. In terms of mental health outcomes, participants had a mean score on the PHQ-9 of 12.15 (SD 6.19), and a mean score on the GAD-7 of 9.43 (SD 5.62) at follow-up. With regards to NSSH, suicidal thoughts, and suicide attempt outcomes at follow-up, 77 (38.5%) had engaged with NSSH, 128 (64.0%) had past year suicidal thoughts., and 8 (4.0%) had made a suicide attempt in the past year. see Table 4-2 for clinical characteristics. Participants who experienced high levels of microaggressions (HM) had scored 3.00 points higher in PHQ-9 at follow-up compared to those who experienced low microaggressions (LM), (HM: 13.42 (SD 6.20) vs LM: 10.42 (5.77)). Similarly, for anxiety symptoms using the GAD-7 at follow-up, those in the high microaggression group had scored 2.83 points higher compared to the low microaggression group (HM: 10.63 (SD 5.47) vs LM: 7.80 (SD 5.44)).

Table 4-2: Demographic distribution of participants who participated in follow-up 10

Sociodemographic	Overall sample (n=200; 100%)	Low microaggressions (n=85; 65.5%)	High microaggressions (n=115; 34.5%)
Gender (at follow-up)			
Trans women	57 (28.5%)	27 (32.9%)	30 (27.8%)
Trans men	43 (21.5%)	16 (19.5%)	27 (25.0%)
Non-binary	90 (45.0%)	39 (49.6%)	51 (47.2%)
Currently living in affirmed gender (at follow-up)			
No, not living in affirmed gender	19 (9.5%)	10 (11.8%)	9 (7.8%)
Yes, either all or most of the time	181 (90.5%)	75 (88.2%)	106 (92.2%)
Perceived gender by others (at follow-up)			
As a trans person	50 (25.0%)	10 (11.8%)	28 (24.4%)
As the gender identified	52 (26.0%)	20 (23.5%)	28 (24.4%)
As the sex assigned at birth	66 (33.0%)	41 (48.2%)	36 (31.2%)
Does not know	13 (6.5%)	11 (12.9%)	8 (7.0%)
Other	19 (9.5%)	<5	15 (13.0%)
Physical transition (at follow-up)			
No, has not undergone/not relevant	23 (11.5%)	16 (18.8%)	7 (6.1%)
Yes, proposing to undergo	63 (31.5%)	20 (23.5%)	43 (37.4%)
Yes, currently undergoing	28 (14.0%)	12 (14.1%)	16 (13.9%)
Yes, undergone	-	-	-
Unsure/Prefer not to say/Other	86 (43.0%)	37 (43.5%)	49 (42.6%)
Social transition (at follow-up)			
No, has not undergone/not relevant	-	-	-
Yes, proposing to undergo	-	-	-
Yes, currently undergoing	148 (74.0%)	59 (69.4%)	89 (77.4%)
Yes, undergone	-	-	-
Unsure/Prefer not to say/Other	52 (26.0%)	26 (30.6%)	26 (22.6%)
Age (at follow-up)			
18 to 25	58 (29.0%)	27 (31.8%)	31 (27.0%)
26 to 34	76 (38.0%)	28 (32.9%)	48 (41.7%)
35 to 44	39 (19.5%)	19 (22.4%)	20 (17.4%)
45+	27 (13.5%)	11 (12.9%)	16 (13.9%)
Ethnicity (at baseline)			
Ethnic minority	11 (5.5%)	6 (7.1%)	5 (4.4%)
White	189 (94.5%)	79 (92.9%)	110 (95.6%)
Education (at follow-up)			
No education			
GCSEs or equivalent	<5	-	<5
A level(s), Scottish Highers or	6 (3.0%)	<5	<5
equivalent	36 (18.0%)	16 (18.8%)	20 (17.4%)
University Degree	60 (30.0%)	24 (28.2%)	36 (31.3%)
Master's Degree	65 (32.5%)	28 (32.9%)	37 (32.2%)
Doctorate	17 (8.5%)	8 (9.4%)	9 (7.8%)
Vocational Qualifications	15 (7.5%)	7 (8.2%)	8 (7.0%)
Employment (at follow-up)			
Unemployed and unable to work			
Unemployed and looking for work	21 (10.5%)	6 (7.1%)	15 (13.0%)
Employed, part time	9 (4.5%)	<5	6 (5.2%)
Employed, full time	22 (11.0%)	8 (9.4%)	14 (12.2%)
Student	121 (60.5%)	55 (64.7%)	66 (57.4%)
Full time homemaker/Carer	21 (10.5%)	10 (11.8%)	11 (9.6%)

Temporarily off work/Retired	<5 <5	<5 <5	<5 <5
Country currently residing in (at baseline)			
England	172 (86.0%)	75 (88.2%)	97 (84.4%)
Northern Ireland	<5	<5	<5
Scotland	18 (9.0%)	5 (5.6%)	13 (11.3%)
Wales	8 (4.0%)	<5	<5
National identity (at baseline)			
British	70 (35.0%)	30 (35.3%)	40 (34.8%)
English	91 (45.5%)	43 (50.6%)	48 (41.7%)
Northern Irish	<5	<5	<5
Scottish	17 (8.5%)	<5	13 (11.3%)
Welsh	5 (2.5%)	<5	<5
Other	15 (7.5%)	6 (7.1%)	9 (7.8%)
Urbanicity (at baseline)			
Urban	151 (75.5%)	62 (72.9%)	89 (77.3%)
Rural	41 (20.5%)	20 (23.5%)	21 (18.3%)
Don’t know/Other	8 (4.0%)	<5	5 (4.4%)
Religion/Spirituality (at baseline)			
Buddhist	<5	<5	-
Christian (all denominations)	14 (7.0%)	<5	10 (8.7%)
Hindu	<5	-	<5
Jewish	<5	-	<5
Muslim	<5	-	<5
Pagan	16 (8.0%)	7 (8.2%)	9 (7.8%)
No religion and/or spiritual beliefs	148 (74.0%)	64 (75.3%)	84 (73.0%)
Any other religion	15 (7.5%)	8 (9.4%)	7 (6.1%)
Sexuality (at baseline)			
Asexual	13 (6.5%)	7 (8.2%)	6 (5.2%)
Bisexual	69 (34.5%)	37 (43.5%)	32 (27.8%)
Gay	30 (15.0%)	8 (9.4%)	22 (19.1%)
Heterosexual	7 (3.5%)	<5	<5
Lesbian	22 (11.0%)	10 (11.8%)	12 (10.4%)
Pansexual	19 (9.5%)	6 (7.1%)	13 (11.3%)
Queer	30 (15.0%)	8 (9.4%)	22 (19.1%)
Questioning	5 (2.5%)	<5	<5
Not listed	5 (2.5%)	<5	<5
Clinical Characteristics	**Overall sample mean (SD), or n (%)**	**Low microaggressions mean (SD), or n (%)**	**High microaggressions mean (SD), or n (%)**
PHQ-9 (depressive symptoms, past two weeks)	12.15 (6.19)	10.42 (5.77)	13.42 (6.20)
GAD-7 (anxiety symptoms, past two weeks)	9.43 (5.62)	7.80 (5.44)	10.63 (5.47)
Disability (physical or mental health condition that lasts 12 months or more)			
No			
Yes	49 (24.5%)	24 (28.2%)	25 (21.7%)
	151 (75.0%)	61 (71.8%)	90 (78.3%)
Disability reducing ability to carry out day to day activities			
Not at all	9 (6.0%)	5 (8.2%)	<5
Yes, a little	88 (58.2%)	41 (67.2%)	47 (52.2%)
Yes, a lot	54 (35.8%)	15 (24.6%)	39 (43.3%)

Diagnosed with anxiety or depressive condition, or drug or alcohol problem in the past year			
No	139 (69.5%)	62 (72.9%)	77 (67.0%)
Yes	50 (25.0%)	19 (22.4%)	31 (27.0%)
Do not know/Prefer not to say	11 (5.5%)	<5	7 (6.0%)
Past year suicidal thoughts (thoughts to attempt suicide)			
No	72 (36.0%)	36 (42.4%)	36 (31.3%)
Yes	128 (64.0%)	49 (57.6%)	79 (68.7%)
Past year suicide attempts			
No	192 (96.0%)	85 (100.0%)	107 (93.0%)
Yes	8 (4.0%)	-	8 (7.0%)
Past year NSSH			
No	123 (61.5%)	56 (65.9%)	67 (58.3%)
Yes	77 (38.5%)	29 (34.1%)	48 (41.7%)

NSSH – non-suicidal self-harm

4.8.2 Longitudinal analysis

Temporal changes in Gender Identity Microaggressions

Of those who provided microaggression experiences at both baseline and follow-up (N=231), the mean score on GIMS at baseline was 43.40 (SD 13.43), suggesting moderate to high experience of microaggressions. At follow up the mean score of GIMS was 35.63 (SD 12.64), suggesting a slight decrease in microaggression experiences one year later. Using an unadjusted linear regression model, evidence emerged that as microaggression experiences at baseline increased by one point in the scale, scores at follow-up increased by 0.61 of point (0.52 to 0.70). After adjusting for age, perceived gender, ethnicity, education, disability, and sexuality, minimal change in the association between microaggressions at baseline and follow-up was found (adjusted coefficient: 0.61 (95%CI 0.51 to 0.72)). Therefore, despite a lower endorsement of microaggressions at follow-up, the association indicates that those who experienced more microaggressions at baseline experienced more microaggressions at follow-up.

Depressive symptoms

In an unadjusted linear regression, as scores on the GIMS increased by one standard deviation at baseline, there was an increase in depressive symptoms one year later by 2.00 points (95%CI 1.19 to 2.80), after adjusting for baseline depressive symptoms, scores on depressive symptoms one year later increased by 0.82 (95%CI 0.12 to 1.51). After adjusting for baseline depressive symptoms, as well as perceived gender, sexuality, ethnicity, age, sexuality, and disability, stage of physical transition and social transition at baseline, the association had attenuated (adjusted coefficient 0.69 (95%CI -0.06 to 1.43)). See Table 4-3 for all analytic tables.

Anxiety symptoms

In an unadjusted linear regression model, as scores on the GIMS increased by one standard deviation at baseline, there was an increase in anxiety symptoms one year later by 1.82 points (95%CI 1.09 to 2.56). After adjusting for baseline anxiety symptoms there was an increase in anxiety symptoms one year later by 0.69 points (95%CI 0.11 to 1.28). After adjusting for baseline anxiety symptoms as well as confounders, the association between anxiety symptoms one year later and baseline microaggression experiences had attenuated (adjusted coefficient 0.51 (95%CI -0.12 to 1.14)).

Past year suicidal thoughts

I found evidence of an association between the GIMS at baseline and suicidal thoughts one year later. In unadjusted logistic regression, one standard deviation increase of GIMS at baseline was associated with 1.60 (95%CI 1.18 to 2.16) odds increase in suicidal thoughts one year later. After adjusting for baseline suicidal thoughts, odds increased in suicidal thoughts one year later by 1.53 (95%CI 1.12 to 2.09). After adjusting for both baseline suicidal thoughts and confounders, the association between suicidal thoughts and microaggressions had attenuated (aOR 1.38 (95%CI 0.99 to 1.93)).

Past year suicide attempts

Evidence was also found for an association between the GIMS at baseline and suicide attempt one year later. In unadjusted logistic regression, when the GIMS increased by one standard deviation at baseline, an increase of 2.94 (95%CI 1.21 to 7.16) odds was found for suicide attempt one year later. After adjusting for baseline suicide attempts, evidence was found of an association between microaggressions and suicide attempt (aOR 2.52 (95%CI 1.03 to 6.12)). However, after adjusting for both baseline suicide attempts and confounders, no evidence was found between microaggressions and suicide attempt (aOR 2.29 (95%CI 0.80 to 6.53)).

Past year non-suicidal self-harm

No evidence was found for an association between microaggressions at baseline and NSSH one year later in an unadjusted logistic regression model (OR_{crude} 1.27 (95%CI 0.96 to 1.70)). After adjusting for baseline NSSI, no evidence was found of an association for NSSI one year later (aOR 1.20 95%CI 0.90 to 1.62). Finally, after adjusting for both baseline NSSI and baseline confounders, no evidence was found of an association between microaggressions at baseline and NSSI one year later (aOR 1.20 (95%CI 0.86 to 1.68)).

Table 4-3: Complete Case Analysis of microaggressions (GIMS, baseline), and mental health outcomes (PHQ-9 GAD-7, follow-up) 11

N=200	***Unadjusted***		***Partially Adjusted****		***Fully Adjusted*****	
	Coefficient (95%CI)	**P-value**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
PHQ-9 – Depressive symptoms past two weeks	2.00 (1.19 to 2.80)	<0.001	0.82 (0.12 to 1.51)	0.021	0.69 (-0.06 to 1.43)	0.070
GAD-7 – Anxiety symptoms past two weeks	1.82 (1.09 to 2.56)	<0.001	0.69 (0.11 to 1.28)	0.021	0.51 (-0.12 to 1.14)	0.110
	OR$_{crude}$ (95%CI)	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**
Past year suicidal thoughts (thoughts of attempting suicide)						
No	1		1		1	
Yes	1.60 (1.18 to 2.16)	0.002	1.53 (1.12 to 2.09)	0.008	1.38 (0.99 to 1.93)	0.056
Past year suicide attempts						
No	1		1		1	
Yes	2.94 (1.21 to 7.16)	0.018	2.52 (1.03 to 6.12)	0.042	2.29 (0.80 to 6.53)	0.121
Past year NSSH						
No	1		1		1	
Yes	1.27 (0.96 to 1.70)	0.100	1.20 (0.90 to 1.62)	0.217	1.20 (0.86 to 1.68)	0.283

* Linear and logistic regressions were partially adjusted for baseline mental health outcomes

** linear and logistic regression models were fully adjusted for baseline mental health outcomes as well as perceived gender, sexuality, ethnicity, age, sexuality, and disability at baseline

PHQ-9 – patient health questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

NSSH – non-suicidal self-harm

4.8.3 Microaggressions as proximal and distal stressors

Microaggressions as proximal stressors

In unadjusted analysis evidence emerged for baseline proximal microaggressions and depressive symptoms one year later (coefficient 1.72 (95%CI 0.88 to 2.57)), anxiety symptoms (coefficient 1.67 (95%CI 0.91 to 2.43)), and increased odds of previous year suicidal thoughts (OR_{crude} 1.47 (95%CI 1.09 to 1.99), and previous year suicide attempt (OR_{crude} 3.21 (95%CI 1.20 to 8.64)). No evidence was found between baseline proximal microaggressions and previous year NSSH (OR_{crude} 1.26 (95%CI 0.94 to 1.69)). after adjusting for baseline mental health measures and confounders, all associations had attenuated (see Table 4-4).

Microaggressions as distal stressors

In unadjusted analyses evidence emerged for an association between baseline distal microaggressions and depressive symptoms (coefficient 1.95 (95%CI 1.18 to 2.71)), anxiety symptoms (coefficient 1.65 (95%CI 0.95 to 2.35)), and increased odds of previous year suicidal thoughts (OR_{crude} 1.61 (95%CI 1.21 to 2.16)), and previous year suicide attempt (OR_{crude} 2.18 (95%CI 1.02 to 4.68)). No evidence was found between baseline distal microaggressions and previous year NSSH (OR_{crude} 1.23 (95%CI 0.94 to 1.62)). After adjusting for baseline mental health measures and confounders, evidence was maintained for depressive symptoms (adjusted coefficient 0.90 (95%CI 0.23 to 1.58)), anxiety symptoms (adjusted coefficient 0.62 (95%CI 0.05 to 1.19)), and increased odds of previous year suicidal thoughts (OR_{adj} 1.47 (95%CI 1.07 to 2.01)). associations for previous year suicide attempt and NSSH were attenuated (see Table 4-4).

Table 4-4: analysis of proximal and distal microaggressions with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts 12

	Proximal Stressors (misuse of pronouns, invasion of bodily privacy, and denial of gender identity) at baseline				**distal stressors (behavioural discomfort from others and denial of societal transphobia) at baseline**			
	Unadjusted		**Adjusted**		**Unadjusted**		**Adjusted**	
	Coefficient (95%CI)	**P-value**	**Adjusted coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**	**Adjusted coefficient (95%CI)**	**P-value**
PHQ-9 – Depressive symptoms Past two weeks	1.72 (0.88 to 2.57)	<0.001	0.35 (-0.42 to 1.12)	0.371	1.95 (1.18 to 2.71)	<0.001	0.90 (0.23 to 1.58)	0.009
GAD-7 – Anxiety symptoms Past two weeks	1.67 (0.91 to 2.43)	<0.001	0.33 (-0.32 to 0.98)	0.315	1.65 (0.95 to 2.35)	<0.001	0.62 (0.05 to 1.19)	0.034
	Odds Ratio (95%CI)	P-value	Adjusted Odds Ratio (95%CI)	P-value	Odds Ratio (95%CI)	P-value	Adjusted Odds Ratio (95%CI)	P-value
Previous year suicidal thoughts (thoughts of attempting suicide)								
No	1		1		1		1	
Yes	1.47 (1.09 to 1.99)	0.012	1.27 (0.90 to 1.79)	0.168	1.61 (1.21 to 2.16)	0.001	1.47 (1.07 to 2.01)	0.017
Previous year suicide attempt								
No	1		1		1		1	
Yes	3.21 (1.20 to 8.64)	0.021	2.34 (0.73 to 7.49)	0.153	2.18 (1.02 to 4.68)	0.045	1.85 (0.78 to 4.41)	0.163
Previous year non-suicidal NSSH								
No	1		1		1		1	
Yes	1.26 (0.94 to 1.69)	0.124	1.12 (0.79 to 1.58)	0.535	1.23 (0.94 to 1.62)	0.128	1.26 (0.93 to 1.71)	0.143

* linear and logistic regression models were fully adjusted for baseline mental health outcomes as well as perceived gender, sexuality, ethnicity, age, sexuality, and disability at baseline

PHQ-9 – patient health questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

NSSH – non-suicidal self-harm

Sensitivity analyses

Multiple Imputation:

Description of missingness

Comparisons of sociodemographic characteristics between those with missing and complete data on microaggressions at baseline have been described in Chapter 3.7.4. I found similar distributions between missing and complete variables with some slight inconsistencies in several variables, namely, currently living in affirmed gender, social transition, and living in urban settings. For clinical characteristics, there was a general trend with those who experienced suicidal thoughts and NSSH were more likely to have complete data, and those who had missing data on microaggressions scoring higher on PHQ-9 and GAD-7. In the follow-up data, 22 (8.7%) of the 253 participants had missing data on microaggressions at follow-up.

Depressive symptoms

In an unadjusted linear regression, as scores on the GIMS increased by one standard deviation at baseline, there was an increase in depressive symptoms one year later by 2.20 points (95%CI 1.53 to 2.87), after adjusting for baseline depressive symptoms, scores on depressive symptoms one year later increased by 1.05 (95%CI 0.35 to 1.75). After adjusting for baseline depressive symptoms, as well as perceived gender, sexuality, ethnicity, age, sexuality, and disability at baseline, depressive symptoms one year later increased by 1.06 (95%CI 0.34 to 1.78). see sTable 4-2 for all analytic tables.

Anxiety symptoms

In an unadjusted linear regression model, as scores on the GIMS increased by one standard deviation at baseline, there was an increase in anxiety symptoms one year later by 1.86 points (95%CI 1.29 to 2.43). After adjusting for baseline anxiety symptoms there was an increase in anxiety symptoms one year later by 0.90 points (95%CI 0.33 to 1.47). After adjusting for baseline anxiety symptoms as well as confounders, anxiety symptoms one year later increased by 0.87 (95%CI 0.28 to 1.46).

Past year suicidal thoughts

Evidence was found for an association between the GIMS at baseline and suicidal thoughts one year later. In unadjusted logistic regression, one standard deviation increase of GIMS at baseline was associated with 1.58 (95%CI 1.15 to 2.18) odds increase in suicidal thoughts one year later. After adjusting for baseline suicidal thoughts, odds increased in suicidal thoughts one year later by 1.49 (95%CI 1.07 to 2.06). After adjusting for both baseline suicidal thoughts and confounders, the evidence had attenuated (aOR 1.37 (95%CI 0.96 to 1.97)).

Past year suicide attempts

Evidence was also found for an association between the GIMS at baseline and suicide attempt one year later. In unadjusted logistic regression, when the GIMS increased by one standard deviation at baseline, an increase of 2.80 (95%CI 1.44 to 5.44) odds was found for suicide attempt one year later. After adjusting for baseline suicide attempts, evidence was found of an association between microaggressions and suicide attempt (aOR 2.63 95%CI 1.36 to 5.11). After adjusting for baseline anxiety symptoms as well as confounders, evidence remained for an association between microaggressions at baseline and suicide attempt at follow-up (aOR 2.64 (95%CI 1.30 to 5.38)).

Past year NSSH

Evidence was found for an association between microaggressions at baseline and NSSH one year later in an unadjusted logistic regression model (OR_{crude} 1.30 (95%CI 1.01 to 1.67)). After adjusting for baseline NSSI, no evidence was found of an association for NSSI one year later (aOR 1.23 95%CI 0.94 to 1.61). Finally, after adjusting for both baseline NSSI and baseline confounders, no evidence was found of an association between microaggressions at baseline and NSSI one year later (aOR 1.22 (95%CI 0.88 to 1.69)).

sTable 4-2 Imputed analysis restricted to participants with complete exposure at baseline. 13

N=679	_Unadjusted_		_Partially Adjusted*_		_Fully Adjusted**_	
	Coefficient (95%CI)	**P-value**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
**PHQ-9 – Depressive symptoms (Past two weeks)**	2.20 (1.53 to 2.87)	<0.001	1.05 (0.35 to 1.75)	0.004	1.06 (0.34 to 1.78)	0.005
**GAD-7 – Anxiety symptoms** **(**_**Past two weeks**_**)**	1.86 (1.29 to 2.43)	<0.001	0.90 (0.33 to 1.47)	0.003	0.87 (0.28 to 1.46)	0.005
	OR$_{crude}$ (95%CI)	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**
Past year suicidal thoughts (thoughts of attempting suicide)						
No	1	0.006	1	0.018	1	0.084
Yes	1.58 (1.15 to 2.18)		1.49 (1.07 to 2.06)		1.37 (0.96 to 1.97)	
Past year suicide attempts						
No	1	0.003	1	0.004	1	0.008
Yes	2.80 (1.44 to 5.44)		2.63 (1.36 to 5.11)		2.64 (1.30 to 5.38)	
Past year NSSH						
No	1	0.044	1	0.121	1	0.218
Yes	1.30 (1.01 to 1.67)		1.23 (0.94 to 1.61)		1.22 (0.88 to 1.69)	

* Linear and logistic regressions were partially adjusted for baseline mental health outcomes

** linear and logistic regression models were fully adjusted for baseline mental health outcomes as well as perceived gender, sexuality, ethnicity, age, sexuality, stage of physical and/or social transition, and disability at baseline

PHQ-9 – patient health questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

NSSH – non-suicidal self-harm

Loneliness as a putative mediator

After adding loneliness to my five main fully adjusted models, I found no difference in the coefficients found in the main analysis (sTable 4-3).

sTable 4-3: Associations between microaggressions (total GIMS score at baseline) and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts one year later adjusting for loneliness. 14

N=200	***Unadjusted***		***Adjusted****		***Fully Adjusted*****	
	Coefficient (95%CI)	**P-value**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
PHQ-9 – Depressive symptoms past two weeks	2.00 (1.19 to 2.80)	<0.001	0.69 (-0.06 to 1.43)	0.070	0.62 (-0.11 to 1.36)	0.095
GAD-7 – Anxiety symptoms past two weeks	1.82 (1.09 to 2.56)	<0.001	0.51 (-0.12 to 1.14)	0.110	0.45 (-0.16 to 1.07)	0.149
	OR_{crude} (95%CI)	**P-value**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**
Past year suicidal thoughts (thoughts of attempting suicide) No Yes	1 1.60 (1.18 to 2.16)	0.002	1 1.38 (0.99 to 1.93)	0.056	1 1.28 (0.90 to 1.80)	0.170
Past year suicide attempts No Yes	1 2.94 (1.21 to 7.16)	0.017	1 2.29 (0.80 to 6.53)	0.121	1 2.33 (0.77 to 7.00)	0.132
Past year non-suicidal NSSH No Yes	1 1.27 (0.96 to 1.70)	0.095	1 1.20 (0.86 to 1.68)	0.283	1 1.15 (0.82 to 1.63)	0.411

* Linear and logistic regression models were fully adjusted for baseline mental health outcomes as well as perceived gender, sexuality, ethnicity, age, sexuality, stage of physical and/or social transition, and disability at baseline

** Linear and logistic regression models fully adjusted for confounders plus the addition of loneliness

PHQ-9 – patient health questionnaire – 9 item version

GAD-7 – Generalised Anxiety Disorder scale – 7 item version

NSSH – non-suicidal self-harm

4.9 Discussion

4.9.1 Summary of findings from longitudinal study

Contrary to the findings of my cross-sectional analysis reported in Chapter 3, I did not find evidence of an association for all five mental health outcomes after adjusting for baseline outcomes together with baseline confounders. However, evidence was found after adjusting for baseline outcomes only. Suggesting that other factors may be explaining the associations between microaggressions and subsequent depressive and anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. This does not confirm the findings found in Chapter 3, where microaggressions were associated with increased depressive symptoms, anxiety symptoms, and increased odds of lifetime NSSH, suicidal thoughts, and suicide attempts. After imputing missing data, evidence was found for microaggressions at baseline and depressive symptoms, anxiety symptoms, and suicide attempts one year later after adjusting for baseline mental health outcomes as well as confounders. No evidence was found for microaggressions at baseline and NSSH or suicidal thoughts one year later after adjusting for baseline mental health outcomes and confounders. The most likely issue pertaining to these analyses is power. This will be discussed in more depth within section 4.9.3.

4.9.2 Findings in the context of other research

The findings of the imputed analyses can be broadly understood to consistent with wider empirical evidence of microaggressions being deleterious to mental health. In studies that have examined microaggressions and mental health in longitudinal study designs. The results of this study corroborate the evidence, however go further to strengthen evidence of temporality between gender identity microaggressions and mental health of trans people. Studies of microaggressions and their longitudinal associations with mental health in other minoritised and marginalised communities has also been shown to be deleterious on mental health (Dyar et al., 2020; Loyd et al., 2022; Ong & Burrow, 2018). In a sample of 488 sexual and gender minorities that microaggressions were positively associated with increased depressive symptoms and anxiety symptoms, as well as alcohol and cannabis use. In a sample of African American doctoral students and graduates there were similar longitudinal associations within, whereby exposure to microaggressions were associated with depressive symptoms one year later.

4.9.3 Strengths and Limitations of the study

Strengths of this study are its novelty, use of strong epidemiological methods, and use of coproduction. This is the first of its kind study of microaggressions and clinical mental health outcomes in the trans community. This research opens up further research avenues related to interpersonal experiences and how these smaller interactions may have more substantial effects on mental health. I used validated measures, and strong analytical techniques to examine hypotheses and answer *a priori* research questions and were sourced in conjunction with acceptability and feasibility checks from a coproduction team. These methods demonstrate better research practice with the community and reduce issues related to participation burden and increase the usefulness of research for communities affected.

There are several limitations of the present study that need to be taken into consideration when drawing conclusions from the findings.

Selection bias: Low response rates can introduce selection bias, where the characteristics of the respondents differ significantly from the characteristics of the non-respondents. This bias can distort the study's results and affect the validity of the conclusions. For example, if individuals with certain demographic or health characteristics are more likely to respond, the study results may overestimate or underestimate the prevalence of a particular disease or risk factor.

Reduced statistical power: Low response rates can lead to smaller sample sizes, reducing the statistical power of the study. A smaller sample size means that the study may have a lower ability to detect true associations or differences between groups. This can make it challenging to detect significant findings or obtain precise estimates, potentially limiting the study's ability to draw meaningful conclusions.

Increased uncertainty: Low response rates can increase the uncertainty or imprecision of the study's findings. The wider the confidence intervals around estimates, the less precise the results become. This uncertainty makes it difficult to have confidence in the study's findings and hampers the ability to make accurate public health decisions or policy recommendations.

Potential for non-response bias: Low response rates can introduce non-response bias if the characteristics of the respondents are systematically different from the non-respondents in a way that affects the study outcomes. For example, if individuals with higher socioeconomic status are more likely to respond, the results may not reflect the true burden of disease or risk factors in the overall population.

Overall, low response rates in epidemiology can undermine the validity, generalisability, and precision of study findings, making it challenging to draw accurate conclusions and apply the results to public health issues. My findings are susceptible to these biases, particularly due to the issue of representativeness of trans people. Whilst there are currently no estimates on the distribution of trans people in the UK, a low response rate compounds potential for a less representative cohort. This in addition with non-response bias potentially provides a biased sample with low power. Therefore, any conclusions drawn from this study need to be interpreted with caution.

Furthermore, within the follow-up study some participants completed the baseline study within one year and some after one year prior to entering the follow-up. Whilst the variability between those who completed within one year and more than one year were broadly similar, we should be mindful that taking responses at different times in epidemiology can introduce several problems and challenges, including:

Temporal variability: Epidemiological studies often aim to capture data on health outcomes, exposures, or risk factors at a specific point in time or over a defined period. When responses are taken at different times, it can introduce temporal variability, making it difficult to establish a clear temporal relationship between variables. This can compromise the ability to draw causal inferences or accurately assess the sequence of events.

Recall bias: Asking individuals to recall past events or behaviours over different time periods can introduce recall bias. Memory of events may fade or be influenced by current circumstances, leading to inaccurate or biased reporting. For example, individuals may have difficulty accurately recalling their dietary habits or exposure to environmental factors over extended periods, leading to measurement error and potential bias in the study results.

Data harmonization: When responses are collected at different times, it can be challenging to harmonize or compare the data across different time points. Changes in measurement methods, survey instruments, or definitions of variables can create inconsistencies or challenges in aggregating and analysing the data. This can limit the ability to conduct meaningful analyses or derive accurate conclusions from the combined data.

In my study, the issue of recall bias may have arisen with those who experienced microaggressions more distantly in the previous year inaccurately recalling experiences of microaggressions. Similarly, within this study I have not run any sensitivity analyses comparing those who completed follow-up within one year to those who completed a year or more ago. Therefore, the data presented are not harmonious. Future research using this dataset may wish to address these statistical issues within their analytical plans.

After imputing missing data, evidence emerged in which microaggressions at baseline were associated with suicide attempts at follow-up. Suggesting with the increase in sample size and power, that microaggressions may play a role in future suicide attempts. Conversely after imputing missing data, evidence had attenuated for suicidal thoughts when the imputation models were not restricted to complete follow-up. This means that with a larger sample size the finding that microaggressions plays a role in future suicidal thoughts was not supported. There are several reasons for this occurrence, the first is potential bias in the imputed data, arising from key differences in those who completed the follow-up survey to those who did not. When examining the sample's sociodemographic and clinical characteristics and any deviations to the distribution compared with those who did not consent at baseline, there were even distributions of characteristics suggesting similarities amongst those who provided consent compared to those who participated at baseline, with the exception of passive death wishes, stage of social transition, and disability affecting the day-to-day abilities of the participant (see Table 4-1). Here, I observed a slight overrepresentation among those who experienced wishing they were dead in the past year, those who had socially transitioned, and those with disabilities who were impacted a lot on a day-to-day basis consenting to future research. The observation that the groups differed only on those three measures suggests some bias arising from attrition from baseline to follow-up.

Furthermore, the issue may lie in sample size, power, and possibility of type II errors. Of the total sample of participants who participated at baseline (N=787), 32.1% (n=253) took part in the follow-up study. This has resulted in a third of the baseline sample, where rare outcomes such as suicide attempt were low. This reduces the statistical power of the study, whereby I may not have sufficient power to detect effect sizes for rare outcomes and may have increased the chances of type II errors. There is also space to discuss the issues surrounding social transition and outness when participating in research on trans mental health. Participants who indicated not starting a social transition at baseline may not be out to those in their social circles. This could introduce a bias related to outness, i.e., those who are out are more likely to take part in research studies compared to those who are not. Reasons for this may relate to safety and concern about personal information about their transness being unwillingly distributed to those in their lives. Some work has been done to highlight this issue highlighting that mistrust and psychological/emotional concerns on being outed are common barriers to participation in trans health research.

Similar to the limitations outlined in Chapter 3, the sample was biased towards young white trans people, and those with an existing mental health or physical health condition. This leaves several groups underrepresented within the research and may have affected the external validity of the results. There is evidence suggesting experiences from minority ethnic trans people differ from their white counterparts, especially with regards to microaggressions (Kalb, 2021). Minoritised ethnicities experience microaggressions due to their ethnicity and race, and for minority ethnic trans people this comes in tandem with gender identity microaggressions and is a greater predictor of psychological distress when considered together (Kalb, 2021). The impact of this has not been suitably investigated within this study and should be examined more closely in future research.

4.9.4 Implications and future directions

As discussed in Chapter 3, there is a need for public policy and education to reduce the occurrence of microaggressions. I will discuss the public policy, mental health practitioner, and educational policies in Chapter 6 (Discussion). However, governmental policy is required to reduce microaggressions by placing further emphasis on anti-discrimination policy that highlights microaggressions as on discriminatory practice. This study adds further evidence to the need for improved ways of promoting social connectedness and acceptance. This social connectedness and acceptance could feed into education, by educating young people about the lives of trans people and promoting understanding, acceptance, and inclusivity of trans lives within society, more tolerance of gender diversity and expression can be achieved.

Whilst this study has provided evidence of a temporal association between microaggressions and specific mental health outcomes (depressive symptoms, anxiety symptoms, and suicidal thoughts), this research has also raised further potential applications of the research design and research questions. One further application of the methodology is concerned with the plausibility of bidirectionality, in which an argument can be made that having poor mental health may increase the impact of exposure to gender identity microaggressions through heightened perceptions of microaggressive behaviours and acts. This would be important to understand the potential cyclical nature of microaggressions and mental health, and potential points of intervention to improve the quality of life of trans people. This study has also only examined the relationship at two time points, future research could consider multiple time points to account for more long-term impacts from microaggressions. Building a trajectory of microaggressions and how they may have cumulative effects on mental health will provide further causal evidence of the relationship between microaggressions and mental health. A further means to examine the more immediate and cumulative effects of microaggressions would be to employ Ecological Momentary Assessment (EMA) methods. EMA allows for intensive longitudinal data collection over a short period of time and can examine both within- and between-persons fluctuations in mood and mental health symptoms across multiple time points within a day. Finally, we need to understand what mechanisms underpin the longitudinal associations found in this Chapter by examining specific experiences of microaggressions and their associations with mental health outcomes.

4.10 Recap and link to next Chapter

In this Chapter, I have provided evidence of a temporal relationship between microaggressions and depressive symptoms, anxiety symptoms, and suicidal thoughts using longitudinal analyses. In Chapter 5, I will present the final step in my examination of microaggressions and their relationship with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts by investigating the potential underlying mechanisms that drive the associations reported in Chapter 3 and Chapter 4. This Chapter entitled "**The association between microaggression subtypes and**

depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts: A cross-sectional and longitudinal examination" will investigate specific microaggressive experiences and their associations both cross-sectionally and longitudinally with the same five mental health outcomes.

CHAPTER 5: THE ASSOCIATION BETWEEN MICROAGGRESSION SUBTYPES AND DEPRESSIVE SYMPTOMS, ANXIETY SYMPTOMS, NSSH, SUICIDAL THOUGHTS, AND SUICIDE ATTEMPTS IN THE TRANS COMMUNITY: A CROSS-SECTIONAL AND LONGITUDINAL EXAMINATION

5.1 Abstract/Overview

Background/Aims: There is a lack of studies examining the potential mechanisms that specific microaggression experiences influence mental health, however qualitative literature suggests that specific microaggression experiences may have different emotional, cognitive, and behavioural consequences. In this Chapter, I will examine the five subscales from the Gender Identity Microaggressions Scale and assess their individual associations with poor mental health.

Methods: I used the baseline and follow-up data from 200 participants in the TRANS: Microaggressions & Mental Health Project to examine the cross-sectional and longitudinal associations between the GIMS subscales and depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. I examined each subscale in univariable models with each outcome, as well as used each GIMS subscale to mutually adjust one another in multivariable models.

Results: At baseline, denial of gender identity was associated with an increased odds of suicide attempt (OR_{adj} 1.40 (95%CI 1.11 to 1.77)). Misuse of pronouns with lifetime NSSH (OR_{adj} 1.46 (95%CI 1.17 to 1.84)), and suicidal thoughts (OR_{adj} 1.49 (95%CI 1.09 to 2.03)). Behavioural discomfort from others with depressive symptoms (adjusted coefficient (0.97 95%CI 0.35 to 1.59)). Denial of societal transphobia with anxiety symptoms (adjusted coefficient 0.80 (95%CI 0.19 to 1.41)). At follow-up, I found evidence from univariable models for denial of gender identity, invasion of bodily privacy, and denial of societal transphobia at baseline with depressive symptoms as well as anxiety symptoms and suicidal thoughts one year later. Invasion of bodily privacy and denial of societal transphobia were associated with increased odds of suicide attempt. Denial of gender identity and denial of societal transphobia at baseline were associated with increased odds of NSSH one year later. In the multivariable models I found no follow-up evidence between any of the subscales and mental health.

Conclusions: In this study I found evidence of baseline associations between specific microaggression experiences and specific mental health outcomes but no evidence of longitudinal associations between specific microaggression experiences and mental health. Future research should consider larger scale studies to investigate these issues to provide adequate power and inform the potential tailoring of preventive interventions.

5.2 Introduction

In Chapter 3, I found evidence of cross-sectional associations between microaggressions and depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts. Whereby as microaggression experiences increased, lifetime symptoms of depression and anxiety, as well as odds of lifetime NSSH, suicidal thoughts, and suicide attempts also increased. However, I was unable to comment on the temporal sequence of microaggressions and mental health outcomes. In Chapter 4 I aimed to assess the temporality of the relationship found between microaggressions and mental health outcomes. Here, I reported the findings of my analysis of longitudinal data arising from the TRANS: Microaggressions & Mental Health study. I found no evidence of longitudinal associations between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, however evidence was found for associations after imputing missing data. Whilst this evidence helps to further our understanding of microaggressions as a potential risk factor in the mental health burden of trans people, questions remain as to the mechanisms underpinning microaggressions and their associations both cross-sectionally and longitudinally in the relationship between mental ill health and trans community. This chapter examines how specific microaggression experiences, taken from the validated Gender Identity Microaggressions Scale may have specific associations with mental health outcomes.

There is a scarcity of studies investigating specific microaggression experiences and their associations with mental health outcomes. Of the extant literature, I was unable to find studies that have examined specific microaggression experiences and mental health outcomes using validated measures of mental health and microaggression scales. There was one study that investigated the positive influence of using the correct name and pronouns for trans and gender diverse youth, finding that the correct use of name and pronouns was associated with lower depressive symptoms, suicidal thoughts, and suicide attempt (Russell et al., 2018). One further study identified incorrect use of name and pronoun, finding that the use of incorrect name and pronoun was a common experience, with 63% of their 204 participants experiencing inconsistent pronoun/name use by a healthcare provider; however, no mental health scale had been used to ascertain associations between misuse of pronouns and mental health outcomes, affecting our ability to draw any meaningful conclusions.

Qualitative evidence, however, suggests that specific microaggression experiences may have different emotional, cognitive, and behavioural consequences (K. Nadal et al., 2014). Furthermore, reactions towards microaggressions have been highlighted in qualitative work to differ by source/perpetrator of the microaggression (P. Galupo et al., 2014; K. Nadal et al., 2014). For example, intimate partner microaggressions appear to have a more profound effect on internalising negative emotions of sadness and self-blame (K. Nadal et al., 2014). Whereas microaggressions such as questioning the legitimacy of gender identity from a friend may contribute to a feeling of rejection (from those outside of the LGBT community) or of disappointment that the friend should know better (when a friend is part of the LGBT community) (P. Galupo et al., 2014). Similarly, microaggressions that centre on environmental factors such as access to inclusive bathrooms reinforces marginalisation and interferes with academic performance, development, and engagement (Woodford, Joslin, Pitcher, Renn, et al., 2017). The context of microaggressions is important to understand their potential impacts on trans health and wellbeing (P. Galupo et al., 2014). Microaggressions were more likely to occur with cisgender heterosexual friends compared to trans friends, however, the impact of microaggressions was more severe when perpetrated by trans friends. These microaggressions also differed by identity group with microaggressions from trans friends stemming from a place of competition, comparison, and invalidation, whereas microaggressions from those outside of the LGBTQ+ community were internalised as rejection. Similarly, differences have been found between those who endorse binary gender identities and those who are non-binary, suggesting experiences around invalidation and questions on authenticity differ in the context of friendship (Pulice-Farrow et al., 2017).

The key research gap is the lack of studies that investigate specific microaggression experiences and their associations with validated mental health measures. Such studies could influence practice and policy to improve the mental health of marginalised communities such as the trans community (Jenkins, 2001; Zhang et al., 2020). Furthermore, as referenced in Chapters 3 and 4 there are several ongoing problems with the definition of microaggressions and what constitutes a microaggressive act which questions their validity in the psychological/psychiatric research.

5.3 Research aims and hypotheses.

Aim: To examine specific microaggressions experiences as risk factors for depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, to better understand microaggressions as a mechanism underpinning the mental health burden in the trans community. If there are associations, to assess whether there is temporality in these associations one year later.

Hypothesis: Based on the literature outlined in the introduction, I I hypothesised that experiencing specific microaggressions would be associated with specific mental health outcomes, both at baseline and at follow-up.

5.4 Methods

I have detailed the methods of this Chapter in Chapter 2.2 and 2.3. The following section (5.4) acts as a reminder of the instrument, inclusion criteria, sampling strategy, measures, and statistical analysis plans for both the baseline and follow-up surveys.

5.4.1 Instrument

This chapter uses data that have been outlined in Chapter 2 and further described in Chapters 3 and 4. As outlined in Chapter 2, The TRANS: Microaggressions & Mental Health Project is a survey of trans and non-binary people in the United Kingdom. Baseline data collection was completed between September 2021 and September 2022. The survey assessed depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, suicide attempts, and microaggressions. The survey was delivered via Opinio, a UCL-based software programme for data collection. Participants completed follow-up data collection between February and March 2023.

5.4.2 Inclusion criteria

Cross-sectional (baseline) survey: Participants were initially recruited to the baseline survey if they identified as trans, non-binary, and/or gender diverse, were aged eighteen or older at the start of the survey and resided in the United Kingdom for 12 months or longer. Participants were asked in the baseline data to provide consent for future research arising from the TRANS: Microaggression & Mental Health project.

Longitudinal (follow-up) survey: In the longitudinal dataset, 395 (38%) of the 1039 participants from the baseline dataset provided consent to be contacted for follow-up and were therefore eligible for inclusion within this study. Participants were required to be 18 years old or older, identify as trans, non-binary, and/or gender diverse, and usually reside in the United Kingdom.

5.4.3 Sampling strategy

Cross-sectional (baseline) survey: I used a social media recruitment strategy via Twitter, Facebook, and Instagram, with large trans charities and organisations such as Gendered Intelligence sharing the survey details to recruit to the baseline survey. Further details are described in Chapter 3.4.3.

Longitudinal (follow-up) survey: In the follow-up data, participants who provided consent in the baseline data collection were contacted via email and sent a link to the follow-up survey (hosted on the Opinio server). Reminders were sent once a week at 11 am on a weekday to participants who had not responded to the initial invitation. Consent was collected through the Opinio survey for participation in the second wave of data collection. At the end of the follow-up survey participants were asked for consent to be contacted for further research. Further details of sampling strategy can be found in Chapter 4.4.3.

5.4.4 Measures

Outcomes

Depressive symptoms (baseline and follow-up)

Depressive symptoms were measured using the Patient Health Questionnaire – 9 item version (PHQ-9). The PHQ-9 has good psychometric properties, and has been used to assess depressive symptoms in gender and sexual minorities, showing good convergent validity and internal consistency (Bazargan & Galvan, 2012; Nguyen et al., 2016; Timmins et al., 2018). The PHQ-9 is comparable to the gold-standard diagnostic interview for the assessment of mild, moderate, and severe depressive symptoms (McMillan et al., 2010). This measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with nine items such as *“little interest or pleasure* *in doing things"* choosing from the following options "Not at all", "Several days", "More than half the days", and "Nearly every day". Scores range from 0-27 with cut offs at 0-4 for no depressive symptoms, 5-9 for mild, 10-14 for moderate, 15-19 for moderately severe, and 20-27 for severe.

Anxiety symptoms (baseline and follow-up)

Anxiety symptoms were assessed using the Generalised Anxiety Disorder Scale – 7 item version (GAD-7). The GAD-7 has been well validated as a brief screening measure which is sensitive to change and acute symptom presentation (Richardson et al., 2010). The GAD-7 is also widely used and considered comparable to the gold standard assessment of the Structured Clinical Interview for Diagnostic Statistical Manual, or the Revised Clinical Interview for the assessment of mild, moderate, and severe anxiety symptoms (Plummer et al., 2016). As per the PHQ-9, the measure requires respondents to reflect on the previous two weeks and consider the extent to which they had identified with seven items such as *"Feeling nervous, anxious, or on edge"* choosing from the following options "Not at all", "Several days", "More than half the days", and "Nearly every day". Scores range from 0-21, with 5 indicating mild anxiety symptoms, 10 moderate, 15 moderate severe, and 20 severe. The GAD-7 has excellent internal consistency and validity.

Non-suicidal self-harm, suicidal thoughts, and suicide attempts (baseline and follow-up)

Baseline: NSSH, suicidal thoughts, and suicide attempts were assessed using self-reported measures taken from the Adult Psychiatric Morbidity Survey's (APMS) questionnaire (McManus et al., 2014). This questionnaire specifically investigated lifetime prevalence of NSSH, suicidal thoughts, and suicide attempts. Using this survey allows for direct comparability with population norms i.e., APMS data on representative sample of the general population. The question wording was as follows: *"Have you ever thought life was not worth living?", "Have you ever deliberately harmed yourself in any way but not with the intention of killing yourself?",* and *"Have you ever made an attempt to take your life, by taking an overdose of tablets or in some other way?"*. Participants then responded with one of the following "Yes", "No", and "Prefer not to say". Scores were coded in a binary manner, with 0 relating to no NSSH, suicidal thoughts, and/or suicide attempts, and 1 as has experienced NSSH, suicidal thoughts, and/or suicide attempts.

Follow-up: In the follow-up survey, I used an adapted version of the APMS questionnaire to investigate previous year NSSH, suicidal thoughts, and suicide attempts. The question wording was as follows: *"Have you thought life was not worth living during the last year?", "Have you deliberately harmed yourself in any way but not with the intention of killing yourself during the last year?",* and *"Have you made an attempt to take your life, by taking an overdose of tablets or in some other way during the last year?"*. Participants then responded with one of the following "Yes," "No," and "Prefer not to say." Scores were coded in a binary manner, with 0 relating to no past year NSSH, suicidal thoughts, and/or suicide attempts, and 1 as having experienced past year NSSH, suicidal thoughts, and/or suicide attempts.

Exposure

Gender Identity Microaggressions (baseline)

To measure microaggressions I have used baseline values for responses on the Gender Identity Microaggression Scale (GIMS). There is good internal consistency within the scale, and within the five subscales (Nadal, 2018). Scores on the scale are summed to produce a total overall score and the five subscale scores can also be used as separate measures. Higher scores indicate more experiences of gender identity microaggressions. The GIMS is a 14-item scale with five subscales relating to a) denial of gender identity, b) misuse of pronouns, c) invasion of bodily privacy, d) behavioural discomfort, and e) denial of societal transphobia. I have defined each subscale in turn to provide important context.

The denial of gender identity is where a trans person is told that their gender identity is not correct. This may result in a trans person being told that they are not their affirmed gender, rather that they are their sex assigned at birth. The misuse of pronouns involves other people using pronouns that do not correspond with the trans person's gender identity. Invasion of bodily privacy refers to statements or behaviours in which cis people objectify a trans person's body, such as asking inappropriate questions about their genitals. Behavioural discomfort refers to occurrences whereby trans people are treated with disrespect or condemnation, here this may be a person acting uncomfortable when they find out someone, they are interacting with is trans. Finally, denial of societal transphobia refers to instances whereby a cis person refuses to acknowledge structural or societal biases against trans people.

In the main analysis, I used the summed scores from each subscale as separate exposures, mutually adjusted for other subscales, to better understand specific microaggression themes and how they relate to the mental health of trans and non-binary people.

Confounders

Confounders were selected carefully based on the literature and clinical judgement. I have adopted the same confounders selected in the baseline study and longitudinal study due to the inherent similarity in research questions. These are outlined in Chapter 2.2.8.

As a sensitivity analysis, I also added loneliness to final models to test for evidence that it might mediate the main associations.

5.5 Research aims and hypotheses revisited.

Aim: To examine specific microaggressions experiences as risk factors for depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts to better understand microaggressions as a mechanism underpinning the mental health burden in the trans community. If there are associations, to assess whether there is temporality in these associations one year later.

Hypothesis: Based on the literature outlined in the introduction, I hypothesised that experiencing specific microaggressions would be associated with specific mental health outcomes, both at baseline and at follow-up.

5.6 Statistical Analysis Plan

5.6.1 Main analysis

Cross-sectional baseline analysis

Correlations between subscales: I explored whether it was appropriate to run models using each of the five subscales of the GIMS as separate exposures to explore their associations with depression, anxiety, NSSH, suicidal thoughts, and suicide attempts. I first needed to assess collinearity between the subscales, therefore I produced a correlation matrix of the subscales using Pearson's correlation on Stata 17 with the command "*pwcorr*". I assessed the results using the general rule of thumb that a correlation coefficient of less than 0.70 (r<0.70) indicates that evidence that the scales are measuring different information, with values greater than 0.7 distorting model estimations (Dormann et al., 2013). A more sophisticated approach would be the use of confirmatory factor analysis or latent class analysis to understand whether the items within the GIMS subscales are measuring the same underlying construct. An exploratory principal factor analysis was conducted by the authors of the GIMS, finding Cronbach's alphas of 0.50 to 0.75 for each subscale (Nadal, 2018). Suggesting moderate to good reliability of the subscales as standalone instruments.

Regression modelling: I initially used all GIMS subscales as unadjusted continuous exposures in univariable linear regression models for anxiety symptoms and depressive symptoms (continuous outcomes), and univariable logistic regression models for NSSH, suicidal thoughts, and suicide attempt outcomes (binary outcomes). Maintaining a consistent approach with both analytical plans in Chapters 4 and 5, the GIMS scale was divided into its standard deviation units for purposes of meaningful interpretation of the findings. I then partially adjusted all regression models by mutually adjusting for all GIMS subscales to mutually adjust with one another. I then presented the fully adjusted model with mutual adjustment of subscales as well as confounders, these being: education, age, sexuality, ethnicity, disability, and perceived gender.

Longitudinal analysis

Regression modelling: To examine the temporal relationship between the GIMS subscales and mental health outcomes I initially performed univariable linear and logistic regression models with mental health outcomes at follow-up and GIMS subscales at baseline. The models were then partially adjusted by performing a multivariable linear and logistic regression model by mutually adjusting for each of the GIMS subscales. In the fully adjusted model, multivariable linear and logistic regression models were mutually adjusted for each of the GIMS subscales and also adjusted for baseline confounders (age, perceived gender, highest educational attainment, sexuality, ethnicity, and disability) and baseline mental health data (depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts).

5.6.2 Sensitivity analyses

Missing data: To assess the potential impact of missing data on the association between microaggressions and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts, I investigated differences between participants with complete data on microaggressions and those with missing data, as well as complete and missing on depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt outcomes (Sterne et al., 2009). Variables that were not used in the analytic models but were predictive of missing data were included in the models as auxiliary variables to improve the estimates of the imputed values. These variables were the stage of social transition if the participant was living in their affirmed gender or not, and the stage of physical transition. I used Multiple Imputation by Chained Equations (MICE) to impute missing data and created twenty-five datasets, and then combined using Rubin's rules. I then reran all analyses on the imputed dataset and restricted the cases to those with complete data on microaggressions at baseline. This was done to compare the precision of the estimates across imputations as well as the complete case analysis.

5.7 Ethics

This study received ethical approval from UCL's Research Ethics Committee (200485/001) (see appendix 1 for both baseline and follow-up ethics approval).

5.8 Results

5.8.1 Demographics

Response

A total of 1039 participants responded to an online post about the TRANS: Microaggressions & Mental Health Project, and took part in the cross-sectional study, of whom 787 provided some data in the study. 574 (79%) provided complete data on exposure, outcomes, and confounders, comprising my complete case analytical sample. Of the 787 participants from the first wave of data collection, 405 (67.3%) provided consent to be contacted for the follow-up study. Of the 405 who provided consent, 253 (62.5%) responded to the invitation for this follow-up study. Of the 253 who responded, 200 (79.1%) providing complete data on the exposure, confounders, and outcomes. See Figure 3-1 (baseline description) and 4-1 (baseline to follow-up description) for flow diagrams of participants in the study.

Sample characteristics

For socio-demographic information on the participants at baseline and follow-up, refer to Chapter 3 (Table 3-1) and Chapter 4 (Table 4-2) for a detailed overview of the demographic distributions. I will give a brief overview of the sample here.

Of the 574 participants with complete data in the baseline study, the largest age category was 18-25 (39.2%) followed by those aged 26-34 years old (33.6%). Non-binary people comprised the largest group (n=251, 46.2%), followed by trans women (n=188, 34.6%), and lastly with trans men (n=104, 19.2%). A large proportion of participants stated that they were seen as the sex they were assigned at birth (247, 43.0%), 114 (19.9%) of participants reported being seen as a trans person, and 116 (20.2%) as the gender they identify as. Participants were asked to respond to a question on the stage of their physical transition, with 13.0% (n=70) of participants stated that they had not undergone or intended to undergo a physical transition, 21.1% (n=123) were proposing to undergo a physical transition, 34.7% (n=200) were currently undergoing a physical transition, and 18.6% (n=113) had undergone a physical transition. Most participants (58.4%, n=335) had undergone a social transition. 91.5% (n=525) were categorised at white. 436 (76.0%) of participants reported having a mental health condition. With the majority (273, 62.6%) stating that it does affect them a little bit every day. A large proportion (367, 63.9%) of participants had a first degree (BSc, MSc, and/or PhD), with the majority in full or part time employment (348, 60.6%).

Of the 200 participants who participated in the follow-up study, the most endorsed gender identity was non-binary (n=90, 45.0%), with a further 57 (28.5%) identifying as trans women, and 43 (21.5%) as trans men. Most participants were White (n=189, 94.5%), with 11 (5.5%) participants within Black, Asian, and Minority Ethnic communities. Most participants endorsed a physical or mental health condition which was expected to last a year or longer (n=151, 75.0%), with most participants indicating that this affected them a little (n=88, 58.2%) or a lot (n=54, 35.8%). Most participants were in full time employment (n=121, 60.5%), and 21 (10.5%) were employed part time.

In terms of mental health outcomes, participants had a mean score on the PHQ-9 of 12.15 (SD 6.19), and a mean score on the GAD-7 of 9.43 (SD 5.62) at follow-up. With regards to NSSH, suicidal thoughts, and suicide attempt outcomes at follow-up, 77 (38.5%) had engaged with NSSH. One-hundred and twenty-eight (64.0%) had past year suicidal thoughts. Eight (4.0%) had made a suicide attempt in the past year. Participants were not contacted regarding previous year suicide attempts, as ethically I did not have approval to intervene. All participants, regardless of reporting suicide attempt, were given access to a list of support lines and services in case they were needed. Participants were made aware that my wider supervisory team and I would be unable to act in cases of survey responses reporting recent suicide attempts for ethical reasons, including that these data were likely to be processed some time after survey completion. We also clarified that their data would not be shared with any healthcare professionals associated with them (eg the GP).

GIMS subscales

The most commonly experienced microaggression subscale was denial of gender identity with a mean score of 12.02 (SD 4.98). This was followed by invasion of bodily privacy (mean: 8.73, SD 3.75), misuse of pronouns (mean: 8.61, SD 2.22), behavioural discomfort from others (mean: 6.78, SD 3.54), and finally denial of societal transphobia (mean: 6.27, SD 2.93).

Generally, trans men score higher across all five subscales compared to trans women and non-binary participants (e.g., denial of gender identity mean 12.40 SD 5.15, compared to trans women mean 11.50 SD 5.18). However, in a one way analysis of variance no significant differences were found between denial of gender identity and gender identity ($F_{(2,540)}$=0.76 p=0.467). Similarly, those aged 18 to 25 also scored higher across all five subscales. However, no evidence of significant differences between age and experiences of denial of gender identity were found ($F_{(3,570)}$=2.09 p=0.100). Furthermore, no differences were found between education and denial of gender identity ($F_{(6,567)}$=0.49 p=0.815), ethnicity and denial of gender identity ($F_{(1,572)}$=0.23 p=0.628), denial of gender identity and sexuality ($F_{(8,565)}$=1.58 p=0.128). Evidence was found of a significant difference between disability and denial of gender identity ($F_{(1,572)}$=16.20 p<0.001). in a simple linear regression model it was found that those who had a disability had a mean score of 1.93 (95%CI 0.99 to 2.87) higher on the GIMS denial of gender identity subscale compared to those who did not have a disability.

For misuse of pronouns a different picture emerged in which significant differences were found between age and misuse of pronouns ($F_{(3,570)}$=6.17 p<0.001), ethnicity and misuse of pronouns ($F_{(1,572)}$=4.02 p=0.045), and sexuality and misuse of pronouns ($F_{(8,565)}$=3.95 p<0.001). in simple linear regression models as age increased fewer incidences of misuse of pronouns were reported with those aged 45 or older having a mean score difference of 1.26 (95%CI -1.85 to -0.67) compared to those aged between 18 and 25. Similarly, those from an ethnic minority background had a mean score difference of 0.66 (95%CI -1.31 to -0.01) compared to white participants. Finally those who were pansexual reported the largest mean score difference on misuse of pronouns compared to heterosexual participants (coefficient 2.32 (95%CI 1.35 to 3.30)).

With regards to invasion of bodily privacy, significant differences were found between gender identity and invasion of bodily privacy ($F_{(2,540)}$=26.51 p<0.001), sexuality and invasion of bodily privacy ($F_{(8,565)}$= p=0.036), and disability and invasion of bodily privacy ($F_{(1,572)}$=6.05 p=0.014). in simple linear regression models evidence suggests that non-binary participants had a mean score difference of 2.45 (95%CI -3.27 to -1.64) compared to trans men. Pansexual participants had a mean score difference of 1.92 (95%CI 0.25 to 3.59) compared to heterosexual participants. For those with a disability there was a mean difference of 0.90 (95%CI 0.18 to 1.61) compared to those without a disability.

Differences between sociodemographic information and behavioural discomfort from others were found for only gender identity ($F_{(2,540)}$=5.90 p=0.003), and disability ($F_{(1,572)}$=4.48 p=0.035). In simple linear regression models it was found that trans women had a mean score difference of 1.23 (95%CI 0.39 to 2.07) points higher compared to trans men. Those with a disability had a mean score difference of 0.73 (95%CI 0.05 to 1.41) points higher compared to those without a disability.

Generally no differences were found between sociodemographic information and denial of societal transphobia. However differences did arise between disability and denial of societal transphobia ($F_{(1,573)}$=7.83 p=0.005). In a simple linear regression model it was found that those with a disability had a mean score difference of 0.80 (95%CI 0.24 to 1.36) points higher on the denial of societal transphobia subscale compared to those without a disability.

Correlations between the subscales within the GIMS

When examining the correlations between the five GIMS subscales, I found that all five subscales, namely denial of gender identity, misuse of pronouns, invasion of bodily privacy, behavioural discomfort from others, and denial of societal transphobia, were all significantly moderately correlated with one another with the largest coefficient being 0.56 between denial of societal transphobia and denial of gender identity (see Table 5-1). This figure is lower than the 0.70 threshold agreed *a priori*.

Table 5-1: correlation matrix of Gender Identity Microaggressions Scale Subscales 15

	1	**2**	**3**	**4**	**5**
1. Denial of gender identity	**-**				
2. Misuse of pronouns	**0.44** <0.001	**-**			
3. Invasion of bodily privacy	**0.46** <0.001	**0.38** <0.001	**-**		
4. Behavioural discomfort from others	**0.46** <0.001	**0.31** <0.001	**0.54** <0.001	**-**	
5. Denial of societal transphobia	**0.56** <0.001	**0.41** <0.001	**0.48** <0.001	**0.49** <0.001	**-**

5.8.2 Association between specific GIMS subscales and specific mental health outcomes

Cross-sectional baseline analysis

Univariate models

In unadjusted analyses of each subscale with each mental health outcome, I found evidence that all subscales were associated with each mental health outcome. I will report the results for each subscale. See Table 5-2 and Table 5-3 for results.

Denial of gender identity: As scores on denial of gender identity increased by one standard deviation, there was a 1.58 (95%CI 1.06 to 2.10) point increase in depressive symptoms, a 1.32 (95%CI 0.83 to 1.80) point increase in anxiety symptoms, and an increase in odds of 1.77 (95%CI 1.43 to 2.18) for NSSH, 2.05 (95%CI 1.48 to 2.83) for suicidal thoughts, and 1.66 (95%CI 1.39 to 1.99) for suicide attempt.

Misuse of pronouns: As scores on misuse of pronouns increased by one standard deviation, this was associated with a 1.18 (95%CI 0.65 to 1.71) point increase in depressive symptoms, a 1.05 (95%CI 0.55 to 1.54) point increase in anxiety symptoms, and an increase in odds of 1.79 (95%CI 1.49 to 2.14) for NSSH, 1.90 (95%CI 1.51 to 2.38) for suicidal thoughts, and 1.37 (95%CI 1.14 to 1.66) for suicide attempts.

Invasion of bodily privacy: As scores on invasion of bodily privacy increased by one standard deviation, this was associated with a 1.62 (95%CI 1.10 to 2.14) point increase in depressive symptoms, a 1.39 (95%CI 0.90 to 1.87) point increase in anxiety symptoms, and an increase in odds of 1.55 (95%CI 1.26 to 1.91) for NSSH, 1.84 (95%CI 1.33 to 2.53) for suicidal thoughts, and 1.45 (95%CI 1.22 to 1.73) for suicide attempts.

Behavioural discomfort from others: As scores on behavioural discomfort from others increased by one standard deviation, this was associated with a 1.74 (95%CI 1.23 to 2.24) point increase in depressive symptoms, a 1.31 (95%CI 0.83 to 1.79) point increase in anxiety symptoms, and an increase in odds of 1.48 (95%CI 1.19 to 1.84) for NSSH, 2.06 (95%CI 1.41 to 3.02) for suicidal thoughts, and 1.32 (95%CI 1.12 to 1.56) for suicide attempts.

Denial of societal transphobia: As scores on denial of societal transphobia increased by one standard deviation, this was associated with a 1.74 (95%CI 1.23 to 2.26) point increase in depressive symptoms, a 1.59 (95%CI 1.11 to 2.07) point increase in anxiety symptoms, and an increase in odds of 1.58 (95%CI 1.29 to 1.94) for NSSH, 2.21 (95%CI 1.58 to 3.08) for suicidal thoughts, and 1.41 (95%CI 1.18 to 1.67) for suicide attempts.

Table 5-2: Associations between specific microaggressions (GIS subscales) and depressive symptoms and anxiety symptoms 16

N=574	**Depressive symptoms**		**Anxiety symptoms**	
Unadjusted Models	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	**1.58 (1.06 to 2.10)**	**<0.001**	**1.32 (0.83 to 1.80)**	**<0.001**
Misuse of pronouns	**1.18 (0.65 to 1.71)**	**<0.001**	**1.05 (0.55 to 1.54)**	**<0.001**
Invasion of bodily privacy	**1.62 (1.10 to 2.14)**	**<0.001**	**1.39 (0.90 to 1.87)**	**<0.001**
Behavioural discomfort	**1.74 (1.23 to 2.24)**	**<0.001**	**1.31 (0.83 to 1.79)**	**<0.001**
Denial of societal transphobia	**1.74 (1.23 to 2.26)**	**<0.001**	**1.59 (1.11 to 2.07)**	**<0.001**
Partially Adjusted Models*	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	0.43 (-0.23 to 1.09)	0.205	0.29 (-0.33 to 0.91)	0.359
Misuse of pronouns	0.21 (-0.39 to 0.80)	0.495	0.22 (-0.33 to 0.77)	0.434
Invasion of bodily privacy	0.54 (-0.11 to 1.18)	0.104	0.53 (-0.08 to 1.13)	0.086
Behavioural discomfort	**0.82 (0.19 to 1.46)**	**0.011**	0.39 (-0.20 to 0.99)	0.194
Denial of societal transphobia	**0.76 (0.10 to 1.42)**	**0.025**	**0.89 (0.27 to 1.51)**	**0.005**
Fully Adjusted Models**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	0.19 (-0.45 to 0.83)	0.558	0.09 (-0.52 to 0.71)	0.764
Misuse of pronouns	0.13 (-0.45 to 0.71)	0.661	0.16 (-0.39 to 0.72)	0.562
Invasion of bodily privacy	0.56 (-0.11 to 1.22)	0.099	0.47 (-0.16 to 1.11)	0.141
Behavioural discomfort	**0.97 (0.35 to 1.59)**	**0.002**	0.55 (-0.04 to 1.14)	0.068
Denial of societal transphobia	0.59 (-0.05 to 1.23)	0.071	**0.80 (0.19 to 1.41)**	**0.010**

* Adjusted for each subscale of the GIMS

** adjusted for each subscale and confounders (age, perceived gender, sexuality, ethnicity, disability, education

Table 5-3: Associations between microaggressions (GIMS subscales) and NSSH, suicidal thoughts, and suicide attempts 17

N=574	**Lifetime suicidal thoughts**		**Lifetime suicide attempt**		**Lifetime non-suicidal self-harm**	
Unadjusted Models	**OR$_{crude}$ (95%CI)**	**P-value**	**OR$_{crude}$ (95%CI)**	**P-value**	**OR$_{crude}$ (95%CI)**	**P-value**
Denial of gender identity	**2.05 (1.48 to 2.83)**	**<0.001**	**1.66 (1.39 to 1.99)**	**<0.001**	**1.77 (1.43 to 2.18)**	**<0.001**
Misuse of pronouns	**1.90 (1.51 to 2.38)**	**<0.001**	**1.37 (1.14 to 1.66)**	**0.001**	**1.79 (1.49 to 2.14)**	**<0.001**
Invasion of bodily privacy	**1.84 (1.33 to 2.53)**	**<0.001**	**1.45 (1.22 to 1.73)**	**<0.001**	**1.55 (1.26 to 1.91)**	**<0.001**
Behavioural discomfort	**2.06 (1.41 to 3.02)**	**<0.001**	**1.32 (1.12 to 1.56)**	**0.001**	**1.48 (1.19 to 1.84)**	**<0.001**
Denial of societal transphobia	**2.21 (1.58 to 3.08)**	**<0.001**	**1.41 (1.18 to 1.67)**	**<0.001**	**1.58 (1.29 to 1.94)**	**<0.001**
Partially Adjusted Models*	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**
Denial of gender identity	1.18 (0.78 to 1.78)	0.433	**1.48 (1.18 to 1.85)**	**0.001**	**1.32 (1.00 to 1.73)**	**0.048**
Misuse of pronouns	**1.45 (1.10 to 1.91)**	**0.009**	1.07 (0.86 to 1.33)	0.526	**1.49 (1.20 to 1.84)**	**<0.001**
Invasion of bodily privacy	1.05 (0.69 to 1.58)	0.832	1.19 (0.95 to 1.48)	0.128	1.11 (0.85 to 1.45)	0.461
Behavioural discomfort	1.26 (0.79 to 1.99)	0.334	0.98 (0.79 to 1.22)	0.879	1.02 (0.77 to 1.34)	0.888
Denial of societal transphobia	1.48 (0.97 to 2.28)	0.071	1.04 (0.83 to 1.30)	0.744	1.08 (0.82 to 1.42)	0.567
Fully Adjusted Models**	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**	**OR$_{adj}$ (95%CI)**	**P-value**
Denial of gender identity	1.10 (0.71 to 1.70)	0.670	**1.40 (1.11 to 1.77)**	**0.005**	1.28 (0.96 to 1.71)	0.095
Misuse of pronouns	**1.49 (1.09 to 2.03)**	**0.013**	1.13 (0.90 to 1.42)	0.280	**1.46 (1.175to 1.84)**	**0.002**
Invasion of bodily privacy	0.86 (0.55 to 1.34)	0.513	1.16 (0.91 to 1.48)	0.220	1.09 (0.81 to 1.47)	0.559
Behavioural discomfort	1.33 (0.82 to 2.15)	0.246	0.96 (0.77 to 1.20)	0.728	1.06 (0.79 to 1.42)	0.686
Denial of societal transphobia	1.46 (0.93 to 2.30)	0.103	1.05 (0.83 to 1.32)	0.702	1.02 (0.76 to 1.37)	0.879

* Adjusted for each subscale of the GIMS

** adjusted for each subscale and confounders (age, perceived gender, sexuality, ethnicity, disability, education)

Multivariable models

After adjusting each model for the other subscales, I found evidence for specific subscales having independent associations with some of the five mental health outcomes. Taking each in turn:

Denial of gender identity: After mutually adjusting for each subscale, a one standard deviation increase in scores on denial of gender identity was associated with an increased odds of 1.32 (95%CI 1.00 to 1.73) for NSSH, and 1.48 (95%CI 1.18 to 1.85) for suicide attempt.

Misuse of pronouns: As scores on misuse of pronouns increased by one standard deviation, this was associated with an increased odds of 1.49 (95%CI 1.20 to 1.84) for NSSH, and 1.45 (95%CI 1.10 to 1.91) for suicidal thoughts.

Invasion of bodily privacy: There was no evidence that invasion of bodily privacy was associated with depressive symptoms (adjusted coefficient 0.54 (95%CI -0.11 to 1.185)), anxiety symptoms (adjusted coefficient 0.53 (95%CI -0.08 to 1.13)), or with NSSH (OR_{adj} 1.09 (95%CI 0.81 to 1.47)), suicidal thoughts (OR_{adj} 0.86 (95%CI 0.55 to 1.34)), or suicide attempts (OR_{adj} 1.16 (95%CI 0.91 to 1.48)).

Behavioural discomfort from others: As scores on behavioural discomfort from others increased by one standard deviation, this was associated with a 0.82 (95%CI 0.19 to 1.46) point increase in depressive symptoms.

Denial of societal transphobia: As scores on denial of societal transphobia increased by one standard deviation, this was associated with a 0.76 (95%CI 0.10 to 1.42) point increase in depressive symptoms, and a 0.89 (95%CI 0.27 to 1.51) point increase in anxiety symptoms.

Finally, in fully adjusted multivariable models for GIMS subscales, including confounders, I found small changes in the coefficients and odds ratios for each mental health outcome. However, these fully adjusted models maintained the strength of evidence for each model.

Sensitivity analyses

Cross-sectional analyses

Univariable models

Following multiple imputation by chained equations there was minimal change in the coefficients between the complete case analysis and the two imputations models (see sTable 5-2 and sTable 5-3). Evidence remained for all five subscales and depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempt outcomes.

Multivariable models

Following adjustment for other subscales in the MICE models I found minimal changes in the coefficients. I will outline each subscale with results from model one (restricted analysis to those with complete microaggression scores), model two (unrestricted), and complete cases.

Denial of gender identity: Denial of gender identity was associated with increased odds of suicide thoughts (OR_{adj} 1.39 (95%CI 1.13 to 1.71)) in model one, and an increase in 1.39 odds (95%CI 1.13 to 1.71)) in model two, compared to an increase in 1.48 odds (95%CI 1.18 to 1.85) in complete case analysis. Furthermore, in my MICE models, the association between denial of gender identity and NSSH had attenuated (model one: OR_{adj} 1.20 (95%CI 0.94 to 1.53); model two: OR_{adj} 1.17 (95%CI 0.92 to 1.48); complete case: 1.32 (1.00 to 1.73).

Misuse of pronouns: misuse of pronouns was associated with increased odds of suicidal thoughts (OR_{adj} 1.38 (95%CI 1.08 to 1.76)) in model one, and an increase in 1.45 odds (95%CI 1.14 to 1.83) in model two, which is similar to the complete case analysis (OR_{adj} 1.45 (95%CI 1.10 to 1.91)). misuse of pronouns was associated with increased odds of NSSH (OR_{adj} 1.39 (95%CI 1.15 to 1.69)) in model one, and increased odds of 1.43 (1.17 to 1.74) in model two, compared to complete case analysis 1.49 (1.20 to 1.84).

Invasion of bodily privacy: No evidence was found between invasion of bodily privacy and any of the mental health outcomes in my MICE models, and is in line with the complete case analysis.

Behavioural discomfort from others: as behavioural discomfort from others increased by one standard deviation, depressive symptoms increased by 0.84 points (95%CI 0.24 to 1.43) in model one, remained unaltered in model two (coefficient 0.83 (95% CI 0.22 to 1.44)) compared to the complete case (adjusted coefficient 0.97 95%CI 0.35 to 1.59)).

Denial of societal transphobia: as denial of societal transphobia increased by one standard deviation, depressive symptoms increased by 0.81 (95%CI 0.19 to 1.43) in model one, and 0.79 (95%CI 0.13 to 1.46) in model two, compared to 0.76 (95%CI 0.10 to 1.42) in the complete case analysis. Denial of societal transphobia was the only subscale associated with symptoms of anxiety, with one standard deviation increase in this subscale being associated with a 0.90 (95%CI 0.32 to 1.47) in model one, and 0.89 (95%CI 0.28 to 1.50) in model two, compared to 0.89 (95%CI 0.27 to 1.51) in complete case analysis.

In the final adjusted models, including confounders, there was little change in the coefficients and odds ratios for each model.

sTable 5-2: Multiply imputed multivariable models of GIMS subscales with depressive symptoms and anxiety symptoms 18

	Depressive symptoms (past two weeks)				Anxiety symptoms (past two weeks)			
	Model one† (N=679)		*Model two†† (N=787)*		*Model one† (N=679)*		*Model two†† (N=787)*	
Unadjusted Models	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value
Denial of gender identity	**1.53 (1.04 to 2.01)**	**<0.001**	**1.54 (1.07 to 2.02)**	**<0.001**	**1.26 (0.81 to 1.71)**	**<0.001**	**1.26 (0.79 to 1.73)**	**<0.001**
Misuse of pronouns	**1.13 (0.64 to 1.62)**	**<0.001**	**1.11 (0.62 to 1.60)**	**<0.001**	**1.02 (0.57 to 1.48)**	**<0.001**	**1.00 (0.54 to 1.46)**	**<0.001**
Invasion of bodily privacy	**1.65 (1.17 to 2.13)**	**<0.001**	**1.65 (1.17 to 2.14)**	**<0.001**	**1.30 (0.85 to 1.75)**	**<0.001**	**1.29 (0.81 to 1.77)**	**<0.001**
Behavioural discomfort	**1.76 (1.28 to 2.24)**	**<0.001**	**1.76 (1.27 to 2.24)**	**<0.001**	**1.25 (0.80 to 1.70)**	**<0.001**	**1.26 (0.78 to 1.73)**	**<0.001**
Denial of societal transphobia	**1.76 (1.28 to 2.23)**	**<0.001**	**1.75 (1.27 to 2.23)**	**<0.001**	**1.54 (1.09 to 1.98)**	**<0.001**	**1.53 (1.06 to 2.00)**	**<0.001**
Adjusted Models*	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value
Denial of gender identity	0.34 (-0.28 to 0.96)	0.277	0.37 (-0.26 to 1.00)	0.245	0.26 (-0.32 to 0.84)	0.374	0.28 (-0.31 to 0.87)	0.357
Misuse of pronouns	0.16 (-0.39 to 0.71)	0.565	0.14 (-0.41 to 0.70)	0.618	0.25 (-0.26 to 0.77)	0.329	0.23 (-0.29 to 0.76)	0.384
Invasion of bodily privacy	0.60 (0.00 to 1.20)	0.050	0.61 (0.00 to 0.22)	0.051	0.46 (-0.10 to 1.03)	0.107	0.45 (-0.12 to 1.02)	0.121
Behavioural discomfort	**0.84 (0.24 to 1.43)**	**0.006**	**0.83 (0.22 to 1.44)**	**0.008**	0.36 (-0.20 to 0.92)	0.208	0.38 (-.19 to 0.95)	0.195
Denial of societal transphobia	**0.81 (0.19 to 1.43)**	**0.010**	**0.79 (0.13 to 1.46)**	**0.020**	**0.90 (0.32 to 1.47)**	**0.002**	**0.89 (0.28 to 1.50)**	**0.004**
Adjusted Models**	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value	Mean difference (95%CI)	P-value
Denial of gender identity	0.18 (-0.43 to 0.78)	0.565	0.14 (-0.48 to 0.76)	0.650	0.14 (-0.43 to 0.71)	0.634	0.09 (-0.49 to 0.68)	0.754
Misuse of pronouns	-0.12 (-0.68 to 0.43)	0.668	-0.11 (-0.66 to 0.44)	0.694	-0.03 (-0.56 to 0.50)	0.915	-0.02 (-0.55 to 0.52)	0.955
Invasion of bodily privacy	0.55 (-0.07 to 1.17)	0.081	0.54 (-0.09 to 1.17)	0.091	0.43 (-0.15 to 1.02)	0.148	0.41 (-0.19 to 1.01)	0.183
Behavioural discomfort	**0.95 (0.36 to 1.53)**	**0.002**	**0.94 (0.37 to 1.51)**	**0.001**	0.51 (-0.05 to 1.06)	0.075	0.51 (-0.04 to 1.06)	0.066
Denial of societal transphobia	**0.66 (0.06 to 1.25)**	**0.031**	**0.64 (0.01 to 1.27)**	**0.046**	**0.77 (0.20 to 1.33)**	**0.008**	**0.76 (0.15 to 1.37)**	**0.015**

† Model one contains imputed confounders and outcomes and is restricted to complete cases on exposure (GIMS)

†† Model two contains imputed exposure, confounders, and outcomes, and is not restricted to complete cases

*Mutually adjusted for each GIMS subscale

** Mutually adjusted for each GIMS subscale plus age, ethnicity, perceived gender, education, sexuality, stage of social transition, stage of physical transition, and disability.

sTable 5-3: Multiply imputed multivariable model one (restricted to complete exposure cases) of GIMS subscales with NSSH, suicidal thoughts, and suicide attempts 19

Model one (N=679)	Lifetime suicidal thoughts		Lifetime suicide attempts		Lifetime non-suicidal self-harm	
Unadjusted Models	OR_{crude} (95%CI)	P-value	OR_{crude} (95%CI)	P-value	OR_{crude} (95%CI)	P-value
Denial of gender identity	**1.98 (1.51 to 2.62)**	**<0.001**	**1.62 (1.38 to 1.91)**	**<0.001**	**1.64 (1.36 to 1.98)**	**<0.001**
Misuse of pronouns	**1.84 (1.50 to 2.25)**	**<0.001**	**1.32 (1.12 to 1.57)**	**0.001**	**1.67 (1.42 to 1.97)**	**<0.001**
Invasion of bodily privacy	**1.91 (1.44 to 2.53)**	**<0.001**	**1.48 (1.26 to 1.74)**	**<0.001**	**1.53 (1.27 to 1.84)**	**<0.001**
Behavioural discomfort	**2.02 (1.45 to 2.80)**	**<0.001**	**1.38 (1.18 to 1.61)**	**<0.001**	**1.45 (1.19 to 1.76)**	**<0.001**
Denial of societal transphobia	**2.34 (1.74 to 3.14)**	**<0.001**	**1.45 (1.24 to 1.70)**	**<0.001**	**1.60 (1.33 to 1.92)**	**<0.001**
Partially Adjusted Models*	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value
Denial of gender identity	1.11 (0.78 to 1.58)	0.549	**1.39 (1.13 to 1.71)**	**0.002**	1.20 (0.94 to 1.53)	0.145
Misuse of pronouns	**1.38 (1.08 to 1.76)**	**0.010**	1.02 (0.84 to 1.24)	0.848	**1.39 (1.15 to 1.69)**	**0.001**
Invasion of bodily privacy	1.14 (0.80 to 1.62)	0.481	1.20 (0.98 to 1.47)	0.078	1.12 (0.88 to 1.42)	0.352
Behavioural discomfort	1.16 (0.78 to 1.73)	0.456	1.04 (0.85 to 1.26)	0.719	1.02 (0.80 to 1.31)	0.873
Denial of societal transphobia	**1.66 (1.14 to 2.41)**	**0.008**	1.09 (0.89 to 1.34)	0.388	1.18 (0.92 to 1.50)	0.191
Fully Adjusted Models**	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value
Denial of gender identity	1.14 (0.78 to 1.67)	0.489	**1.37 (1.10 to 1.70)**	**0.005**	1.19 (0.92 to 1.54)	0.197
Misuse of pronouns	1.26 (0.95 to 1.67)	0.108	1.01 (0.82 to 1.25)	0.908	**1.25 (1.01 to 1.23)**	**0.043**
Invasion of bodily privacy	0.94 (0.64 to 1.39)	0.764	1.15 (0.92 to 1.44)	0.213	1.18 (0.90 to 1.54)	0.226
Behavioural discomfort	1.25 (0.82 to 1.90)	0.300	1.00 (0.81 to 1.24)	0.976	1.09 (0.84 to 1.42)	0.523
Denial of societal transphobia	**1.54 (1.03 to 2.29)**	**0.034**	1.10 (0.89 to 1.36)	0.382	1.07 (0.82 to 1.39)	0.609

Multiply imputed multivariable logistic regression models unadjusted and adjusted of the GIMS subscales and NSSH, suicidal thoughts, and suicide attempt items which contains imputed exposure, confounders, and outcomes, and is restricted to complete cases on exposure (GIMS).

*Mutually adjusted for each GIMS subscale

** Mutually adjusted for each GIMS subscale plus age, ethnicity, perceived gender, education, sexuality, stage of social transition, stage of physical transition, and disability OR – Odds Ratio

aOR – Adjusted Odds Ratio

sTable 5-4 Multiply imputed multivariable logistic regression models, unadjusted and adjusted, for the GIMS subscales and NSSH, suicidal thoughts, and suicide attempt outcomes containing imputed data on exposure, confounders, and outcomes, and not restricted to complete cases 20

Model two (N=787)	Lifetime suicidal thoughts		Lifetime suicide attempts		Lifetime non-suicidal self-harm	
Unadjusted Models	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**
Denial of gender identity	**1.99 (1.50 to 2.62)**	**<0.001**	**1.61 (1.38 to 1.89)**	**<0.001**	**1.60 (1.33 to 1.92)**	**<0.001**
Misuse of pronouns	**1.89 (1.55 to 2.30)**	**<0.001**	**1.30 (1.10 to 1.54)**	**0.002**	**1.68 (1.42 to 2.00)**	**<0.001**
Invasion of bodily privacy	**1.82 (1.36 to 2.43)**	**<0.001**	**1.49 (1.27 to 1.74)**	**<0.001**	**1.50 (1.25 to 1.80)**	**<0.001**
Behavioural discomfort	**1.86 (1.36 to 2.54)**	**<0.001**	**1.38 (1.18 to 1.61)**	**<0.001**	**1.42 (1.18 to 1.72)**	**<0.001**
Denial of societal transphobia	**2.29 (1.73 to 3.02)**	**<0.001**	**1.44 (1.23 to 1.69)**	**<0.001**	**1.58 (1.31 to 1.90)**	**<0.001**
Partially Adjusted Models*	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value
Denial of gender identity	1.15 (10.79 to 1.67)	0.474	**1.39 (1.13 to 1.71)**	**0.002**	1.17 (0.92 to 1.48)	0.199
Misuse of pronouns	**1.45 (1.14 to 1.83)**	**0.002**	1.01 (0.83 to 1.23)	0.948	**1.43 (1.17 to 1.74)**	**<0.001**
Invasion of bodily privacy	1.09 (0.75 to 1.56)	0.658	1.22 (0.99 to 1.49)	0.060	1.11 (0.88 to 1.40)	0.396
Behavioural discomfort	1.10 (0.74 to 1.64)	0.626	1.03 (0.85 to 1.26)	0.733	1.02 (0.81 to 1.30)	0.852
Denial of societal transphobia	**1.64 (1.15 to 2.36)**	**0.007**	1.09 (0.88 to 1.35)	0.443	1.18 (0.92 to 1.51)	0.201
Fully Adjusted Models**	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value	OR_{adj} (95%CI)	P-value
Denial of gender identity	1.16 (0.80 to 1.66)	0.435	**1.36 (1.08 to 1.70)**	**0.008**	1.17 (0.91 to 1.51)	0.228
Misuse of pronouns	1.30 (0.98 to 1.73)	0.071	0.99 (0.80 to 1.22)	0.925	**1.29 (1.03 to 1.60)**	**0.023**
Invasion of bodily privacy	0.95 (0.64 to 1.41)	0.809	1.16 (0.93 to 1.44)	0.198	1.16 (0.90 to 1.51)	0.252
Behavioural discomfort	1.13 (0.77 to 1.67)	0.540	1.00 (0.81 to 1.22)	0.970	1.09 (0.82 to 1.43)	0.554
Denial of societal transphobia	**1.56 (1.05 to 2.30)**	**0.026**	1.10 (0.88 to 1.37)	0.406	1.09 (0.84 to 1.42)	0.525

*Mutually adjusted for each GIMS subscale

** Mutually adjusted for each GIMS subscale plus age, ethnicity, perceived gender, education, sexuality, stage of social transition, stage of physical transition, and disability

OR – Odds Ratio

OR_{adj} – Adjusted Odds Ratio

figures in bold are significant at $p<0.05$

Longitudinal analysis

Univariable models

In unadjusted univariable models, I found evidence of associations between GIMS subscales and each mental health outcome. I will report each subscale in turn with their mental health outcomes, see Tables 5-4 and 5-5 for all analytical results.

Denial of gender identity: Denial of gender identity at baseline was found to be associated with an increase of 1.58 (95%CI 0.75 to 2.42) points in depressive symptoms one year later. Similarly, denial of gender identity at baseline was found to be associated with an increase of 1.52 (95%CI 0.77 to 2.28) points in anxiety symptoms one year later. Finally, denial of gender identity at baseline was found to be associated with an increased odds of 1.35 (95%CI 1.01 to 1.82) for NSSH one year later, and 1.36 (95%CI 1.01 to 1.82) for suicidal thoughts. No evidence was found for an association between denial of gender identity and suicide attempt one year later (OR: 2.31 (95%CI 0.95 to 5.63)).

Misuse of pronouns: Misuse of pronouns at baseline was not found to be associated with either depressive symptoms (Coeff 0.80 (95%CI –0.20 to 1.81)) or anxiety symptoms (0.60 (95%CI -0.31 to 1.52)) one year later. Misuse of pronouns at baseline were also not found to be associated with either NSSH (OR: 1.26 (95%CI 0.89 to 1.80)) one year later, or suicidal thoughts (OR: 1.08 (95%CI 0.77 to 1.50)), suicide attempt (OR: 1.63 (95%CI 0.50 to 5.36)) one year later.

Invasion of bodily privacy: Invasion of bodily privacy at baseline was found to be associated with an increase of 1.37 (95%CI 0.55 to 2.19) points in depressive symptoms one year later. Similarly, invasion of bodily privacy at baseline was found to be associated with an increase of 1.41 (95%CI 0.67 to 2.15) points in anxiety symptoms one year later. Finally, invasion of bodily privacy at baseline was found to be associated with an increased odds of 1.50 (95%CI 1.12 to 2.01) for suicidal thoughts, and 3.13 (95%CI 1.27 to 8.80) for suicide attempt one year later. No evidence was found for an association between invasion of bodily privacy and NSSH one year later (OR: 1.02 (95%CI 0.77 to 1.35)).

Behavioural discomfort from others: Behavioural discomfort from others was found to be associated with an increase of 1.82 (95%CI 1.04 to 2.59) points in depressive symptoms one year later. Similarly, behavioural discomfort from others at baseline was found to be associated with an increase of 1.52 (95%CI 0.81 to 2.23) points in anxiety symptoms one year later. Finally, behavioural discomfort from others at baseline was found to be associated with an increased odds of 1.54 (95%CI 1.15 to 2.07) for suicidal thoughts one year later. No evidence was found for an association between behavioural discomfort from others at baseline and NSSH one year later (OR: 1.08 (95%CI 0.82 to 1.41)), or suicide attempts (OR: 1.46 (95%CI 0.76 to 2.80)) one year later.

Denial of societal transphobia: Denial of societal transphobia was found to be associated with an increase of 1.74 (95%CI 0.92 to 2.56) points in depressive symptoms one year later. Similarly, denial of societal transphobia at baseline was found to be associated with an increase of 1.49 (95%CI 0.74 to 2.24) points in anxiety symptoms one year later. Finally, denial of societal transphobia at baseline was found to be associated with an increased odds of 1.40 (95%CI 1.05 to 1.89) for NSSH one year later, and 1.54 (95%CI 1.15 to 2.06) for suicidal thoughts, 6.64 (95%CI 1.21 to 36.40) for suicide attempts one year later.

Multivariable models

After partially adjusting each model with the other subscales, all associations had attenuated except for behavioural discomfort from others and its association with depressive symptoms (adjust Coeff 1.22 (95%CI 0.13 to 2.31) (see Table 5-4 and 5-5).

Finally, in fully adjusted multivariable models for GIMS subscales, which include sociodemographic variables and baseline mental health measures, the association between behavioural discomfort from others and depressive symptoms had attenuated (adjusted Coeff 0.74 (95%CI -0.16 to 1.65)). However, further evidence emerged between denial of societal transphobia at baseline and NSSH one year later (aOR 1.67 (95%CI 1.06 to 2.62)).

Table 5-4: Models of GIMS subscales and their associations with depressive symptoms and anxiety symptoms accounting for each other subscale 21

N=200	**Depressive symptoms (wave two)**		**Anxiety symptoms (wave two)**	
Unadjusted Models	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	**1.58 (0.75 to 2.42)**	**<0.001**	**1.52 (0.77 to 2.28)**	**<0.001**
Misuse of pronouns	0.80 (-0.20 to 1.81)	0.116	0.60 (-0.31 to 1.52)	0.194
Invasion of bodily privacy	**1.37 (0.55 to 2.19)**	**0.001**	**1.41 (0.67 tob 2.15)**	**<0.001**
Behavioural discomfort	**1.82 (1.04 to 2.59)**	**<0.001**	**1.52 (0.81 to 2.23)**	**<0.001**
Denial of societal transphobia	**1.74 (0.92 to 2.56)**	**<0.001**	**1.49 (0.74 to 2.24)**	**<0.001**
Partially Adjusted Models*	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	0.71 (-0.38 to 1.81)	0.201	0.83 (-0.17 to 1.83)	0.104
Misuse of pronouns	-0.09 (-1.15 to 0.96)	0.861	-0.28 (-1.25 to 0.67)	0.554
Invasion of bodily privacy	-0.05 (-1.14 to 1.04)	0.925	0.36 (-0.63 to 1.36)	0.472
Behavioural discomfort	**1.22 (0.13 to 2.31)**	**0.028**	0.77 (-0.23 to 1.76)	0.129
Denial of societal transphobia	0.64 (-0.49 to 1.76)	0.265	0.63 (-0.58 to 1.46)	0.397
Fully Adjusted Models**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	-0.15 (-1.07 to 0.78)	0.754	0.11 (-0.67 to 0.90)	0.777
Misuse of pronouns	0.30 (-0.58 to 1.17)	0.507	-0.23 (-0.97 to 0.52)	0.547
Invasion of bodily privacy	-0.89 (-1.86 to 0.08)	0.073	-0.29 (-1.12 to 0.53)	0.485
Behavioural discomfort	0.74 (-0.16 to 1.65)	0.107	0.32 (-0.45 to 1.09)	0.413
Denial of societal transphobia	0.84 (-0.10 to 1.79)	0.080	0.58 (-0.23 to 1.38)	0.159

Multivariable unadjusted and adjusted linear regression models of the GIMS Subscales and depressive and anxiety symptoms

*Mutually adjusted for each subscale of the GIMS

**Adjusted for age, ethnicity, perceived gender, education, sexuality, disability, and baseline mental health outcome

Table 5-5: Models of GIMS subscales and their associations with NSSH, suicidal thoughts, and suicide attempts accounting for each other subscale 22

N=200	**Lifetime suicidal thoughts (thoughts of attempting suicide, wave two)**		**Lifetime suicide attempt (wave two)**		**Lifetime NSSH (wave two)**	
Unadjusted Models	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**
Denial of gender identity	**1.36 (1.01 to 1.82)**	**0.040**	2.31 (0.95 to 5.63)	0.066	**1.35 (1.01 to 1.82)**	**0.043**
Misuse of pronouns	1.08 (0.77 to 1.50)	0.657	1.63 (0.50 to 5.36)	0.422	1.26 (0.89 to 1.80)	0.198
Invasion of bodily privacy	**1.50 (1.12 to 2.01)**	**0.007**	**3.135 (1.27 to 8.80)**	**0.014**	1.02 (0.77 to 1.35)	0.878
Behavioural discomfort	**1.54 (1.15 to 2.07)**	**0.004**	1.46 (0.76 to 2.80)	0.258	1.08 (0.82 to 1.41)	0.580
Denial of societal transphobia	**1.54 (1.15 to 2.06)**	**0.004**	**6.64 (1.21 to 36.40)**	**0.029**	**1.40 (1.05 to 1.89)**	**0.022**
Partially Adjusted Models*	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**
Denial of gender identity	1.04 (0.71 to 1.54)	0.828	0.91 (0.27 to 3.08)	0.885	1.25 (0.84 to 1.85)	0.269
Misuse of pronouns	0.87 (0.60 to 1.27)	0.474	0.67 (0.16 to 2.86)	0.593	1.11 (0.75 to 1.65)	0.598
Invasion of bodily privacy	1.20 (0.81 to 1.77)	0.365	**3.95 (1.04 to 14.94)**	**0.043**	0.80 (0.54 to 1.18)	0.259
Behavioural discomfort	1.23 (0.82 to 1.83)	0.322	0.43 (0.17 to 0.1.08)	0.073	0.91 (0.62 to 1.34)	0.642
Denial of societal transphobia	1.26 (0.85 to 1.88)	0.244	**8.00 (1.02 to 62.60)**	**0.048**	1.43 (0.96 to 2.14)	0.077
Fully Adjusted Models**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**
Denial of gender identity	0.92 (0.60 to 1.42)	0.712	0.56 (0.05 to 5.75)	0.623	0.97 (0.63 to 1.50)	0.898
Misuse of pronouns	0.93 (0.62 to 1.39)	0.719	0.91 (0.11 to 7.54)	0.927	1.08 (0.70 to 1.66)	0.725
Invasion of bodily privacy	1.04 (0.67 to 1.63)	0.848	5.79 (0.34 to 97.71)	0.223	0.73 (0.46 to 1.15)	0.177
Behavioural discomfort	1.23 (0.79 to 1.89)	0.357	0.10 (0.01 to 0.79)	0.029	0.96 (0.63 to 1.48)	0.861
Denial of societal transphobia	1.32 (0.86 to 2.04)	0.206	40.72 (1.23 to 1350.3)	0.038	**1.67 (1.06 to 2.62)**	**0.027**

Multivariable logistic regression models unadjusted and adjusted of the GIMS subscales and NSSH, suicidal thoughts, and suicide attempt items

*Mutually adjusted for each subscale of the GIMS

**Adjusted for age, ethnicity, perceived gender, education, sexuality, disability, and baseline mental health outcome

OR – Odds Ratio

aOR – Adjusted Odds Ratio

Sensitivity analyses

Multiple Imputation

Univariable models

After performing MICE, I found evidence of associations between GIMS subscales and each mental health outcome. I will report each subscale in turn with their mental health outcomes, see sTables 5-5 and 5-6 for all analytical results.

Denial of gender identity: Denial of gender identity at baseline was found to be associated with an increase of 1.60 (95%CI 0.97 to 2.23) points in depressive symptoms one year later. Similarly, denial of gender identity at baseline was found to be associated with an increase of 1.45 (95%CI 0.92 to 1.98) points in anxiety symptoms one year later. Finally, denial of gender identity at baseline was found to be associated with an increased odds of 1.31 (95%CI 1.02 to 1.67) NSSH, 1.39 (95%CI 1.05 to 1.85) for suicidal thoughts, and 2.18 (95%CI 1.13 to 4.20) for suicide attempt one year later.

Misuse of pronouns: Misuse of pronouns at baseline was found to be associated with both depressive symptoms (Coeff 1.33 (95%CI 0.68 to 1.99)) and anxiety symptoms (Coeff 1.13 (95CI 0.62 to 1.64)) one year later. Misuse of pronouns at baseline were also not found to be associated with either NSSH (OR: 1.18 (95%CI 0.94 to 1.48)), suicidal thoughts (OR: 1.29 (95%CI 0.99 to 1.68)), or suicide attempt (OR: 1.90 (95%CI 0.73 to 4.95)) one year later.

Invasion of bodily privacy: Invasion of bodily privacy at baseline was found to be associated with an increase of 1.61 (95%CI 0.93 to 2.28) points in depressive symptoms one year later. Similarly, invasion of bodily privacy at baseline was found to be associated with an increase of 1.40 (95%CI 0.78 to 2.02) points in anxiety symptoms one year later. Finally, invasion of bodily privacy at baseline was found to be associated with an increased odds of 1.46 (95%CI 1.12 to 1.91) for suicidal thoughts, and 2.46 (95%CI 1.39 to 4.37) for suicide attempt one year later. No evidence was found for an association between invasion of bodily privacy and NSSH one year later (OR: 1.14 (95%CI 0.92 to 1.63)).

Behavioural discomfort from others: Behavioural discomfort from others was found to be associated with an increase of 1.85 (95%CI 1.25 to 2.45) points in depressive symptoms one year later. Similarly, behavioural discomfort from others at baseline was found to be associated with an increase of 1.39 (95%CI 0.85 to 1.93) points in anxiety symptoms one year later. Finally, behavioural discomfort from others at baseline was found to be associated with an increased odds of 1.41 (95%CI 1.07 to 1.87) for suicidal thoughts one year later, and 1.74 odds (95CI 1.08 to 2.83) for suicide attempt. No evidence was found for an association between behavioural discomfort from others at baseline and NSSH one year later (OR: 1.15 (95%CI 0.92 to 1.45)).

Denial of societal transphobia: Denial of societal transphobia was found to be associated with an increase of 1.93 (95%CI 1.32 to 2.55) points in depressive symptoms one year later. Similarly, denial of societal transphobia at baseline was found to be associated with an increase of 1.63 (95%CI 1.11 to 2.16) points in anxiety symptoms one year later. Finally, denial of societal transphobia at baseline was found to be associated with an increased odds of 1.29 (95%CI 1.03 to 1.63) for NSSH, 1.47 (95%CI 1.16 to 1.86) for suicidal thoughts, and 2.60 (95%CI 1.27 to 5.30) for suicide attempts one year later.

Multivariable models

After partially adjusting each model with the other subscales, most associations had attenuated except for behavioural discomfort from others and its association with depressive symptoms (adjust Coeff 1.22 (95%CI 0.13 to 2.31), and denial of societal transphobia with both depressive symptoms (adjusted Coeff 1.01 (95%CI 0.29 to 1.72)) and anxiety symptoms (adjusted Coeff 0.85 (95%CI 0.20 to 1.49)) one year later.

Finally, in fully adjusted multivariable models for GIMS subscales, the association between behavioural discomfort from others and depressive symptoms had attenuated (adjusted Coeff 0.46 (95%CI -0.14 to 1.06)). Similarly, the association between denial of societal transphobia and depressive symptoms (adjusted Coeff 0.57 (95%CI -0.04 to 1.18)) and anxiety symptoms (adjusted Coeff 0.36 (95%CI -0.20 to 0.92)) had attenuated.

sTable 5-5: Multiply imputed multivariable models (n=679) of GIMS subscales with depressive symptoms and anxiety symptoms restricted to complete exposure at baseline 23

N=679	**Depressive symptoms (wave two)**		**Anxiety symptoms (wave two)**	
Unadjusted Models	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	**1.60 (0.97 to 2.23)**	**<0.001**	**1.45 (0.92 to 1.98)**	**<0.001**
Misuse of pronouns	**1.33 (0.68 to 1.99)**	**<0.001**	**1.13 (0.62 to 1.64)**	**<0.001**
Invasion of bodily privacy	**1.61 (0.93 to 2.28)**	**<0.001**	**1.40 (0.78 to 2.02)**	**<0.001**
Behavioural discomfort	**1.85 (1.25 to 2.45)**	**<0.001**	**1.39 (0.85 to 1.93)**	**<0.001**
Denial of societal transphobia	**1.93 (1.32 to 2.55)**	**<0.001**	**1.63 (1.11 to 2.16)**	**<0.001**
Partially Adjusted Models*	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	0.28 (-0.45 to 1.00)	0.453	0.43 (-0.20 to 1.06)	0.180
Misuse of pronouns	0.37 (-0.30 to 1.04)	0.278	0.28 (-0.25 to 0.82)	0.303
Invasion of bodily privacy	0.38 (-0.38 to 1.14)	0.322	0.46 (-0.26 to 1.18)	0.210
Behavioural discomfort	**0.91 (0.22 to 1.60)**	**0.010**	0.44 (-0.19 to 1.07)	0.166
Denial of societal transphobia	**1.01 (0.29 to 1.72)**	**0.006**	**0.85 (0.20 to 1.49)**	**0.010**
Fully Adjusted Models**	**Coefficient (95%CI)**	**P-value**	**Coefficient (95%CI)**	**P-value**
Denial of gender identity	0.10 (-0.58 to 0.78)	0.777	0.28 (-0.30 to 0.86)	0.341
Misuse of pronouns	0.33 (-0.28 to 0.95)	0.282	0.15 (-0.32 to 0.62)	0.528
Invasion of bodily privacy	-0.02 (-0.70 to 0.66)	0.954	0.05 (-0.62 to 0.72)	0.881
Behavioural discomfort	0.46 (-0.14 to 1.06)	0.135	0.30 (-0.24 to 0.84)	0.278
Denial of societal transphobia	0.57 (-0.04 to 1.18)	0.068	0.36 (-0.20 to 0.92)	0.206

*Mutually adjusted for each subscale of the GIMS

**Adjusted for age, ethnicity, perceived gender, education, sexuality, disability, and baseline mental health outcome

sTable 5-6: Multiply imputed multivariable models of GIMS subscales with NSSH, suicidal thoughts, and suicide attempts, restricted to complete exposure at baseline 24

n=679	**Lifetime suicidal thoughts (thoughts of attempting suicide, wave two)**		**Lifetime suicide attempt (wave two)**		**Lifetime NSSH (wave two)**	
Unadjusted Models	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**	**OR_{crude} (95%CI)**	**P-value**
Denial of gender identity	1.39 (1.05 to 1.85)	0.023	2.18 (1.13 to 4.20)	0.021	1.31 (1.02 to 1.67)	0.036
Misuse of pronouns	1.29 (0.99 to 1.68)	0.057	1.90 (0.73 to 4.95)	0.190	1.18 (0.94 to 1.48)	0.152
Invasion of bodily privacy	1.46 (1.12 to 1.91)	0.006	2.46 (1.39 to 4.37)	0.002	1.14 (0.92 to 1.41)	0.238
Behavioural discomfort	1.41 (1.07 to 1.87)	0.016	1.74 (1.08 to 2.83)	0.024	1.15 (0.92 to 1.45)	0.218
Denial of societal transphobia	1.47 (1.16 to 1.86)	0.002	2.60 (1.27 to 5.30)	0.009	1.29 (1.03 to 1.63)	0.029
Partially Adjusted Models*	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**
Denial of gender identity	1.08 (0.81 to 1.43)	0.597	1.30 (0.62 to 2.71)	0.480	1.20 (0.92 to 1.57)	0.184
Misuse of pronouns	1.05 (0.83 to 1.34)	0.667	1.01 (0.39 to 2.59)	0.985	1.03 (0.81 to 1.32)	0.799
Invasion of bodily privacy	1.20 (0.92 to 1.58)	0.183	1.80 (0.93 to 3.49)	0.080	0.96 (0.75 to 1.24)	0.750
Behavioural discomfort	1.11 (0.83 to 1.47)	0.474	1.00 (0.56 to 1.78)	0.995	0.99 (0.78 to 1.27)	0.966
Denial of societal transphobia	1.21 (0.93 to 1.58)	0.161	1.78 (0.75 to 4.20)	0.188	1.18 (0.89 to 1.57)	0.249
Fully Adjusted Models**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**	**OR_{adj} (95%CI)**	**P-value**
Denial of gender identity	1.04 (0.76 to 1.43)	0.801	1.25 (0.57 to 2.71)	0.574	1.12 (0.83 to 1.50)	0.472
Misuse of pronouns	0.94 (0.72 to 1.24)	0.678	1.09 (0.41 to 2.92)	0.863	1.02 (0.77 to 1.35)	0.891
Invasion of bodily privacy	1.11 (0.81 to 1.53)	0.519	1.73 (0.80 to 3.71)	0.160	0.93 (0.70 to 1.24)	0.621
Behavioural discomfort	1.18 (0.89 to 1.57)	0.255	1.01 (0.56 to 1.83)	0.972	1.04 (0.79 to 1.37)	0.775
Denial of societal transphobia	1.16 (0.87 to 1.55)	0.308	1.76 (0.69 to 4.48)	0.237	1.17 (0.86 to 1.59)	0.323

*Mutually adjusted for each subscale of the GIMS

**Adjusted for age, ethnicity, perceived gender, education, sexuality, disability, and baseline mental health outcome

5.9 Discussion

5.9.1 Summary of findings from subscale study

In this study, I found evidence of cross-sectional associations between specific microaggression experiences and specific outcomes of depression, anxiety, NSSH, suicidal thoughts, and suicide attempts. Denial of gender identity was independently associated with suicide attempt, misuse of pronouns with NSSH and suicidal thoughts, behavioural discomfort from others with depressive symptoms, and denial of societal transphobia with both depressive symptoms and anxiety symptoms. I found no evidence that invasion of bodily privacy was independently associated with any of the mental health outcomes. In longitudinal analyses, no evidence of associations between baseline subscales and mental health outcomes at follow-up after mutual adjustment of other subscales, baseline mental health outcomes, and confounders. This may be due to the nature of the subscales being moderately correlated with one another. This collinearity could increase the model's variance, making the estimates unstable, thus making their predictions poorer (Wold et al., 1984).

5.9.2 Findings in the context of other studies

The findings from the cross-sectional and longitudinal analyses are novel within the literature on transgender microaggressions. Previous work investigating specific microaggression experiences such as correct use of name and pronoun and depressive symptoms using Becks Depression Inventory have shown to improve depressive symptoms and NSSH, suicidal thoughts, and suicide attempt outcomes amongst trans youth (Russell et al., 2018). However, no study has examined direct associations between microaggressive experiences such as misuse of pronouns, denial of gender identity, denial of societal transphobia, behavioural discomfort from others, and invasion of bodily privacy and mental health outcomes. My findings support previous literature showing associations between misuse of pronouns and suicidal thoughts and have applied this to the adult trans population (Russell et al., 2018).

These findings are consistent with the qualitative work on microaggressions and their impacts on trans mental health, in which the contextual nature of microaggressions interact with trans people's emotional, behavioural, and cognitive wellbeing to lesser or greater extents (K. Nadal et al., 2014). As described in the introduction, reactions towards microaggressions have been highlighted in qualitative work to differ by source/perpetrator of the microaggression (P. Galupo et al., 2014; K. Nadal et al., 2014).

For example, intimate partner microaggressions appears to have a more profound effect on internalising negative emotions of sadness and self-blame (K. Nadal et al., 2014). Whereas microaggressions such as questioning legitimacy of gender identity from a friend may contribute to a feeling of rejection (from those outside of the LGBT community) or of inadequacy (when friend is part of the LGBT community) (P. Galupo et al., 2014). Similarly, microaggressions that centre on environmental factors such as access to inclusive bathrooms reinforces marginalisation and interferes with academic performance, development, and engagement (Woodford, Joslin, Pitcher, Renn, et al., 2017). The findings of my study provide further epidemiological support that not only does the context of who, but the context of the content of microaggressions also have specific consequences on trans people. However, there are several limitations of this study that need to be taken into consideration when drawing conclusions.

5.9.3 Strengths and Limitations of the study

There are several strengths to this study. The first is its novelty within the field of microaggressions and mental health. This is the first study to examine microaggression subtypes using epidemiological methods and has provided evidence of specific microaggressions having specific associations with mental health outcomes. This highlights a need for further investigation. Secondly, the study utilised strong methods to strengthen temporal inferences between microaggression subtypes and mental health outcomes, providing further rationale for implementing microaggressions within research and prevention/intervention efforts in reducing the mental health burden of trans people.

There are several limitations that need to be taken into consideration when interpreting the findings of this chapter. The first is the issue of power and sample size. The cross-sectional analyses were adequately powered in the baseline dataset. However, there is a significant attrition in complete cases from baseline to follow-up that has reduced the amount of power I have to detect small to medium effect sizes. To overcome this issue, I employed multiple imputation by chained equations to increase the sample size and power and stabilise the coefficients in the regression models. Here, I did not confirm the finding that had emerged in the complete case analysis suggesting biases in the complete case sample. For example, denial of societal transphobia at baseline was associated with increased odds of NSSH one year later in the complete case analysis, however the association had attenuated after imputation.

The sampling method I employed carries a risk of selection bias and digital exclusion. Selection bias may have arisen due to selective avoidance and selective sharing of the recruitment call. There may have been overrepresentation of those with poor mental health thus inflating the reported prevalence of mental health conditions. However, my tests of the association with microaggressions should remain valid because of my use of well validated measures in assessing both microaggressions and mental health outcomes, which are rooted in strong psychometric properties amongst participants who are already experiencing mental health problems, as well as my inclusion of baseline mental health scores in each model to account for the participants' initial mental health status and examine how changes in exposure influence subsequent mental health outcomes (54, 55).

My use of a social media recruitment methods aimed to increase reach of the survey to trans people across the UK. However, this form of sampling is limited to participants with shared social connections and digitally excludes other demographics who do not participate in social media. This may also be reflected in the range of ages of participants with had access to the survey link. This would have under-represented those who are more marginalised within the trans population, as exemplified by my sample being majority young and white.

A further limitation to consider is the use of correlation analysis between the subscales to assess independence. Whilst this method allows for a simple inspection of the subscales and their appropriateness for use as standalone measures, a more sophisticated mean of analysis could have been used, for example factor analysis. The primary goal of factor analysis is to reduce the complexity of data by determining which variables are interrelated and can be grouped together based on shared variance. It helps identify the underlying factors that account for the patterns observed in the data. These factors represent the common dimensions or constructs that explain the relationships among the observed variables. Whilst the correlation matrix provided gives an indication as to how intercorrelated each scale is, factor analysis may have allowed for insights into the underlying structure of the microaggressions variable, and aid in dimension reduction for further analysis.

Within this study I was only able to report probability of adverse outcomes relative to trans people experiencing a lower number of microaggressions. I also lacked the statistical power to compare specific gender minority identities, e.g., trans men and trans women in relation to my main associations. It is plausible that the nature of associations of microaggressions with depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts differ between these groups, with clinical implications for each.

Whilst this study employed both a cross-sectional and longitudinal analysis, further questions remain over the bidirectionality of the association between specific microaggression experiences and mental health outcomes. It is plausible that experiencing poor mental health may increase awareness of microaggressive experiences or heighten the salience of them. In this case, it is imperative to examine this theoretical causal direction to understand the relationship between microaggressions and mental health outcomes. A further theory may be that microaggressions and mental health could present a vicious cycle. With increased microaggressions resulting in worse mental health, and worse mental health increasing perception of microaggressions, which in turn leads to worse mental health again. First testing the relationship between poor mental health and perceived microaggressions needs to be conducted, with a potential third wave of data collection to examine the implications of the increased microaggression perceptions on mental health at the third wave of data collection.

Furthermore, the use of multivariable regression modelling could be improved by using a multivariate approach to examine the relationship between the GIMS subscales and mental health outcomes. A multivariate model would include more than one outcome variable, i.e., including depressive symptoms, anxiety, and the three suicide variables. I would therefore have investigated depression and taken into account anxiety and suicide outcomes within the microaggressions and depression model. This would make for an interesting analysis and allow myself to discuss the relationship between the exposure and outcome whilst also controlling for other outcomes that I am interested in. Using techniques such as confirmatory factor analysis and latent class analysis would have highlighted factors loaded to specific outcomes however this would answer a different question and seems to be the logical next step from the analyses I have provided, i.e., microaggressions are associated with each outcome, however are do microaggressions have a larger impact on a specific outcome. This limitation should be addressed when conducting further research into microaggressions.

Finally, I did not employ Bonferroni correction to my analyses. Bonferroni corrections employ a more conservative significance level to tests with multiple hypothesis testing. The need for these types of corrections in multiple hypothesis testing is grounded in the suitability of the alpha level selected. Whilst an alpha of 0.05 is commonly used for individual tests, these may not be suitable for multiple tests, where the chance of finding a significant finding is increased. Future work which wishes to investigate the GIMS subscales across multiple mental health outcomes should consider applying Bonferroni correction within their analytical plans to correct for the possible chance findings.

5.9.4 Implications and future directions

The findings of this study have several research implications to consider prior to any policy and educational recommendation being made. This study has examined potential underlying mechanisms involved within microaggressions, and their associations with mental health outcomes. The analyses I have provided generate further hypotheses that need to be explored. In my analyses I found cross-sectional evidence of an associated between denial of gender identity and suicide attempt, misuse of pronouns with NSSH and suicidal thoughts, behavioural discomfort from others with depressive symptoms, and denial of societal transphobia with both depressive symptoms and anxiety symptoms. In longitudinal analyses all results had attenuated. The main concern for future research is to expand on this work and recruit a larger number of trans people to ascertain whether evidence was not found due to power limitations. Furthermore, the microaggression experiences highlighted in the GIMS were selective and possibly not representative of all potential microaggression experiences. Therefore, there is a chance that microaggression experiences such as treating trans people as exotic, assumptions of sexual pathology, systemic microaggressions, length of living in their affirmed gender, or familial microaggressions may explain more of the association for the mental health burden (Nadal et al., 2012). Future research needs to expand and include more items to reflect a more diverse range of microaggressive experiences. As highlighted in section 5.4.4, I did not include loneliness as a post hoc sensitivity analysis due to the exploratory nature of the study. Future research should consider how factors such as loneliness which may fall on the causal pathway interact with the microaggression and mental health relationship.

These findings have the potential to inform prevention and intervention. For prevention, understanding specific microaggressions allows for more tailored programmes that aim to reduce the occurrence of microaggressions across all social, educational, and clinical settings. For interventions, these findings allow for tailored programmes that aim to reduce the mental health consequences of experiencing microaggressions and offers potential insight into how specific microaggressions may increase specific symptoms. Clinical and qualitative work should be used to address the efficaciousness of these results across social, educational, and clinical settings.

5.10 Recap and link to next Chapter

In this Chapter, I have provided evidence of specific microaggressions having associations with specific mental health outcomes from cross-sectional analyses. However, I did not find evidence of any longitudinal associations. In Chapter 6, I will summarise these findings together with the two other empirical chapters (Chapter 3 and 4) and highlight means of pushing the field further. I will give an interpretation of the findings and how this research fits within the context of wider issues related to trans mental health. I will critically appraise the evidence in line with current literature and present the final limitations of the PhD project as a whole before recommending future research questions and implications that may arise from the project.

CHAPTER 6: DISCUSSION

6.1 Summary

In this chapter I summarise the main findings from the thesis in relation to my research questions as outlined in Chapter 1.6 (Thesis Aims). Further to this, I discuss the findings in light of the broad methodological and statistical limitations. I then provide a contextual understanding of the findings and how they relate to the broader issues faced by trans people, and how these findings may be interpreted in light of other evidence on microaggressions. Finally, I conclude the chapter by discussing the implications of my findings for public health as well as clinical practice and policy before offering insights into future research directions for microaggressions in the trans population.

6.2 Summary of main findings in relation to thesis aims.

6.2.1 Thesis aims linked to hypotheses, and main findings.

Aim one (Chapter 3 – Baseline study): To investigate the association between gender identity microaggressions and depressive symptoms, anxiety symptoms, non-suicidal self-harm (NSSH), suicidal thoughts, and suicide attempts amongst trans people.

Hypothesis one: Those who experience more microaggressions will have higher scores on the depressive symptoms, anxiety symptoms, and higher odds of NSSH, suicidal thoughts, and suicide attempts compared to those who experience fewer microaggressions.

Findings: In this sample of trans and non-binary adults there was evidence of associations between microaggressions and adverse mental health outcomes. Whereby experiencing more microaggressions were associated with elevated symptoms of depression and anxiety, but also increased odds of NSSH, suicidal thoughts, and suicide attempts.

Aim two (Chapter 4 – Follow-up study): This study sought to strengthen temporal evidence of the relationship between microaggressions and poor mental health in trans people by overcoming uncertainties about reverse causality as highlighted by cross-sectional designs through the use of a longitudinal approach.

Hypothesis two: Microaggressions experienced at baseline will be associated with an increase in depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts at one-year follow-up.

Findings: I found evidence of a temporal relationship between microaggressions and depressive symptoms, anxiety symptoms, and suicidal thoughts. whereby experiencing microaggressions at baseline was associated with elevated depressive symptoms, anxiety symptoms, and odds of suicidal thoughts one year later. No evidence was found for a temporal association between microaggressions and NSSH or suicide attempts.

Aim three (Chapter 5 – Subscale study): To examine specific microaggressions experiences as risk factors for depressive symptoms, anxiety symptoms, NSSH, suicidal thoughts, and suicide attempts to better understand microaggressions as a mechanism underpinning the mental health burden in the trans community. If there are associations, to assess whether there is temporality in these associations one year later.

Hypothesis: Based on the literature outlined in the introduction, I hypothesised that experiencing specific microaggressions would be associated with specific mental health outcomes, both at baseline and at follow-up.

Findings: In this study I found that denial of gender identity was independently associated with suicide attempt, misuse of pronouns with NSSH and suicidal thoughts, behavioural discomfort from others with depressive symptoms, and denial of societal transphobia with both depressive symptoms and anxiety symptoms. I found no evidence that invasion of bodily privacy was independently associated with any of the mental health outcomes. In longitudinal analyses, no evidence was found of associations between baseline subscales and mental health outcomes at follow-up after mutual adjustment of other subscales, baseline mental health outcomes, and confounders.

6.3 Threats to validity

When interpreting the result of my thesis, it is important to consider several threats to validity. While I have discussed the strengths and limitations of each of my studies across Chapters 3-5, this section discusses possible threats to validity applicable across the thesis as a whole. These are the epidemiological tenets of chance, bias, and confounding, I will also apply a critique of the work in relation to the potential for reverse causation.

6.3.1 Chance

In epidemiology, the term "chance" refers to the probability or likelihood of an event occurring. It is often used to describe the random variation or uncertainty associated with the occurrence or spread of a disease or health outcome within a population (Zaccai, 2004). It helps to account for the inherent variability and random fluctuations that can influence the occurrence and patterns of health outcomes in populations. In my project, I conducted several comparisons across many outcomes, which may increase the possibility for type I error. A type I error occurs when the true null hypothesis is rejected in favour of the alternative hypothesis.

It is important to state hypotheses and define statistical analysis plans *a priori* to prevent the potential for p-hacking and selective reporting. P-hacking, also known as data dredging or data snooping, refers to the practice of manipulating or analysing data in a way that increases the likelihood of obtaining statistically significant results. It involves selectively choosing and/or analysing data, performing multiple statistical tests, or making adjustments to the analysis until a desired level of statistical significance (typically a p-value below a certain threshold, such as 0.05) is achieved. P-hacking undermines the integrity of scientific research by inflating the likelihood of false discoveries and distorting the accumulation of knowledge. To mitigate p-hacking, it is important for researchers to pre-specify their hypotheses, analysis plans, and sample sizes before data collection, and to report both significant and non-significant results transparently. My hypotheses and analysis plans were developed prior to beginning any analyses. However, to promote the practice of pre-specified analysis plans, researchers are encouraged to publish statistical analysis plans and protocols on the Open Science Framework (OSF). For my thesis, I did not pre-publish analysis plans, but have learned about the practice and will do so for future epidemiological studies.

Similarly, methodological discussions focus on de-emphasising the use of p-values when reporting the findings of a research study (Amrhein & Greenland, 2018; Sterne & Smith, 2001). P-values are often reported to discuss the probability of rejecting a chance finding. However, p-values are often misinterpreted (Greenland et al., 2016). The misinterpretations tend to emphasise cut-offs for deciding whether a test result is true or false, when in reality the p-value assumes the test hypothesis is true and examines the degree to which the data conforms to the patterns predicted by the test hypothesis, i.e., that you could get the data you have by chance if there was no difference between the groups/treatments. This leads to researchers asserting that they have found evidence of a statistically significant effect. However, the effect being tested either exists or does not, therefore statistical significance is a dichotomous description and result of a statistical test, and not a property of the effect being studied. In my study, I have reported effect sizes, together with their 95% confidence intervals in addition to p-values in full, as p-values alone are only one part of the wider picture related to strength and precision of the effect.

6.3.2 Bias

Bias refers to any systematic feature of the design, measurement, or analysis of a study that results in a misleading or incorrect estimate of an association between an exposure and an outcome. It is an important concept because biases can distort the findings of a study and lead to inaccurate conclusions.

Inductive bias refers to the prior knowledge, assumptions, or beliefs that researchers incorporate into their study design, data analysis, and interpretation of results. It represents the preconceived notions and expectations that guide the researcher's decision-making process throughout the epidemiological investigation. To mitigate the risk of inductive bias I drew on the expertise of i) faculty colleagues through the process of presenting my research protocol and seeking advice on methods, ii) my thesis committee representing a range of research methodologies, and iii) my coproduction team representing lived experience. Inductive biases can affect the prioritisation of specific hypotheses or methods and result in less objectivity throughout the research process.

Selection bias refers to systematic differences between the characteristics of those who take part in a study and those who do not. One form of selection bias refers to self-selection whereby participants self-select their engagement in research studies. It is therefore possible that those who participated in my study do not represent the trans community more widely. For example, in trans health studies, those who take part in studies tend to have worse mental health, trend towards younger ages, and are predominantly white (Henderson et al., 2019; Kuper et al., 2012). One-way to potentially redress selection bias when using survey data is to create and apply survey weights to account for imbalances in representativeness. However, as has been discussed in

Chapter 2 (methodology), whilst we have recent Census 2021 data for gender identity in England and Wales (Statistics, 2023), we currently do not have representative data on trans people in the UK as a whole. Therefore, to mitigate some of the risk of selection bias, efforts were made to incentivise participation from populations known to avoid research studies. Recruitment advertisements made explicit mention to underrepresented communities within trans health research and prioritised their participation. Generally, this approach worked well with a high proportion of non-binary, disabled, and minority ethnic trans people taking part. One major concern related to inductive bias centres on my coproduction team, as mentioned in Chapter 2, the coproduction team were all white and under the age of 35, therefore the experiences and voices of minority ethnic communities and older generations of trans adults were not present in the design of the study. This may have resulted in disincentivisation of minority ethnic participation in the survey. Future research on this topic should embed coproduction in designing sampling strategy and ensure consultation with diverse voices of the community being studied.

Attrition bias is a form of selection bias whereby participants who take part in follow-ups of a study differ systematically from those who do not complete follow-ups. Therefore, this form of bias occurs as a result of participants dropping out of the research procedure. In my PhD there was a substantial amount of attrition, with 58% of participants dropping out from baseline to follow-up. The attrition within my study did present with several systematic differences these were social transition status, disability, and previous year passive death wishes. With those who had undergone or are undergoing a social transition, experienced a lot of day-to-day difficulties related to their disability, and had experienced previous year passive death wishes being more likely to consent to the follow-up study. Attrition affects the power of the study, by reducing the sample size, however, can also produce biases towards specific demographics who are more likely to take part in follow-up surveys. Using multiple imputation by chained equations using a wide range of available variables to improve the estimates. The use of imputation allowed for selection bias to be potentially reduced. As can be seen from the results in Chapters 3, 4, and 5, the estimates from the imputed analyses did not differ greatly to the non-imputed analyses, suggesting that the attrition and missing data had not introduced substantial bias in my findings.

6.3.3 Confounding

Confounding occurs when a measure of the association between two variables is distorted or influenced by a third variable. Whilst I adjusted for several important confounders in the relationship between microaggressions and mental health, it is not always practical to measure all potential confounders, as researchers need to be mindful of the impact of survey fatigue and the burden for participants in the study. It is also important to consider the potential impact of residual confounding on the estimates found across the studies in this PhD (Zaccai, 2004). Residual confounding refers to confounding by variables that are unmeasured in the dataset or unadjusted for in analyses. Therefore, other explanations for the relationship between microaggressions and mental health are possible. Across my studies, I selected a wide range of theoretically important confounders in the relationship between microaggressions and mental health in the trans community. These confounders accounted for a relatively small amount of the associations found, suggesting the confounders selected had minimal impact on the relationship. It is plausible that other confounders exist that have not been measured and may confound the relationship and attenuate the findings completely. These might include peer support/familial support. However, with the confounders I have selected I am confident that the associations found between microaggressions, and mental health outcomes are not spurious because as detailed in Chapter 2.3.8 these are commonly selected confounders in the relationship between microaggressions and mental health.

I also included loneliness as a putative mediator of the main associations in my sensitivity analyses, as theoretically it may lie on the causal pathway between microaggressions and mental health outcomes. Whilst including loneliness into the final models gave insights into the potential mediating nature of loneliness, further mediation analyses using robust longitudinal methods are needed. The use of formal mediation analysis will allow for readers to understand whether the attenuation seen in Chapter 3 and 4 do provide a signal of mediation effects. To do this, researchers should consider longitudinal methods with a minimum of three waves of data collection on a large sample of trans participants. This will allow for the causal pathways to be mapped and for there to be sufficient power to detect any differences.

6.3.4 Reverse causation

Reverse causation refers to a situation where the exposure is caused by the outcome, rather than the exposure causing the outcome. In my cross-sectional analyses, strong evidence was found between microaggressions, microaggression sub-types, and mental health outcomes. As with all cross-sectional studies, both exposure and outcomes are measured at one time point, making it impossible to rule out potential reverse causality. To overcome this issue, I followed up participants in my cross-sectional survey to create a longitudinal dataset to establish temporality. The results of the longitudinal analyses suggest a temporal relationship between microaggressions and depression and anxiety, and suicidal thoughts. However, evidence to support a temporal relationship was not found for NSSH or suicide attempts. In Chapter 5.8.3 I highlight that the longitudinal data presented in Chapters 4 and 5 may likely be underpowered due to small sample size, and it is not possible to establish how long participants had been experiencing microaggressions for, and at which intensities they were experienced. For the findings of my longitudinal analyses of the association between microaggressions and depression, anxiety, NSSH, suicidal thoughts, and suicide attempts, the likelihood of susceptibility to reverse causation is relatively low due to the adjustment for baseline outcomes in each model. Adjusting for baseline outcomes can help improve temporal precedence. By measuring and adjusting for baseline outcomes, I was able to establish a temporal sequence in that the exposure (microaggressions) precedes the mental health outcomes. However, the plausibility of reverse causation stands, as it is theoretically possible that those with poor mental health may recognise microaggressions more frequently or be susceptible to experiencing more microaggressions due to poor mental health.

6.4 Integration with existing evidence

6.4.1 Microaggressions and other marginalised communities

In each Chapter I have considered the findings in the context of the limited published quantitative evidence on microaggressions and trans mental health. Each of these chapters have demonstrated that my PhD work has progressed the field substantially by investigating mental health outcomes that have clear clinical implications. Understanding how microaggressions influence clinical health is vital in furthering our understanding of the mental health burden experienced by the trans community. The work covered in this PhD has not only examined microaggressions with mental health, but also offers a longitudinal investigation using longitudinal methods not previously employed by the field to investigate temporality. In this section, I move on to consider the implications of my findings for the development/amendment of policies that affect trans people, and the wider discourse on trans mental health. This section also brings in insights from qualitative work to explore how microaggressions are understood to interact with cognition and feelings and how these may be used to inform policy and intervention.

The findings of my cross-sectional and longitudinal analyses indicate that microaggressions against trans adults are associated with worse mental health, and that these experiences have a temporal relationship with mental health outcomes. We might infer that these interpersonal experiences have important preventive implications for the mental health of trans people. Previous literature in other marginalised communities suggest that interventions to prevent microaggressions are widely accepted and efficacious. For example, the use of bystander interventions. A bystander intervention is a proactive and constructive response by an individual or a group of individuals who are present during a situation where someone is at risk of or facing harm. In such situations, the bystander chooses to take action to prevent or address the potential harm, even though they are not directly involved or responsible for the situation. Literature exploring workshops around the acceptability and efficacy of bystander interventions is high (Haynes-Baratz et al., 2021). Further discussions within bystander interventions incorporate “microinterventions” for microaggressions. The term microintervention is defined as everyday words or deeds, whether intentional or unintentional, that communicate to targets of microaggressions (a) validation of their experiential reality, (b) value as a person, (c) affirmation of their racial or group identity, (d) support and encouragement, and (e) reassurance that they are not alone (Sue et al., 2019). The bystander intervention here uses these affirmative words and actions to validate the experiences of minoritised individuals, which could be hypothesised to mitigate the impacts of microaggressions on wellbeing, by preventing the target of the microaggression from internalising negative messages about their identity. Other interventions place a central focus on educational settings through the use of building equitable, inclusive school environments to mitigate the occurrence of microaggressive acts from school peers, with calls for further evidence of their efficacy and acceptability.

Further insights regarding how to optimise the mental health of trans people are derived from studies using qualitative approaches to understand the concept of microaggressions and their impacts on cognition and feelings in the trans community (M. P. Galupo et al., 2014; K. Nadal et al., 2014; Pulice-Farrow et al., 2017). The qualitative literature suggests that microaggressions can engender feelings of invalidation, sadness, self-blame, rejection, and inadequacy in trans people. For example, intimate partner microaggressions appear to have a more profound effect on internalising negative emotions of sadness and self-blame, whereas microaggressions such as questioning legitimacy of gender identity from a friend may contribute to a feeling of rejection (from those outside of the LGBT community) or of inadequacy (when friend is part of the LGBT community) (P. Galupo et al., 2014). Similarly, microaggressions that centre on environmental factors such as access to inclusive bathrooms reinforces marginalisation and interferes with academic performance, development, and engagement (Woodford, Joslin, Pitcher, Renn, et al., 2017). The context of microaggressions is important to understanding their potential impacts on trans health and wellbeing, with microaggressions from trans friends having a more salient impact compared to cisgender heterosexual friends (P. Galupo et al., 2014). The qualitative literature suggests that tailoring interventions or prevention strategies could best be positioned to include specific microaggression experiences within the strategies and produce an overall toolkit to understand outcomes associated with microaggressive experiences. The findings from my thesis and the wider literature suggest that microaggressions make an important contribution to the mental health burden of trans people. These novel findings have opened new lines of enquiry and possible implications for clinical practice, research, and policy (outlined in section 6.5 and 6.6).

6.4.2 Microaggressions and gender identity minority stressors

My findings namely that proximal microaggressions are associated with an increase in depressive symptoms, anxiety symptoms, suicidal thoughts, suicide attempts, and NSSH are broadly in line with the literature on proximal minority stressors (Helsen et al., 2022). The longitudinal analysis provided no evidence of a temporal relationship between proximal microaggressions and mental health one year later. Whilst there is seldom literature exploring this issue, the most likely reason behind this non-significant relationship is power and sample size. Previous research has suggested minority stressors as having temporal relationships with mental health, showing deleterious impacts over time (Black et al., 2023). Similarly, my findings name that distal microaggressions are also associated with depressive symptoms, anxiety symptoms, suicidal thoughts, suicide attempts, and NSSH are broadly in line with the literature on distal minority stressors (Jennifer M Staples et al., 2018). Conversely to the proximal microaggression longitudinal analyses, I did find associations between distal microaggressions and future depressive symptoms, anxiety symptoms, and suicidal thoughts. These findings perhaps suggest that distal forms of microaggressions have longer lasting impacts on trans people's mental health. This finding has not been widely discussed within the literature, where the importance of both distal and proximal stressors are highlighted (Hunter et al., 2021; Jäggi et al., 2018). Therefore, the non-significant finding between proximal stressors at baseline and mental health one year later may likely be due to the high attrition in the follow-up study.

These findings however go further to bridge two theories, the gender minority stress theory and the microaggression theory, showing an underlying conceptual similarity between the theories that microaggressions have considerable impact on the wellbeing of trans people. Microaggressions are already included in the definition of a minority stressor, however, focus on microaggressions from an epidemiological stand has been neglected. These findings provide an application of minority stress to microaggressions however could go further in future research by exploring a coproduced measure of proximal and distal microaggression typologies.

6.5 Implications of microaggressions as a risk factor for mental health distress

I have discussed the specific implications of my findings in detail within each chapter, but this section will highlight the overarching implications of my findings when taken together in relation to governmental, clinical, and educational policy domains.

Governmental policy

At the macro-level there is a need to examine governmental policy, and how current policies could be improved to include prevention of microaggressions. This could be done through reinforcing and expanding on current protections for trans people under the Equality Act 2010 (EA2010). At the time of writing, the Equality Act of 2010 is under scrutiny with several lobbyist groups looking to remove protections for trans people in the UK (Allegretti, 2023; Commission, 2023). The EA2010 has granted trans people with protection based on gender identity; one of the nine protected characteristics. This allows for grounds of anti-discrimination policy prioritisation. Anti-discrimination policy prioritisation refers to the principle and approach of prioritizing efforts and actions to combat discrimination and promote equality with a view to building a more inclusive and equitable society. The work done in my PhD has highlighted that discriminatory practices in everyday life, in particular microaggressions, may be responsible for some of this mental health burden. Removing protections for trans people will likely lead to increased hate crimes, and escalations from microaggressions can lead to macro-level violences. There is already evidence to support the notion of increases in hate crimes for LGBT groups, with hate crimes doubling between 2016 and 2021 (ROMANELLI et al., 2023). The Gender Recognition Act of 2004 allows trans people to have their birth certificate to be altered to reflect their gender identity. For non-binary people there is currently no mechanism for their non-binary identity to be legally determined, as the options for birth certificates maintain the binary male/female distinction. In order to obtain a Gender Recognition Certificate (allowing for the sex on the birth certificate to be altered), trans people must present to the Gender Recognition Certificate (GRC) panel; a panel of experts who review the submitted evidence and decide whether the evidence fulfils the eligibility for a GRC. There are currently efforts being made by activists and policy makers to streamline this and allow for self-identification of sex (Bennie, 2023). This would remove the requirement of a GRC panel. My PhD findings show that denying a person's gender identity and invading bodily privacy are two microaggressive acts that may increase subsequent mental health problems amongst trans people. Therefore, my research findings support the autonomy of trans people and their rights to self-identification.

Training of mental health professionals

At the level of health services there is a need to offer further training to mental health professionals and allied professionals. This is a long-standing issue, with the quality of trans healthcare and education of trans healthcare being insufficient (Wright et al., 2021). Clinical practice is currently one place where microaggressions are commonplace (Falck et al., 2020; Morris et al., 2020; Wright et al., 2021). Clinicians are not only responsible for providing resilience building and resolution of presenting problems, but they can also perpetrate violence in the form of microaggressions. This lack of high-quality training has been shown to increase the number of microaggressive behaviours, through ignorance (Dean et al., 2016). More mental health professionals should be made aware of the findings of my work; that microaggressions against trans people are associated with worse mental health. It is therefore imperative that mental health professionals understand the consequences of their actions, questions, and choice of words, when in discussion about trans people, and in discussion with trans people. Whilst this evidence allows for further understanding of microaggressions and their impacts on mental health of trans people, applying this to clinical practice and policy needs considerable thought. Several organisations around the UK (United Kingdom) offer trans-affirmative and trans-competent education, and it is important that these incorporate the dissemination of my studies' findings to improve awareness. Whist implementing the findings of these studies into educational programmes for clinicians was not within the scope of this project, there is great scope for this. Future intervention design should consider creating workshops for clinicians and evaluating their effectiveness in reducing microaggressive behaviours and increased intervening when observing others' microaggressive behaviours.

School-based approaches

The incidence depression and anxiety typically peak during adolescence (Blakemore, 2019). Therefore, it is important to consider the implications of microaggressions within schools. As microaggressions occur in the context of everyday social interactions and are often described as either conscious or unconscious portrayals of hostility, early interventions are needed to both normalise and celebrate gender diversity. This is important to embed in education from primary school onwards, in turn serving as a means of children educating relatives. At the time of writing there is a push from the current (Conservative) government to enact new legislation for schools to out trans young people to parents, and to not engage with any social or physical transition if parents are unsupportive (Commons, 2023). This extends to engaging with physical education, whereby trans students will not be permitted to participate, unless in accordance with their sex assigned at birth. These issues have been largely been compared to Section 28 (Cassal, 2022; Commons, 2023). Section 28 was a Conservative (Thatcher) government policy in the 1980s that prohibited the "promotion" of homosexuality in schools. This resulted in the inability to read any material on same sex relationships, discuss being LGBT within schools or to receive advice on coming out or living as an LGBT person. It is difficult to discuss this in relation to microaggressions, as the educational policy is an example of violence against trans youth. However, the principal findings from my research suggests that these policies are designed to ensure trans people are not able to participate in daily life and perpetuates the notion that being trans is abnormal. It is therefore plausible that the current policy will increase the risk of microaggressions within the schooling system. However, the results of this PhD are applicable only to the adult trans population, therefore more work is needed to apply these methods to the adolescent population. Policy in educational, workplace, and clinical settings needs to take an inclusive and diverse approach, showing the scientific and social evidence of gender diversity and promoting social harmony rather than social disconnect.

Given the need for policy reform as described above, and the need for such policies to be informed by the best evidence, I next discuss the future research priorities for this field.

6.6 Future directions for research priorities

The future for microaggressions research can benefit from methods that are chiefly concerned with causal inference testing. In my PhD work, I was unable to recruit a representative sample because no current representative estimates exist for the trans population. Any epidemiological work involving trans people should address this issue of representativeness. Efforts are currently underway to include more expansive gender terminology within already established representative cohorts. This is one method to obtain representative data on the trans population, however this will only indicate representativeness related to the populations that the cohort is interested in (i.e., older adults in the case of the English Longitudinal Study of Ageing, or adolescents for Avon Longitudinal Study of Parents And Children).

The Office for National Statistics has published the findings of the 2021 Census, providing the most recent estimates of the proportion of the general population who identify as trans in the UK (Statistics, 2023). The ONS produced and designed the gender and sex question in consultation with multiple stakeholders including trans-led charities and examined the impact of different variants of these questions (Statistics, 2023). However, there has been some debate about the implications of the wording chosen, which could have been confusing if English was not a first language yielding underestimates (Biggs, 2023; Carl, 2023). Furthermore, some trans youth may have felt pressured to state their gender was the same as their assigned sex at birth out of fear for consequences from their family, where responsibility for census completion lay with others in the household (Johnson et al., 2020). Alternatively, parents of trans youth may feel conflicted in disclosing their child's trans identity for fear of the repercussions from wider family or society (Schlehofer et al., 2020). This can lead to biases whereby the number of trans people is underestimated. Methodologically, this results in issues arising in who is being counted in analytical samples. However, as explained above the question does have face validity in its coproduction. It remains to be seen whether this will be further adapted for future census waves, which will have implications for monitoring temporal trends in the gender composition of the general population. Such changes in definition could hamper our understanding of health inequalities of the trans community. although improved validity might offer longer-term advantages. It will be important for census data, which lacks detailed information on mental health, to be complemented by in depth studies on the mental health of the trans community.

Given the importance of research that attempts to replicate the findings of previous studies, it will be important for future research studies in UK and other settings to test similar hypotheses to establish whether my findings are replicated. Studies which wish to explore microaggressions must be longitudinal, use validated measures of mental health, be coproduced with members of the community, and sample widely to reduce biases.

There are also important insights to be gained from use of methods not frequently employed in the study of microaggressions, such as Experience Sampling Methods (ESM), also known as Ecological Momentary Assessment (EMA). In an EMA study, participants are asked to complete a short questionnaire multiples times per day, over the course of a few days and up to a month (Myin-Germeys, 2022; Shiffman et al., 2008). Each survey lasts usually no more than 2-10 minutes, depending on the frequency of prompts, and are experienced as "beeps". The time required for the short survey reflects a balance of how many "beeps" per day the researcher is employing in their procedure. A "beep" refers to a trigger on the participant's phone, tablet, or other mobile device, which asks them to complete the survey. EMA is particularly well adapted to psychiatry as it allows for within-person variability. That is, one is able to compare a participant to themselves across repeated measures, this facilitates causal inference relative to between-persons, as each individual acts as their own "control". EMA also may be employed to better understand underlying mechanisms of illness, predict symptom changes, and access feasibility among "hard to reach/engage populations" (Hubach et al., 2021; Mestdagh et al., 2022; Perski et al., 2022). Despite the relatively popular use of EMA and ESM methods within topics such as non-suicidal self-injury, and health behaviours more widely, these methods are seldom employed for minoritised and marginalised communities, such as the trans and non-binary community. For trans communities, policy and decisions on healthcare access are usually made at a more rapid pace than that of the evidence base (Stroumsa, 2014). EMA methods offer not only robust longitudinal evidence that can strengthen causal inferences, but importantly, can be done in a time-efficient manner. This allows for evidence to inform policy in a political and sociological landscape.

Finally, microaggressions research can benefit from further investigation of the mechanisms by which microaggressions influence mental health. A debate often depicted in the literature is that the definition of microaggressions is too broad and that definitions need to be refined for better operationalisation of experiences (Chang & Chung, 2015; Williams, 2021b). However, as my baseline findings show, there are several sub-groups of microaggression experiences that have associations with specific mental health outcomes. I therefore would conjecture that the definition is not too broad, but hypotheses around microaggressions need to become more nuanced and specific. Whilst I do not believe my findings should be interpreted as to excluding any experiences of microaggressions outside of the themes covered by the GIMS, further work is needed to examine the *how* and *why* these specific microaggressions are associated with specific mental health outcomes. Epidemiologists with an interest in microaggressions research should consider more nuanced approaches to hypotheses that build the case for *how* and *why* microaggressions are impacting the trans community. There are several methods that can examine this closely. Firstly, making use of the GIMS subscales on larger sample sizes to gauge how microaggressions are associated with mental health, and qualitative investigations to build better theories as to why these associations exist. Specific research methods to address with qualitative methods include interviews, focus groups, ethnography to gather detailed information about trans peoples’ experiences, opinions, beliefs, and perceptions of microaggressions. These will help address several policy areas as described above by providing more nuance on the impacts of microaggressions in legislation, in mental health care, and in education.

6.7 Conclusion

My thesis comprises a body of work investigating microaggressions as a putative risk factor in the development of depression, anxiety, NSSH, suicidal thoughts, and suicide attempts amongst trans people in the United Kingdom. The key clinical and policy message is that trans people who experience a relatively high intensity of microaggressions suffer deficits to their mental health, and that those who experience specific microaggressions report specific mental health impacts.

I conclude that experiencing more microaggressions is associated with increased depression, anxiety, NSSH, suicidal thoughts, and suicide attempts. When examining temporal relationships, I have provided key evidence that those who experience more frequent microaggressions have higher scores on depression, anxiety, and greater odds of suicidal thoughts one year later. This might infer that microaggressions may play a role in the development of these mental health conditions amongst the trans community, but also identify means that might prevent the development of mental health problems for trans people. Whilst my findings provide some evidence of temporality, I urge caution on over interpreting these results as causal, as the observational studies I have reported cannot rule out reverse causation and alternative explanations based on the roles of chance, bias, and confounding.

My research offers a novel and valuable contribution to the knowledge in this area, building on the existing research in trans mental health to identify specific impacts on mental health. The methodological strengths of my studies (including use of psychometrically validated measures of microaggressions as well as commonly used clinical measures of mental health) suggest that my findings are robust, with clear implications for governmental, clinical, and educational policy. I have discussed various avenues for research, for prevention and intervention, and for government policy change and will endeavour to fill key research gaps in my post-doctoral work.

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APPENDICES

Appendix 1 – Ethics application

Baseline survey

Response to reviewer comments

Comments

1. A2: add the DP registration number entered in A5 and B6.

This has now been entered

2. A4: tick the UCL Sponsor box.
3. C4: tick the No box.
4. C6: tick the Yes box and, if true, the No box.
5. C9: tick the No box.
6. D5: tick the Yes box

These have now been ticked 7. B2, B6

The study includes people with suicidal thoughts. Protection of the participants is paramount. Pointing to helplines and support services puts the onus on the potentially suicidal people to seek help. Can a more proactive support structure be done administered in more supportive context not online? Perhaps the requirements that the survey is anonymous (other than to disseminate results and requests for participation in further studies) and runs 24/7 are limiting.

Given the suicide risks that the participants will place themselves under, can the structure of the research be adapted to allow proactive support and protection?

We agree that the protection of participants is paramount, especially as this population represents a marginalised community. Participation in this study is defined by gender but not by risk of suicide, and the sample will not therefore be enriched for suicidality beyond any sample of transgender individuals. My PhD supervisor Alexandra

Pitman has extensive experience of conducting online cross-sectional surveys of vulnerable groups on topics such as self-harm, suicidal thoughts, and suicide loss, with appropriate safeguards and no risk incidents. This has fed into the design of the current survey, in which questions have been carefully worded and piloted with an advisory group of trans colleagues and laypersons to avoid potentially problematic and triggering language. Whilst we have considered how we might provide a more proactive support structure for those who feel distressed by the content and/or screen participants through a two-stage recruitment strategy and discussed this with transgender individuals in our consultation group, we were concerned that this would threaten the anonymity of participants and discourage participation. Previous research has explored how asking about suicidality amongst those who are suicidal does not increase their risk of suicide (Blades et al 2018; Jorm et al 2007). Whilst offering support services and helplines does put the onus onto those who are potentially suicidal, it also promotes a culture of seeking help and advertises potentially new sources of support to a group who may not always feel worthy of support. This in itself will help promote the mental health of those who take part.

Blades, C. A., Stritzke, W. G., Page, A. C., & Brown, J. D. (2018). The benefits and risks of asking research participants about suicide: A meta-analysis of the impact of exposure to suicide-related content. *Clinical psychology review*, *64*, 1-12.

Jorm, A. F., Kelly, C. M., & Morgan, A. J. (2007). Participant distress in psychiatric research: A systematic review. Psychological medicine, 37(7), 917-926.

8. C1: How do you know the minimum age is being kept and protect the survey from younger participants?

The survey platform we are using, Opinio, uses survey logic (branching) to restrict participation to those who fulfil eligibility criteria. An early question provides forced choice options for age group, and if someone selects “under 18” they are redirected to a separate screen, which details the reason they cannot progress, and offers tailored support for under 18s in the trans community. There is no facility to go back and enter a different age. As in any survey there is the risk of someone under 18 selecting a different age in order to progress throughout the survey. There is unfortunately no mechanism in place that could ensure anonymity whilst also checking for valid age (i.e., we could not ask for official

documentation with proof of age as this will make participants identifiable).

We have described the survey logic briefly in the application which reads as follows: "In the survey, those who select that their age is under 18 will be screened out. Under 18s will be presented with some further information about services and helplines that are tailored to their needs"

9. C5: outline whether gatekeeper (to include social media platform) permissions are required to advertise the study and assist with recruitment and if so, provide written evidence of agreements for our records. Also, provide more detail on the social media campaign you refer to using a study Twitter account.

The study twitter account is yet to be created but appropriate permissions will be sought though the UCL DoP Communications Team. This account will display a neutral image and banner and contain a link and pinned tweet directing potential participants to the UCL study home page. This account and the link embedded within the tweet will be shared with organisations and activists that cater to the trans and non-binary community. The PhD student will discuss dissemination of the survey link with her contacts at these organisations who may share it more widely within their networks or on other social media profiles. In order to maximise reach, the twitter account will be active in that it will share resources on suicide prevention from reputable sources that cater to the trans and non-binary community and highlight current support on offer for those who are experiencing mental health distress.

Recruitment through social media offers an effective means of accessing the trans community (i.e., it does not require an individual to follow the study account) and will allow the study to give frequent updates on its progress, allowing participants to be more involved with the research as it develops.

No gatekeeper permissions are required to advertise the study beyond permissions gained from the UCL DoP Communications Team.

10. C8, C9, PIL
    This survey does appear to be based on the deception of hiding the survey's purpose and presenting it as:

> “This project is interested in giving more representation to those who are currently underrepresented in trans health research; therefore, we have also included questions about ethnicity, disability, housing status, employment status, and religiosity/spirituality to better reflect the intersectional experiences of these groups in the trans community.”
>
> And correspondingly in the survey as
>
> “The following questions are designed to find out about who you are and how trans people with different identities experience their mental health.”
>
> The need for this deception is not justified and creates a risk of mental health deterioration in people that may already have suicidal thoughts.

We are not using deception in this survey but wish to describe the socio-demographic characteristics of our sample to describe experiences of microaggressions by intersectional characteristics. We have also worded our questionnaire carefully to avoid leading questions and to reduce the impact of ordering of questions on responses.

We have edited the above wording in the survey to reduce any implication of deception. Instead, we remind the participants about the study’s intentions making direct acknowledgement of the main themes. Where we have reiterated the collection of personal information, we have stated how it will be used and do not feel this will contribute to a deterioration in mental health. The section in the survey now reads:

> **“To remind you, this study is interested in the relationship between microaggressions and how they impact depression, anxiety, and suicidality within the trans and non-binary**
>
> **community. The following questions are designed to find out about who you are, and we will use this information to assess how trans people with different identities experience depression, anxiety, and suicidality (including suicidal thoughts and attempts) in relation to any experiences of**
>
> **microaggressions. “**

And in the information sheet reads as follows:

"In this project we aim to describe how experiences of mental health within the transgender community might differ by characteristics such as ethnicity, disability, housing status, employment status, and religiosity/spirituality. We are therefore collecting data describing these characteristics. We will use this information to examine relationships between depression, anxiety, and suicide risks, and assess whether microaggressions are more or less prevalent in relation to these different groups within the trans and non-binary community"

11. C9: *Participants will not be privy to the hypotheses currently considered for the project* – does this not mean that deception WILL be used.

We do not consider that we are using deception in not stating the hypotheses in our participant information. As this is a descriptive study we have explained to participants that we are investigating any experiences they have had of microaggressions, anxiety, depression, or suicidality. There will be no deception about the true nature of the study. I have removed the sentence highlighted in this case.

12. D1*:* important to outline in the PIL the reason for collecting the demographics listed.

This has been included in the PIL:

"In this project we aim to describe how experiences of mental health within the transgender community might differ by characteristics such as ethnicity, disability, housing status, employment status, and religiosity/spirituality. This is because **previous research suggests that people from minority backgrounds within the trans community differ in their risk of depression, anxiety, and suicidal thoughts.** We are therefore collecting data describing these characteristics.

We will use this information to examine whether microaggressions are more or less prevalent in relation to different groups within the trans and non-binary community and how this relates to experiences of depression, anxiety, or suicidal thoughts"

13. E1: clarify the level of risk this project poses to the student, including whether or not the project's continuation will depend on compliance with mitigating therapy and other elements in the self-care package.

I have discussed with my supervisors the potential risk this project poses to my own wellbeing, and we feel that this is low and manageable particularly as data collection is online and not through interviews or focus groups. Throughout the project I will be well supported by personal therapy, and once online data collection has commenced, I will have flexibility over the pace of data analysis. The disclosure of my own mental health is an important aspect of my work as a peer researcher, however I do recognise that discussion of topics that are pertinent to my own experiences may have some adverse effects, therefore self-care has been highlighted in this ethics application to ensure that this is noted and attended to, should the need arise.

14. E2: tick the No box
15. E5: tick the No box re mental distress.
16. E6,7,8: tick the main No boxes

Ticks have been included in the relevant boxes

17. Very negative questioning in the questionnaires and given that this is a study that is online it is difficult to gauge how participants react to the questions asked. Are you

    satisfied that you have sufficient procedures in place to safeguard the participants – access to support at the time etc..?

The advisory group have reviewed this submitted version of the questionnaire in full and did not raise concerns over the nature of the questioning. However, we understand that not everyone will have the same reaction. Positioning of a link to support sources on every page of the questionnaire will visually highlight access to support at the time. We are satisfied however that the helplines and services we have recommended are well placed to help participants who are in distress. The participant information sheet is also clear that participants are free to withdraw at any point, or to save and return to the questionnaire at a future time, should the contents be too difficult to cope with at the time.

18. Recruitment: Include that the study has been approved by the UCL REC and quote id number

This has now been included in the website template.

19. PIL:
    - Include a UCL header and state that the study has been approved by the UCL REC and quoted id number;

A header has already been included, we have now stated the id number

- See our template PIL for guidance on layout – important to include contact information at the top of the form and to include a data protection privacy notice;

This information has now been included

- State that this is a PhD research study and include dept details;
- Give examples of the particular sensitive questions that will be asked.

Included examples for suicide, this is the corresponding statement in the PIL: "As mentioned, this survey will touch on sensitive issues, including any experiences of suicidal thoughts. To do so we will ask questions such as "Have you ever attempted to end your life" and "Have you ever had thoughts of wanting to end your life?".

These questions have been taken from well-established questionnaires, whether they have been tested for acceptability and used in many other surveys.

- use non-specialist language throughout (e.g., rephrase, "centre the intersectional role" and "intersectional experiences")

we have removed this word and focused on using lay language

- under "Privacy and your data", be more precise regarding anonymity as collected data will be pseudonymised (not anonymised; anonymisation makes no sense if "all identifiable information will be removed" subsequently).

I have included the data protection privacy notice, and included the edits requested. These have been highlighted in the revised document

20. Consent Form: see our template consent form for guidance on appropriate layout. **Consent form has been altered to include more detail about the project in line with the template consent form. An additional consent item has been included "I am aware of who I should contact if I wish to lodge a complaint"**

21. Survey: remove the repeated consent questions.
These has been removed.

NOTE TO APPLICANTS: IT IS IMPORTANT FOR YOU TO INCLUDE ALL RELEVANT INFORMATION ABOUT YOUR RESEARCH IN THIS APPLICATION FORM AS YOUR ETHICAL APPROVAL WILL BE BASED ON THIS FORM. THEREFORE, ANYTHING NOT INCLUDED WILL NOT BE PART OF ANY ETHICAL APPROVAL.

YOU SHOULD READ THE ETHICS APPLICATION GUIDELINES AND HAVE THEM AVAILABLE AS YOU COMPLETE THIS FORM.

APPLICATION FORM

SECTION A	**APPLICATION FOR ETHICAL REVIEW: HIGH RISK**

	Project Title: Mental health of transgender people and the role of microaggressions in depression, anxiety, and suicidality	
	Date of Submission: 28.06.2021	Proposed Data Collection Start Date: 31.08.2021
	UCL Ethics Project ID Number: 20485/001	Proposed Data Collection End Date: 01.08.2023
	Is this application for continuation of a research project that already has ethical approval? ***For example, a preliminary/pilot study has been completed and this is an application for a follow-up project? If yes, please provide the information requested below.*** Project ID for the previous study:	

	Principal Researcher *Please note that a student – undergraduate, postgraduate or research postgraduate cannot be the Principal Researcher for Ethics purposes.*	
	Full Name: Dr Alexandra Pitman	Position Held: Associate Professor
	Name and Address of Department: UCL Division of Psychiatry 6th floor (Wing A Room 627) Maple House 149 Tottenham Court Road, London W1T 7NF	Email: a.pitman@ucl.ac.uk Telephone: Fax:

☐	**Declaration To be Signed by the Principal Researcher** I have met with and advised the student on the ethical aspects of this project design *(applicable only if the Principal Researcher is not also the Applicant).* I understand that it is a UCL requirement for both students & staff researchers to undergo Disclosure and Barring Service (DBS) Checks when working in controlled or regulated activity with children, young people, or vulnerable adults. The required DBS Check Disclosure Number(s) is: I have obtained approval from the UCL Data Protection Officer stating that the research project is compliant with the General Data Protection Regulation 2018. My Data Protection Registration Number is: **(Z6364106/2021/07/03 health research)** I am satisfied that the research complies with current professional, departmental and university guidelines including UCL's Risk Assessment Procedures and insurance arrangements. I undertake to complete and submit the 'Continuing Review Approval Form' on an annual basis to the UCL Research Ethics Committee. I will ensure that changes in approved research protocols are reported promptly and are not initiated without approval by the UCL Research Ethics Committee, except when necessary to eliminate apparent immediate hazards to the participant. I will ensure that all adverse or unforeseen problems arising from the research project are reported in a timely fashion to the UCL Research Ethics Committee.
	I will undertake to provide notification when the study is complete and if it fails to start or is abandoned.

SIGNATURE: [redacted] **DATE:** 21/06/21

	Applicant(s) Details *(if Applicant is not the Principal Researcher e.g., student details):*	
	Full Name: Talen Wright	
	Position Held *i.e., undergraduate/bachelor or masters project (if so, provide course title/number, PhD, staff led research project which may involve one or more students*: PhD Student	
	Name and Address of Department:	Email: talen.wright.20@ucl.ac.uk
		Telephone: 075207209357

	Division of Psychiatry Faculty of Brain Sciences Wings A and B Sixth Floor Maple House 149 Tottenham Court Road	Fax:

Sponsor/ Other Organisations Involved and Funding

a) **Sponsor: ☐ UCL**
If your project is sponsored by an institution other than UCL please provide details:
N/a

b) **Other Organisations**: If your study involves another organisation, please provide details. *Evidence that the relevant authority has given permission should be attached or confirmation provided that this will be available upon request.* N/a

c) **Funding:** What are the sources of funding for this study and will the study result in financial payment or payment in kind to the department or College? *If study is funded solely by UCL this should be stated, the section should not be left blank.*

This project is funded by an Economic and Social Research Council (ESRC) PhD studentship. This studentship pays the tuition fee of Talen Wright (home-based fees), provides a monthly stipend, and a research training and support grant.

Signature of Head of Department [or Chair of your Departmental Research Ethics Committee/Departmental Ethics Lead]
(This must not be the same signature as the Principal Researcher)

A. I have discussed this project with the principal researcher who is suitably qualified to carry out this research and I approve it.

I am satisfied that *[please highlight as appropriate]:*

(1) **Data Protection registration:**

- **Has been satisfactorily completed (Z6364106/2021/07/03 health research**

(2) **a risk assessment:**

- **has been satisfactorily completed**

(3) **appropriate insurance arrangements are in place and appropriate sponsorship [funding] has been approved and is in place to complete the study.** ☐ **Yes**

(4) **a Disclosure and Barring Service check(s):**

- **is not required**

Links to details of UCL's policies on the above can be found at: *http://ethics.grad.ucl.ac.uk/procedures.php*

****If any of the above checks are not required, please clarify why below.**

PRINT NAME: Helen Killaspy

SIGNATURE: [redacted] **DATE:** 21.06.2021

SECTION B DETAILS OF THE PROJECT

**It is essential that Sections B1 and B2 are completed in simple understandable lay language that a non-expert could understand, or you risk your project being rejected

Please provide a brief summary of the project in simple lay person's prose outlining the intended value of the project, giving necessary scientific background. *(max 500 words)*.

Transgender and non-binary people are people whose gender identity does not match their sex designated at birth. Research suggests that transgender and non-binary people are at an increased risk of experiencing depression, anxiety, suicidal thoughts, and suicide attempts. Over the course of a lifetime, 84% of transgender and/or non-binary people will have suicidal thoughts, and 48% will make at least one attempt to end their lives. There are various reasons for the high prevalence of suicidality in this group relative to the general population, with discrimination and stigma thought to play a large role. There has been little research on how microaggressions, loneliness, and gender minority stress affect transgender and non-binary people. A microaggression is defined as commonplace daily, verbal, and/or behavioural insults that display hostility towards a marginalised community. The aim of our project is to explore patterns of mental health amongst trans and non-binary people, with a view to examining the following research questions:

1) What is the prevalence of mental health distress, microaggressions, loneliness, and gender minority stress in the trans and non-binary community?

2) What impact do microaggressions, loneliness, and gender minority stress have on the mental health of trans and non-binary people?

To address these questions, we will conduct a cross-sectional survey to measure the prevalence of microaggressions, gender minority stress, and depression, anxiety, and suicidality in trans and non-binary people, and assess any associations between trans and non-binary groups.

We will measure the prevalence of microaggressions and poor mental health and the role of gender minority stress and loneliness within different groups of trans people (such as trans women, trans men, and non-binary people). Measuring prevalence will allow us to identify how widespread microaggressions, loneliness, and gender minority stress are amongst different groups of the trans and non-binary community. We will also measure the prevalence of depressive symptoms, anxiety symptoms and suicidal thoughts.

To examine the impact of these issues further, we will test for relationships between trans and non-binary peoples' experiences of microaggressions, loneliness, and gender minority stress and how these affect their mental health outcomes, for example whether trans women who experience a high frequency of microaggressions are likely to be more depressed, anxious, and/or suicidal. These comparisons may highlight specific groups within the trans and/or non-binary community who may be more likely to experience microaggressions, loneliness, gender minority stress or mental health problems.

Overall, the project will lead to improving our understanding of how common microaggressions, loneliness, gender minority stress, depressive symptoms, anxiety symptoms and suicidal thoughts are amongst trans and non-binary people in the UK, and the relationship between microaggressions and or mental health problems in transgender and non-binary people. This work will offer insights into how therapeutic practice might be improved to better meet the needs of the trans and non-binary community.

Briefly characterise in simple lay person's prose the research protocol, type of procedure and/or research methodology (e.g., observational, survey research, experimental). Give details of any samples or measurements to be taken *(max 500 words).*

To explore how microaggressions, loneliness, and gender minority stress, along with discrimination and stigma impact the mental health of transgender and non-binary people an online survey will be conducted, with a cross-sectional design to analyses data from a pre-determined population at one point in time. The participants are selected based on specific characteristics or group membership. In this study we are interested in surveying anyone over the age of 18 who identifies with the term transgender and/or non- binary, and currently live in the UK. This online survey is interested in how widespread the issues of discrimination, stigma, and microaggressions are amongst the transgender and/or non-binary community. I will explore any relationships between experiences of microaggressions, loneliness, and gender minority stress with specific demographics of the community, such as gender identity, age, ethnicity, and disability. This may lead to a better understanding of whether seemingly minor acts of violence have lasting impacts on the transgender and non-binary community, and whether specific intersecting identities are affected more than others.

The online survey will ask questions on the following issues: age, identification with being trans, non- binary, and/or gender diverse, the country in which the participant is normally resident, ethnicity, educational attainment, accommodation the participant resides in, their housing situation (homeowner, renter, homeless, etc.), occupational status, sexual orientation, religious/spiritual beliefs, and disability (physical and/or mental health related). These characteristics are important to understand how intersectionality influences mental health and experiences of microaggressions.

Following these, we will ask questions on mental health. We have chosen the following measures: the Patient Health Questionnaire (9-item) to ask about depressive symptoms, the Generalised Anxiety Disorder questionnaire (7-item) to ask about feelings of anxiety, and questions from the Self-Efficacy to Avoid Suicidal Action (SEASA), and the Suicide Behaviours Questionnaire (revised version) to measure suicidality. These suicide-related measures are used to assess thinking about suicide, the intensity of those thoughts, whether a person has plans to take their own life, what prevents them from taking their own life, and whether attempts to take their own life have occurred in the past. We will also measure thwarted belongingness, the belief that one does not belong, and perceived burdensomeness, the belief that "others would be better off without me," using the 10 question Interpersonal Needs Questionnaire.

The survey itself will be hosted on Opinio, a secure web-based survey platform and access to the survey link will be disseminated through our networks including links to the various trans-led organisations. The survey will also have a study homepage, hosted through UCL's Division of Psychiatry webpage. Here, further details of the study including links to a range of support services will be available. Participants will be advised that it will take around 20-30 minutes to fill out this survey.

Attach any questionnaires, psychological tests, etc. (a standardised questionnaire does not need to be attached, but please provide the name and details of the questionnaire together with a published reference to its prior usage).

How will the results be disseminated, including communication of results with research participants?

Participants have been given the option of opting in to receiving outputs, including lay summaries and peer-reviewed research articles, arising from the project. The study's webpage will also be kept up to date with research findings, outputs, and presentations, providing participants and the wider public access to this material.

Where will the study take place (please provide name of institution/department)? If the study is to be carried out overseas, what steps have been taken to secure research and ethical permission in the study country? Is the research compliant with Data Protection legislation in the country concerned or is it compliant with the General Data Protection Regulation 2018?

This study will take place online hosted through the website of the Division of Psychiatry, UCL. Participants who are normally resident in the UK will be invited to take part through the use of social media and trans- led charities and organisations.

Have collaborating departments whose resources will be needed been informed and agreed to participate?
Attach any relevant correspondence.

N/A

Please outline any ethical issues that might arise from the proposed study and how they are be addressed. *Please note that all research projects have some ethical considerations so do not leave this section blank.*

The most pressing issues facing this project are as follows (details outlined below):

- Research fatigue
- Potential psychological distress
- Ensuring Anonymity
- Data security and management

Research fatigue

Research fatigue is a common ethical issue within transgender and non-binary health research and arises from taking part in a large number of studies, particularly those with little perceived value or utility to the community. The trans and non-binary community are frequently invited to take part in research studies that have not given sufficient thought to community benefit. Methodologically these projects may also be burdensome to trans and non-binary people, with outdated language which may cause offense, and measures which are irrelevant to the experiences of the trans and non-binary community. To reduce this potential, we have consulted with several community members who have had input on the measures and language employed in this survey, with the explicit aim to reduce the potential burdensomeness of the research. Participants in this study will be signposted frequently to support services and charitable organisations that cater to the transgender and non-binary community, promoting work that improves trans and non-binary people's lives. Participants are also actively encouraged to stay engaged with this research, through lay summary reports and other outputs which will directly feed information back to communities. As UCL has a reputation for methodologically sound research, it is likely to be perceived as a study with the potential to impact positively on policy and services.

Potential psychological distress

As the study focuses on negative social interactions, experiences of poor mental health, and suicidality it is possible that some participants completing the study may feel distressed. We have attended carefully to the wording of the questionnaire and associated materials to ensure that the content is not triggering and have worked with an advisory group of both trans academics and lay persons to assess the questionnaires acceptability in relation to its measures and language used. As the survey will be accessible 24/7, it will be made clear that responses to issues such as suicidality, and indeed all other responses, will not be monitored. Instead, all participants will be reminded of current support lines and services that can be accessed should they find themselves in mental health crisis. The experience of the study supervisors in conducting online surveys on distressing topics (e.g., suicide bereavement) has been used to ensure that the design of the questionnaire and the provision of helplines and services should help minimise any distress.

Ensuring Anonymity

The current social climate in the United Kingdom for trans and non-binary people is volatile, and there is also considerable stigma around mental ill health. Therefore, it is important to reassure participants of the careful safeguards around anonymity and confidentiality that UCL research studies adhere to. To ensure participants’ data are anonymised, our dataset will not contain any information on date of birth, names, addresses, or other highly identifiable information. We will collect email addresses from those who wish to receive study outputs, the lay summary, and/or to correct or delete their submitted data. These email addresses will be separated from the main dataset and stored in a separate dataset. The file will be stored separately to the survey responses, linked by a unique ID number, and will also be stored on secure UCL servers which require authorised login credentials to access. The deidentification file, linking ID number to email addresses, will also be kept in a separate folder. The sole purpose of the contact details will be to contact participants who have consented to being invited to take part in further studies and/or when receiving study outputs, and/or if requests are made for changes/deletion of data. Participants will be blind copied into any emails, ensuring anonymity, and the email account used to contact them will be neutral with a neutral subject heading i.e., “Study participation” and “Study findings”

Data security and management

A Data Protection Impact Assessment (DPIA) has been completed and registration number provided (**Z6364106/2021/07/03 health research**). Data security and its management has been carefully considered in this project. We will ask personal and sensitive questions which carry a low risk of identifying the participants (i.e., no date of birth or name). Maintaining anonymity and confidentiality of this information is a central concern driving our plans for data security. To minimise risk of deidentification, we are using Opinio to collect the data. Opinio is a secure web-based survey programme that is GDPR compliant and only accessible to those with authorised login credentials. Data will be imported, stored, and managed through the UCL Data Safe Haven. We will be collecting email addresses, as the ability to correct data if requested (a requirement of GDPR), can only be accurately processed if responses on Opinio are linked to the participants’ email address. This identifiable information will be stored separately to the survey responses when downloaded, linked by a unique ID number, and will also be stored on secure UCL servers which require authorised login credentials to access.

SECTION C DETAILS OF PARTICIPANTS

Participants to be studied

C1a. Number of volunteers:	500 anticipated (but open survey)
Upper age limit:	none
Lower age limit:	18

C1b. Please justify the age range and sample size:

A sample size calculation was performed to test the minimum sample required to test a specific hypothesis relating to scores on the Patient Health Questionnaire (PHQ-9). The PHQ-9 was chosen as it has been widely used in trans communities and offers the most robust means of calculating an accurate sample size. The hypothesis here is that trans men will score higher on the PHQ-9 compared to trans women, based on previous research using the PHQ-9 in trans communities. The total size estimated for the sample required for this hypothesis was calculated at 452 as the minimum required to detect an effect size of 0.30 with an alpha of 0.05 and 90% power.

To gain a sense of how likely we are to recruit sufficient participants to exceed our sample size, we have reviewed the sample sizes of other trans-focused health and mental health research surveys.
Representative data based on the entire trans and non-binary community is currently not available, as no study to date has recruited from a population-based sample. Sample sizes amongst the largest trans related projects ranged from 433 in the Trans PULSE project (in Canada), to 859 in the trans pathways study (in Australia). The most methodologically sound project based in the UK, the 2021 trans mental health study recruited 912 trans and non-binary people. It is therefore expected that this project can yield similar participant numbers.
We have adopted the age range of 18 and above as studies focusing on trans youth would require a different approach and specific research questions, with further issues around safeguarding. In the survey, those who select that their age is under 18 will be screened out. Under 18s will be presented with some further information about services and helplines that are tailored to their needs.
Our proposed minimum sample size, and efforts to promote adequate recruitment mean we will be able to stratify by age group and assess specific associations by age.

C2

Accessing/Using Pre-Collected Data:
If you are using data or information held by a third party, please explain how you will obtain this. You should confirm that the information has been obtained in accordance with the General Data Protection Regulation 2018.

N/A

C3

Will the research include children or vulnerable adults such as individuals with a learning disability or cognitive impairment or individuals in a dependent or unequal relationship? ☐

☐ **No**

How will you ensure that participants in these groups are competent to give consent to take part in this study? *If you have relevant correspondence, please attach it.*

N/A

C4

☐ **Will payment or any other incentive, such as gift service or free services, be made to any research participant?**

✓ **No**

If yes, please specify the level of payment to be made and/or the source of the funds/gift/free service to be used.

Please justify the payment/other incentive you intend to offer.

Recruitment

(i) Describe how potential participants will be identified:

The survey will be open to anyone aged 18 and above who identifies as transgender and/or non-binary. This project will allow for self-declaration of trans and/or non-binary identification.

(ii) Describe how potential participants will be approached:

Participants will be reached via an advert on social media, linked to the study's webpage. The study will also be advertised through trans-led organisations, community activist members, and through other social media methods. The PhD student leading the study is a trans woman and has several community connections. Online groups that cater to the trans community will also be approached and informed about the study. There are several advantages to this approach, namely, the chain referral process allows for hard-to-reach populations to be identified and recruited, and there is no cost associated with recruitment. We will also include a social media recruitment campaign using a study Twitter account. It will be made clear to any potential participants that participation is voluntary, and any responses they give will not be shared with their healthcare providers.

(iii) Describe how participants will be recruited:

Participants will be directed to the study's webpage, hosted on the Division of Psychiatry's website. Here more information related to the study is provided with a link to the participant information sheet and consent form. Potential participants will at this point be able to open the survey link which will begin the informed consent check and recording process. After consenting, participants can proceed to answer the survey questions.

C6

Will the participants participate on a fully voluntary basis? ☐ Yes,

☐

Will UCL students be involved as participants in the research

project? ☐ No

If yes, care must be taken to ensure that they are recruited in such a way that they do not feel any obligation to a teacher or member of staff to participate.

Please state how you will bring to the attention of the participants their right to withdraw from the study without penalty?

As the study is online, participants will have the right to withdraw from the study at any moment they wish. Participants are also able to request to make changes to their personal data and there are mechanisms to have data completely deleted. Participants will be informed that in order to make changes or delete data, they will need to submit their email address along with their survey responses through Opinio. Their email address is required as this will allow the researcher to locate their responses to make any changes or delete the data.

C7

CONSENT

Please describe the process you will use when seeking and obtaining consent.

Informed consent will be elicited online. Participants will be directed initially to a participant information sheet, before being directed to a consent form. Their responses to the consent questions will be incorporated into the start of the online survey, which means that their responses to these questions will be downloaded along with their survey responses from Opinio into a database. Branching in the survey will mean that only those who consent to the questions ascertaining informed consent will be able to proceed to the survey.

A copy of your participant information sheet(s) and consent form(s) must be attached to this application. For your convenience proformas are provided in Appendix I. These should be filled in and modified, as necessary. ☐

In cases where it is not proposed to obtain the participants informed consent, please explain why below.

N/A

C8

Will any form of deception be used that raises ethical issues? If so, please explain.

No form of deception has been planned

	Will you provide a full debriefing at the end of the data collection phase? ☐ **No** If ‘No,’ please explain why below. As per other online surveys we do not plan to debrief participants at the end, and have designed the survey to be non-triggering, directing participants to support sources throughout and at the end. The participants will be given all information required in the PIL in order to make an informed decision on whether or not to proceed with participation. Participants will be drawn to the study’s webpage and information sheet for details on why the study is being carried out and will be reminded of the nature of the study at the beginning of the survey.

C10	**Information Sheets And Consent Forms: Appendix I** **A poorly written Information Sheet(s) and Consent Form(s) that lack clarity and simplicity frequently delay ethics approval of research projects.** The wording and content of the Information Sheet and Consent Form must be appropriate to the age and educational level of the research participants and clearly state in simple non-technical language what the participant is agreeing to. Use the active voice e.g., “we will book” rather than “bookings will be made.” Refer to participants as “you” and yourself as “I” or “we.” An appropriate translation of the Forms should be provided where the first language of the participants is not English. If you have different participant groups, you should provide Information Sheets and Consent Forms as appropriate (e.g., one for children and one for parents/guardians) using the templates provided in Appendix I. Where children are of a reading age, a written Information Sheet should be provided. When participants cannot read or the use of forms would be inappropriate, a description of the verbal information to be provided should be given. Where possible please ensure that you trial the forms on an age-appropriate person before you submit your application. Please see participant information sheet and consent form attached to this application.

SECTION D: APPROPRIATE SAFEGUARDS, DATA STORAGE AND SECURITY

Will the research involve the collection and/or use of personal data?

✓ **Yes**

Personal data *is data which relates to a living individual who can be identified from that data OR from the data and other information that is either currently held or will be held by the data controller (the researcher).*

This includes:

- *any expression of opinion about the individual and any intentions of the data controller or any other person toward the individual.*
- *sensor, location, or visual data which may reveal information that enables the identification of a face, address, etc (some postcodes cover only one property).*
- *combinations of data which may reveal identifiable data, such as names, email/postal addresses, date of birth, ethnicity, descriptions of health diagnosis or conditions, computer IP address (if relating to a device with a single user).*

If yes, is the research collecting or using special category data as defined by the GDPR 2018, for example data:

- which reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership.
- data concerning health (the physical or mental health of a person, including the provision of health care services).
- data concerning sex life or sexual orientation; or
- genetic or biometric data processed to uniquely identify a natural person.

- **data which might be considered sensitive in some countries, cultures, or contexts?**

Note that if you intend to process 'special category' information you will need an 'additional' legal basis for processing that particular data and further safeguards will need to be put in place.

If yes, state whether explicit ethical informed consent will be sought for its use and what data management measures are in place to adequately manage and protect the data.

The project will collect data related to personally identifiable information, including gender identity, age, ethnicity, religious and spiritual beliefs, disability, and sexual orientation. Participants are informed in the participant information sheet that these data will be collected, and their intended uses.

D2 **During the Project (including the write up and dissemination period)**

State what types of data will be generated from this project (i.e., transcripts, videos, photos, audio tapes, field notes, etc).

Quantitative database

How will data be stored, including where and for how long? This includes all hard copy and electronic data on laptops, share drives, usb/mobile devices.

Data are to be stored in the UCL Data Safe Haven, which can only be accessed by an authorised researcher with a member's login details. Data are to be stored for the duration of the PhD project. After recruitment ceases (August 2023) data will be cleaned and analysed over the course of 1 year.

After a further year, allowing time for the team to conduct further analyses, the data will be uploaded to the UK Data Service, as recommended by the project funder, ESRC. Data will be cleaned, and removal of dummy variables and any identifiable information will take place prior to the dataset being deposited. The data will remain with the UK Data Service indefinitely, and researchers from this point can request access
to the data following UCL's data sharing processes. Participants will have this process explained to them in the information sheet and will have the option to provide consent to the process of data archiving.

Who will have access to the data, including advisory groups and during transcription?

Only the PhD student, and her supervisory team, will have access to the data and although aspects of the data will be discussed with the thesis committee, they will not have direct access.

D3 **Will personal data be processed or be sent outside of the European Economic Area (EEA)*?**

If yes, please confirm that there are adequate levels of protection in compliance with the General Data Protection Regulation 2018 and state what these arrangements are below.

No, data will not be sent outside of the EEA.

After the Project

What data will be stored and how will you keep it secure?

The anonymised dataset, including all demographic and mental health measures, will remain in the Data Safe Haven and will be transferred to the UK Data Service where it may be shared with other researchers on formal application. No hard copies of data will be created.

Where will the data be stored and who will have access?

Data will be stored in UCL's Data Safe Haven. UCL Data Safe Haven can only be accessed using authorised research member's login credentials. The applicant, Talen Wright, and her supervisory team will have access to the data over the course of the project.

Will the data be securely deleted?

If yes, please state when this will occur:

All data not uploaded to a data repository will be removed from the UCL Data Safe Haven after the completion of analysis and write up (planned for October 2024).

D5 **Will the data be archived for use by other researchers?** ☐ **Yes**

If **Yes**, please describe provide further details including whether researchers outside the EEA will be given access.

There are currently no plans for the data to be accessed by researchers outside the EEA. Data are to be uploaded to a data repository, namely the UK Data Service, as stipulated by the project funder, ESRC. Participants are informed that their data will be archived and are given an option to give consent to this process.

SECTION E: DETAILS OF RISKS AND BENEFITS TO THE RESEARCHER AND THE RESEARCHED

E1 **Please state briefly any precautions being taken to protect the health and safety of researchers and others associated with the project (as distinct from the research participants).**

The PhD student is a trans woman with lived experience of suicidal thoughts and depression. She has formally accepted therapy and will continue this as part of a package of self-care. Her PhD principal supervisor is clinically trained and will signpost to relevant support if and when needed. The student has agreed to regularly check in with her supervisors about her mental health for the duration of this project. She anticipates no personal risk associated with this project to her own wellbeing.

E2 **Will these participants participate in any activities that may be potentially stressful or harmful in connection with this research?** ☐ **No**

If **Yes**, please describe the nature of the risk or stress and how you will minimise and monitor it.

E3 **Will group or individual interviews/questionnaires raise any topics or issues that might be sensitive, embarrassing or upsetting for participants?**

If **Yes,** please explain how you will deal with this.

E4 **Please describe any expected benefits to the participant.**

There will be no direct benefits to participants, however there are plans in place to produce lay reports and summaries as well as access to journal articles that come from the project. Research findings will be frequently uploaded when appropriate for dissemination to community members and organisations that cater to the mental health of trans and non-binary people.

☐ ☐

E5 **Specify whether the following procedures are involved:**

Any invasive procedure(s) ☐

⍰ **No**

Physical contact ⍰

No

Any procedure(s) that may cause mental distress ⍰ **No**

Please state briefly any precautions being taken to protect the health and safety of the research participants.

Participants will be exposed to questions ☐ that are probing or in-depth about their experiences with suicidality. Previous research does not support the hypothesis that talking about suicidality in research studies increases risk (Blades et al, 2018). However, in case some participants do experience distress we have consistently highlighted support service links and phonelines throughout the survey, which will be presented both before and after the completion of the survey ☐

References: ☐ ☐

Blades, C. A., Stritzke, W. G., Page, A. C., & Brown, J. D. (2018). The benefits and risks of asking research participants about suicide: A meta-analysis of the impact of exposure to suicide-related content. *Clinical psychology review*, *64*, 1-12. ☐

E6 **Does the research involve the use of drugs?** ⍰ **No**

If **Yes**, please name the drug/product and its intended use in the research and then complete Appendix II

Does the project involve the use of geneticallymodified materials? ☐ **No**

If **Yes**, has approval from the Genetic Modification Safety Committee been obtained

for work? Yes

No If **Yes**,

please quote the Genetic Modification Reference Number:

Will any non-ionising radiation be used on the research participant(s)? ☐ **No**

If **Yes**, please complete Appendix III.

Are you using a medical device in the UK that is CE-marked and is being used within its ☐ **product indication?** ☐ **No**

If **Yes**, please complete Appendix IV.

CHECKLIST

Documents to be Attached to Application Form (if applicable)	Tick if attached	
Section B: Details of the Project	✓	
☐ Questionnaire(s) / Psychological Tests		
☐ Relevant correspondence relating to involvement of collaborating department/s and agreed participation in the research i.e., approval letters to gatekeepers seeking permission to do research on their premises/ in their company etc.	n/a	
Section C: Details of Participants	✓	
☐ Parental/guardian consent form for research involving participants under 18	✓	n/a
☐ Participant/s information sheet	✓	
☐ Participant/s consent form/s	✓	
☐ Advertisement		

Appendix I: Information Sheet(s) and Consent Form(s) Appendix II: Research Involving the Use of Drugs

☐	Relevant correspondence relating to agreed arrangements for dispensing with the pharmacy	n/a
☐	Written confirmation from the manufacturer that the drug/substance has has been manufactured to GMP	n/a
☐	Proposed volunteer contract	n/a
☐	Full declaration of financial or direct interest	n/a
☐	Copies of certificates: CTA etc…	n/a

Appendix III: Use of Non-Ionising Radiation n/a

Appendix IV: Use of Medical Devices n/a

Updated October 2019

Division of Psychiatry

Website edit request form – New study page(s)

Number of pages: 5
Menu (which department does your study reside): **Epidemiology and Applied Clinical Research Department**
Study Title (100 characters): **Mental health of transgender people and the role of microaggressions in depression. anxiety, and suicidality**
Content intro/summary (200 characters): This project, funded by the Economic and Social Research Council (ESRC), and approved by UCL REC (200485/001), aims to explore the mental health of transgender and non-binary people in the United Kingdom, with a focus on microaggression, loneliness, and gender minority stress.

Content: **Page one “About the project”**

About the project

Studies suggest that transgender and non-binary people experience disproportionate distress, particularly with regards to depression, anxiety, suicidal thoughts, and suicide attempts. However, there is a need for a large study that seeks to explore these issues further by enquiring how microaggressions, loneliness, and gender minority stress might play a role in these mental health disparities.

What does the study involve?

This study involves recruiting transgender and non-binary people over the age of 18 to take part in an online survey to explore issues related to various aspects of their identity, their experiences of gender minority stress, microaggressions, and mental health distress.

Intersectionality is important when exploring the mental health disparity of transgender and non- binary people. Therefore, the project is actively seeking those who are currently under-represented in trans mental health research, specifically Black, Indigenous, & trans and non-binary people of colour, along with neurodiverse and/or disabled people.

The survey takes roughly 20-30 minutes to complete. If you are interested in taking part, there is a link to the participant information sheet below, which details the project further.

Who’s on the team?

Talen Wright is a PhD student and trans woman with lived experience of depression and suicidality. She has been funded by the ESRC to carry out this research and has along with her supervisory team and thesis committee produced this survey. Dr Alexandra Pitman is a clinical academic in the UCL Division of Psychiatry. Dr Gemma Lewis is a lecturer in epidemiology in the UCL Division of Psychiatry. Both have a particular interest and publications record in the mental health of LGBT groups. Dr Talya Greene is an honorary lecturer in epidemiology in the UCL Division of Psychiatry and an Associate Professor at the University of Haifa. Dr Ruth Pearce is a Lecturer in Community Development at the

University of Glasgow, and former Research Coordinator for the Trans Learning Partnership. You can
find our public profiles and websites in the “Team Members” section.

What happens when the study is finished?

After the study has come to an end the PhD student will analyse the data carefully and write up the findings for publication. The PhD student will use the findings to discuss issues of depression, anxiety, and suicidality in relation to microaggressions, loneliness, and gender minority stress, with mental health providers and policy makers. If you consent to take part and have asked for a copy of the final report, you will receive a summary of the findings. All findings will be published on this webpage.

I’m interested, how do I take part?

If you would like to take part in this study, please click on the link provided below, which will take you to the Participant Information Sheet:

[link to Participant Information Sheet] page

two [link to consent form] page three

PAGE four “Publications, presentations, and other outputs”

Keep an eye on this page as we upload our findings and other outputs from the project.

Team members: **Page five “Research team”**

Talen Wright (PhD Student) – Division of Psychiatry, UCL

Dr Alexandra Pitman (Principal Supervisor) – Division of

Psychiatry, UCL Dr Gemma Lewis (Subsidiary Supervisor) –

Division of Psychiatry, UCL Dr Talya Greene (Thesis Committee

member) - University of Haifa

Dr Ruth Pearce (Thesis Committee member) – University of Glasgow

Content footer (bottom of the page): **page four entitled “Support lines and services”**

If you need further support, please check out this list. These are either trans focused charities and support services, or they are trusted amongst the community.

- **LGBTQ+Switchboard** LGBT+ helpline for more than 45 years. Open daily 10am-10pm.Call 0300 330 0630.
- **Gendered Intelligence** Support Line- Mon/Tues/Thurs 2-7pm/Wed/Friday 10-3pm 0330 3559678Text/Whatsapp: 07592 650 496. supportline@genderedintelligence.co.uk.

- **Mindline Trans+** support line for trans, non-binary or gender variant, and their families, friends, colleagues, and carers. The phone line is open Mondays and Fridays 8pm to midnight. Phone: 0300 330 5468.
- **Give Us a Shout** is the UK's first 24/7 text service, free on all major mobile networks, for anyone in crisis anytime, anywhere. It's a place to go if you're struggling to cope and youneed immediate help. Text Shout to 85258.
- **Switchboard** - the LGBT+ helpline - 0300 330 0630, open 10am–10pm every day. Email support: chris@switchboard.lgbt/. Online chat is also available through their homepage
- **Mindout -** MindOut Lesbian, Gay, Bisexual, Trans & Queer Mental Health Service - 01273234839 or email info@mindout.org.uk or directly through their Online Support service, dates, and times on the website.
- **Mind** provide advice and support to empower anyone experiencing a mental healthproblem. 0300 123 3393 (9am-6pm, Monday to Friday) info@mind.org.uk
- **SAMH (Scottish Association for Mental Health)** – supporting people in Scotland to improve their mental health. Telephone: 0141 530 1000. Email: enquire@samh.org.uk.
- **Samaritans** offer a safe place to talk any time you like, in your own way – about whatever's getting to you. You don't have to be suicidal. 24hr FREE phone calls from landline ormobile 116 123 / Email: jo@samaritans.org
- If you are looking for short term counselling, consider getting in touch with Spectra, they have a trans counsellor who is able to offer consultations and potentially 12 sessions to trans and non-binary people

Links (social media, sign up page, partner orgs etc.):

Follow our study page on twitter for updates: @UCLTransMentalHealth (not yet created pending ethics)

Please attach any images/logos you wish to be used with this form.

Amendment Request Form

Please complete this form to make any amendments to an already approved study. Carefully read the information below to check that your planned changes are covered by this form. Once completed, submit your application to ethics@ucl.ac.uk for consideration by the UCL REC.

Changes Covered by an Amendment Request:

Amendments can cover a range of small changes as long as these are in line with and do not significantly deviate from the original approval. For example:

- Adding a new participant group or adding to participant numbers
- Asking for additional data from existing participants
- Adding or removing a group of participants or a research method from the project
- Applying for an extension to your current ethical approval – Studies can run for 5 years, after which a new ethics application must be submitted.

Changes NOT Covered by an Amendment Request:

Significant changes to your study are not covered by Amendment Requests and should be submitted as a new Ethics Application. Changes not covered by an amendment are, for example: substantial changes to the study aims or methodology, addition of an overseas location or any changes where the risks and ethical issues are vastly increased.

Extensions:

An extension after the end date for your study's ethical approval is not possible and you will need to submit a new Ethics Application. Further, you will need to confirm that no data collection has taken place since the end date as collecting data without valid ethical approval could amount to research misconduct and may lead to disciplinary action. The total duration of a project, including any extensions, cannot normally exceed six years.

Your Application Must Include:

- A clear explanation of what the amendment you wish to make is and the justification for making the change.
- Details of all the ethical issues raised by the proposed amendments. This section must not be left blank.

- An updated version of your latest Ethics Application form, that includes all previous amendments, with your proposed amendments highlighted. This allows the reviewer to clearly see the changes and their effects and ensures the REC has an up-to-date overview of the study.
- All other updated documents, such as Participant Information Sheets, Consent Forms, and recruitment adverts, similarly highlighted to reflect all changes.

If any of the above points are missing, your application will not be reviewed and will send back to you.

Review Process:

Amendment Requests are reviewed by the original ethics reviewer, when possible. The time taken to review is dependent on the level of detail provided, the quality of the application and the availability of reviewers. As such, more complicated amendments are likely to take longer than simple, small changes.

Amendment Request Form

1	**Ethics ID Number:** 20485/001
2	**Project Title: Mental health of transgender people and the role of microaggressions in depression. anxiety, and suicidality**
3	**Name of PI:** Dr Alexandra Pitman
4	**Name of Researcher(s) *for student projects**: Talen Wright (PhD Student) Dr Gemma Lewis (Subsidiary Supervisor)
5	**Faculty and Department:** Faculty of Brain Sciences, Division of Psychiatry
6	**Type of Research:** Undergraduate ☐ Staff ☐ Postgraduate Research ☒ Postgraduate Taught ☐
7	**Date of Original Ethics Approval:** 29th July 2021
8	**Amendment start date:** January 2023

	(List any requests for an accelerated review, due to funding reasons for example, and when the proposed changes are likely to be implemented).
9	**Has this study been amended before:** Yes ☒ No ☐ **If yes, how many amendment requests have been submitted prior to this one?** *(Please briefly describe all previous amendments and when they were approved).* One amendment has been submitted prior to this one. The amendment was to initiate an Ecological Momentary Assessment study. However, contract approval was required before the amendment could be granted and has taken ten months to date, with no clear end to the negotiation between UCL contracts and the University of Melbourne. We have decided to change our research methods in order to answer our research question using a follow-up study. Although an EMA study is preferred, this may not be practical within the funded doctoral programme time, and my supervisors feel that a follow-up survey will be a suitable compromise.
10	**Type of Amendment:** *(Tick all that apply)* Extension to approval (for 1 year) ☐ Data management/storage, retention, and destruction ☐ Research method/protocol ☒ Location of research / research site / data source ☐ Participant group ☐ Sponsorship/Collaborators ☐ Information Sheet(s)/Consent Form(s) ☒ Consent method ☐ Data collection method ☐ Publication and sharing ☐ Recruitment Documents ☒ Principal Investigator* ☐

	Update to research instruments/tools ☒ Other (Please specify in section 11) ☐ * To Note: *Additions to the research team, other than the Principal Investigator, the Student Supervisor, and the Medical Supervisor, do not need to be submitted as an Amendment. An updated list can be emailed to* ethics@ucl.ac.uk *to keep on record.*
11	**Details of Amendment(s):** *(Describe the amendment(s) to be made to the project, in accessible language. Include any changes to be made to the data management aspects of the study. Also, indicate which sections these amendments change in your updated Ethics Application form which must be included as part of your application).* **Details of Amendments** (provide full details of each amendment requested, state where the changes have been made and attach all amended and new documentation) We are not making any changes to the original ethics application. This amendment concerns itself with an additional research method. This will be in place of the Ecological Momentary Assessment (EMA) study as detailed in our previous amendment. Please see "Justification" as to why we are changing methods now. The original survey took place in the first year of the PhD: a cross-sectional online survey to test a hypothesis about microaggressions and mental health. The overall aim of the project is to understand changes in mental health and microaggressions over time. Using a longitudinal prospective cohort allows us to test hypotheses that can separate out the temporal sequencing between exposure and outcomes. As in the original ethics application, we have provided citations that support the practice of asking research participants about their suicidality, on the basis that findings show no increased risk of suicidal behaviour after being asked about suicidality (Blades et al 2018; Jorm et al 2007). The protocol for the follow-up study is as follows: • Participants in the wider cross-sectional study who have already (in the baseline survey)an expressed interest and provided consent to be contacted for future research will be sent an email with a link to the participant

information leaflet and a copy of the consent form (explaining that this will appear on the first page of the survey). They will also be sent a new survey link. The text of each of these are submitted with this amendment request. The survey will be hosted by Opinio, a secure UCL-based software programme for data collection. All data will be stored in the UCL DSH.

- To provide follow-up measures to those in the baseline survey, participants will be asked questions on our main outcomes (current depression, anxiety, and suicidality) as well as other key measures (loneliness, rumination, minority stress, and interpersonal needs). We will also ask them to fill out the demographic information (for transition status, age, housing status, occupation, and education) to see if there are any changes since baseline.
- The survey will take between 20 and 30 minutes to complete. Participants will be given one month in which to complete the survey after having been sent the invitation. One month has been chosen as it gives ample time to consider participation and to participate in the survey. Participants will receive a reminder one week prior to the survey closing.

Blades, C. A., Stritzke, W. G., Page, A. C., & Brown, J. D. (2018). The benefits and risks of asking research participants about suicide: A meta-analysis of the impact of exposure to suicide-related content. *Clinical psychology review*, *64*, 1-12.

Jorm, A. F., Kelly, C. M., & Morgan, A. J. (2007). Participant distress in psychiatric research: A systematic review. Psychological medicine, 37(7), 917-926.

GDPR Compliance:

Data security and its management has been carefully considered in this project. We will ask personal and sensitive questions that carry a low risk of identifying the participants (i.e., no date of birth or name). Maintaining anonymity and confidentiality of this information is a central concern driving our plans for data security. To minimise risk of deidentification, we are using Opinio to collect the data. Opinio is a secure web-based survey programme that is GDPR compliant and only accessible to those with authorised login credentials. Data will be imported into, stored, and managed through the UCL Data Safe Haven.

We will be collecting email addresses, as the ability to delete/correct data if requested (a requirement of GDPR), can only be accurately processed if responses on Opinio are linked to the participants' email address. This identifiable information will be stored separately to the survey responses when downloaded, linked by a unique ID number, and will also be stored on secure UCL servers that require authorised login credentials to access. The decrypting document will be stored securely.

12 Justification:

(Provide a brief explanation of why these changes are required and why they are needed now).

The reason that this change in method is needed is largely in part due to the time needed for a Data Processing Agreement between UCL and the University of Melbourne.

On (date) we applied for an ethics amendment to use Ecological Momentary Assessment methods to follow-up a sample of volunteers who had taken part in the baseline online cross-sectional survey. Due our inability to access an appropriate EMA app, we are now seeking to change our methods so that instead of an EMA study (daily for five minutes over 15 days) as a follow-up study we will conduct a single follow-up online survey (taking 20-30 minutes and conducted on one day). We have provided a timeline to illustrate the time-sensitive nature of the issue:

- We conducted the baseline online survey between September 2021 and September 2022
- We applied for ethical approval for a follow-up EMA study in July 2022 and applied for contracts to be agreed between UCL Contracts and the University of Melbourne in January 2022
- We gained ethical approval in the October 2022 subject to contracts being agreed
- The process of negotiating the Standard Contracts and Clauses with UCL and the University of Melbourne to use their app called SEMA3 for data collection (as the app is hosted outside of GDPR) has been going on since the contract submitted to UCL contracts in January 2022
- Contract was returned with comments in August of 2022 and sent to the University of Melbourne
- the University of Melbourne have returned the contract with some comments in October 2022
- We looked into other apps on the market, however the same issue has arisen with GDPR compliance and concern
- For the PhD project to be completed on time we would need to start data collection for the follow-up in January 2023 and to end in March/April 2023
- The funded PhD project is due to end in September 2023

	As has been highlighted above, the signing of said contract is still ongoing, however the PhD project is time sensitive, so we have discussed alternative methods that will still allow us to explore longitudinal associations.
13	**Ethical Considerations:** *(Explain all new ethical issues raised by the amendment and how these will be addressed. This section must NOT be left blank).* The most pressing issues facing this project are largely the same as we have considered in the original survey these being: • Research fatigue • Potential psychological distress • Ensuring Anonymity • Data security and management • Contacting participants – anonymity and security ***Research fatigue*** Research fatigue is a common ethical issue within transgender and non-binary health research and arises from taking part in a large number of studies, particularly those with little perceived value or utility to the community. The trans and non-binary community are frequently invited to take part in research studies that have not given sufficient thought to community benefit. Methodologically these projects may also be burdensome to trans and non-binary people, with outdated language which may cause offense, and measures which are irrelevant to the experiences of the trans and non-binary community. To reduce this potential, we have consulted with several community members who have had input on the measures and language employed in this survey, with the explicit aim to reduce the potential burdensomeness of the research. Participants in this study will be signposted frequently to support services and charitable organisations that cater to the transgender and non-binary community, promoting work that improves trans and non-binary people's lives. Participants are also actively encouraged to stay engaged with this research, through lay summary reports and other outputs which will directly feed information back to communities. As UCL has a reputation for methodologically sound research, it is likely to be perceived as a study with the potential to impact positively on policy and services. ***Potential psychological distress***

As the study focuses on negative social interactions, experiences of poor mental health, and suicidality it is possible that some participants completing the study may feel distressed. We have attended carefully to the wording of the questionnaire and associated materials to ensure that the content is not triggering and have worked with an advisory group of both trans academics and lay persons to assess the questionnaires acceptability in relation to its measures and language used. As the survey will be accessible 24/7, it will be made clear that responses to issues such as suicidality, and indeed all other responses, will not be monitored. Instead, all participants will be reminded of current support lines and services that can be accessed should they find themselves in mental health crisis. The experience of the study supervisors in conducting online surveys on distressing topics (e.g., suicide bereavement) has been used to ensure that the design of the questionnaire and the provision of helplines and services should help minimise any distress.

Ensuring Anonymity

The current social climate in the United Kingdom for trans and non-binary people is volatile, and there is also considerable stigma around mental ill health. Therefore, it is important to reassure participants of the careful safeguards around anonymity and confidentiality that UCL research studies adhere to. To ensure participants' data are anonymised, our dataset will not contain any information on date of birth, names, addresses, or other highly identifiable information. We will collect email addresses from those who wish to receive study outputs, the lay summary, and/or to correct or delete their submitted data. These email addresses will be separated from the main dataset and stored in a separate dataset. The file will be stored separately to the survey responses, linked by a unique ID number, and will also be stored on secure UCL servers which require authorised login credentials to access. The deidentification file, linking ID number to email addresses, will also be kept in a separate folder. The sole purpose of the contact details will be to contact participants who have consented to being invited to take part in further studies and/or when receiving study outputs, and/or if requests are made for changes/deletion of data. Participants will be blind copied into any emails, ensuring anonymity, and the email account used to contact them will be neutral with a neutral subject heading i.e., "Study participation" and "Study findings"

Data security and management

A Data Protection Impact Assessment (DPIA) has been completed and registration number provided (**Z6364106/2021/07/03 health research**). Data security and its management has been carefully considered in this project. We will ask personal and sensitive questions which carry a low risk of identifying the participants (i.e., no date of birth or name). Maintaining anonymity and confidentiality of this information is a central concern driving our plans for data security. To minimise risk of deidentification, we are using Opinio to collect the data. Opinio is a secure web-based survey programme that is GDPR compliant and only accessible to those with authorised login credentials. Data will be imported, stored, and managed through the UCL Data Safe Haven. We will be collecting email addresses, as the ability to correct data if requested (a requirement of GDPR), can only be accurately processed if responses on Opinio are linked to the participants' email address. This identifiable information will be stored separately to the survey responses when downloaded, linked by a unique ID number, and will also be stored on secure UCL servers which require authorised login credentials to access.

Contacting participants – anonymity and data security

As participants consented to be contacted for future studies, we will be contacting participants directly. This brings some risk particularly around ensuring anonymity and data security. The PhD researcher will be contacting participants, and therefore this carries a risk of removing anonymity to the PhD researcher. To mitigate or manage this risk the PhD student will be the only participant to contact the participants. Regarding data security, as the participants are being contacted directly, there carries the risk of personal information being accessed. This could potentially happen with the blind copying function on emails. Therefore, to mitigate this risk, the PhD researcher will send the email template to participants under a neutral heading "TMH Study: follow up" and participants will be emailed separately i.e., with no other recipients included.

As an incentive we are also able to offer two prize rewards in the form of £50 vouchers to two participants who opt into the raffle.

Attachments:

(List which attachments have been included. To Note: ALL Amendment Requests must be accompanied by an updated and highlighted version of your latest Ethics Application and supporting documentation that include all previously approved amendments, as appropriate, except for solely extension requests).

Participant Information Leaflet

Consent Form

Email Template

Webpage

Survey

15 **Declaration:**

○ I confirm that the information in this form is accurate to the best of my knowledge, and I take full responsibility for it.

○ I confirm that this amendment does not fundamentally change the study.

○ I confirm that all relevant data protection arrangements are still in place for the duration of this amendment.

○ I consider that it would be reasonable for the proposed amendments to be implemented.

Principal Investigator Name*: Dr Alexandra Pitman

Principal Investigator Signatur [redacted]

Date:

22/11/22

** To Note: The named Principal Investigator must sign this form. Applications submitted without this section having been completed by the PI will be returned to the applicant.*

Last updated February 2021

Appendix 2 – Baseline survey materials

Website content

Participant information leaflet

TRANS:
Microaggressions & Mental Health
Participant information sheet: Cross sectional survey

Contact details:

Talen Wright
PhD Student
Division of Psychiatry
TMH@ucl.ac.uk

Hello, and thank you for your interest in taking part in the UCL trans mental health survey. This study is part of a PhD project being undertaken at the Division of Psychiatry at UCL. This study is funded by the Economic and Social Research Council (ESRC) and has received ethical approval by the UCL REC (20485/001).

The aim of this study is to see how microaggressions, and other issues (such as stigma and discrimination) impact on depression, anxiety, and suicidal thoughts or acts. The findings of this study will study will allow researchers, counsellors/therapists, and policy makers, to better understand how negative experiences can contribute to poor mental health.

Who can participate?

To be eligible to participate in this study you must identify as transgender, non-binary, and/or gender expansive. You must be at least 18 years old and usually reside in the United Kingdom.

Who am I?

My name is Talen Wright, and I am the lead researcher. I am a trans woman who has lived experience of depression and anxiety, and in conducting research on marginalised and minoritised communities. I believe firmly in an affirmative approach towards trans health and centre the roles that gender, sexuality, religion, disability, and ethnicity play on mental health experiences. I am supervised by Dr Alexandra Pitman and Dr Gemma Lewis, and also have input from Dr Talya Greene and Dr Ruth Pearce (who form my “thesis committee”).

About the study

The survey collects information about:

- your characteristics e.g., age, ethnicity, disability, housing status, employment status, and religiosity/spirituality
- your mental health, including depression, anxiety, and suicidality
- any microaggressions experienced
- and gender minority stresses experienced.

The survey will also include questions on:

- gender identity
- transition,
- how you feel people perceive you.

We are using these questions as they allow us to capture the diversity of gender experiences, but they also could indicate possible areas where further support is needed. In this project we aim to describe how experiences of mental health within the transgender community might differ by characteristics such as ethnicity, disability, housing status, employment status, and religiosity/spirituality. This is because previous research suggests that people from minority backgrounds within the trans community differ in their risk of depression, anxiety, and suicidal thoughts**.** We are therefore collecting data describing these characteristics. We will use this information to examine relationships between depression, anxiety, and suicide risks, and assess whether microaggressions are more or less prevalent in relation to these different groups within the trans and non-binary community. As mentioned, this survey will touch on sensitive issues, especially suicide, to do so we will ask questions such as “have you ever attempted to end your life” and “have you ever had thoughts of wanting to end your life?” These questions have been taken from already established questionnaires.

The survey should take 20-30 minutes in total to complete. There is an option to save and return to the survey should you need a break at any point.

Privacy and your data

If you were to take part in this study, your data would be stored and managed securely using UCL’s Data Safe Haven. Your data will be pseudonymised and kept strictly confidential. Pseudonymisation in this instance means we will not ask you to divulge information such as name, date of birth, address, however we do ask for identifiable information, such as ethnicity, disability, gender, religious/spiritual beliefs, which possess some risk for identification. Data will be collected via Opinio, a secure web-based survey platform. The survey will be live for two years (from 31.08.2021 – 31.08.2023). After the completion of the study, your data will be archived in the UK Data Service. The UK Data Service will hold the data and share this with other researchers. Researchers will need to make an application to the UK Data Service prior to gaining access to the dataset. all identifiable information will be removed from the dataset prior to being deposited in the UK Data Service. If at any time you wish to withdraw your data after submitting, you can do this by emailing TMH@ucl.ac.uk. **Please note that you will need to link your email address with your survey responses for your data to be identified and removed.** Linking your email address to your submitted responses will also allow us to make any corrections to your personal data, should you request for this to happen.

Privacy notice

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This ‘local’ privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our ‘general’ privacy notice: For participants in research studies, click here

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the ‘local’ and ‘general’ privacy notices.

The lawful basis that will be used to process your personal data are: ‘Public task’ for personal data and’ Research purposes’ for special category data.

Your personal data will be processed so long as it is required for the research project. If we are able to anonymise or pseudonymise the personal data, you provide we will undertake this and will endeavour to minimise the processing of personal data wherever possible.

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk.

Benefits and possible harms of taking part

The findings of this study will hopefully improve policy around the mental health of trans and non- binary people, as well as help develop and improve upon therapeutic practice.

The survey does by its nature touch on sensitive topics that may cause you some distress, therefore it is important that you are aware of short- term and long-term support that is available to you. These are given at multiple points in the survey, should you need them, and have been included on this information sheet.

Support available

- **LGBTQ+Switchboard** LGBT+ helpline for more than 45 years. Open daily 10am-10pm. Call 0300 330 0630.
- **Gendered Intelligence** Support Line- Mon/Tues/Thurs 2-7pm/Wed/Friday 10-3pm 0330 3559678Text/Whatsapp: 07592 650 496. supportline@genderedintelligence.co.uk.
- **Mindline Trans+** support line for trans, non-binary or gender variant, and their families, friends, colleagues, and carers. The phone line is open Mondays and Fridays 8pm to midnight. Phone: 0300 330 5468.
- **Give Us a Shout** is the UK's first 24/7 text service, free on all major mobile networks, for anyone in crisis anytime, anywhere. It's a place to go if you're struggling to cope and you need immediate help. Text Shout to 85258.
- Switchboard - the LGBT+ helpline - 0300 330 0630, open 10am–10pm every day. Email support: chris@switchboard.lgbt/. Online chat is also available through their homepage
- Mindout - MindOut Lesbian, Gay, Bisexual, Trans & Queer Mental Health Service - 01273234839 or email info@mindout.org.uk or directly through their Online Support service, dates, and times on the website.
- Mind provide advice and support to empower anyone experiencing a mental health problem. 0300 123 3393 (9am-6pm, Monday to Friday) info@mind.org.uk

- SAMH (Scottish Association for Mental Health) – supporting people in Scotland to improve their mental health. Telephone: 0141 530 1000. Email: enquire@samh.org.uk.
- Samaritans offer a safe place to talk any time you like, in your own way – about whatever's getting to you. You don't have to be suicidal. 24hr FREE phone calls from landline or mobile 116 123 / Email: jo@samaritans.org
- 116 123 / Email: jo@samaritans.org

Consent form

Please complete this form after you have read the Information Sheet.

Contact Details:

Title of study: Mental health of transgender people and the role of microaggression in depression, anxiety, and suicidality

Department: Division of Psychiatry, UCL

Name and Contact details of the Researcher: Talen Wright, TMH@ucl.ac.uk, talen.wright.20@ucl.ac.uk

Name and Contact details of the Principal Researcher: Dr Alexandra Pitman a.pitman@ucl.ac.uk

Name and Contact Details of the UCL Data Protection Officer: data-protection@ucl.ac.uk (reference: **Z6364106/2021/07/03 health research)**

This study has been approved by the UCL Research Ethics Committee: Project ID Number: **200485/001**

Thank you for considering taking part in this research. This form is accompanied by the Participant Information Sheet (PIS), please ensure you have had a chance to read through this, as it details the purpose of this study. If you have any questions about the research before taking part, please reach out to the Researcher (Talen Wright) using her email, or you may use the study's email address.

I confirm that I understand that by ticking each box below I am consenting to this element of the study. I understand that it will be assumed that unticked boxes means that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element that I may be deemed ineligible for the study

		Tick Box
1	I confirm that I have read and understood the information sheet for the study above, and agree to participate in this survey, which will take approximately 20-30 minutes to complete.	

2	I understand that my data, including email address, will be archived in UCL's Data Safe Haven, and will be kept strictly confidential.	
3	I understand that my personal data, such as gender identity, religious/spiritual beliefs, ethnicity, disability, will be used for the purposes explained to me. I understand that according to data protection legislation, 'public task' will be the lawful basis for processing.	
4	I agree to my pseudonymised data being used in reports, papers, and publications resulting from this study, but that I will not be identifiable in any of these outputs. I understand that all information used is anonymous.	
5	Pseudonymised data arising from this survey, will be archived in a Data Repository (such as the UK Data Service), so that they may be shared with other researchers.	
6	If the themes of this survey are too difficult to handle, I am aware of the available support should I require it (as provided in the participant information sheet, and accessible as a webpage the end of the survey).	
7	I am aware that I can ask for my data to be removed at any time, and for any reason, to do this I need contact TMH@ucl.ac.uk to start the process. **REMINDER: ensure your email address is attached to your survey responses**	
8	I understand that my information may be subject to review by responsible individuals from the University and the ESRC for monitoring and audit purposes.	
9	I am aware of who I should contact if I wish to lodge a complaint	
10	I would like the study report and other outputs sent to me from a neutral email address (TMH@ucl.ac.uk) and email subject, and with my email address invisible to any other recipients.	

Email (for research findings and outputs)

Date

Survey

UCL Transgender and non-binary mental health

Thank you for agreeing to take part in this UCL trans and non-binary mental health survey.

The following questions are designed to find out about who you are and how trans people with different identities experience their mental health. All text boxes are optional and are made available in case you find that the response options offered do not describe your experience. There are several places where you can find support should you need it, please visit ucl.ac.uk/xxxxx for further information on available support or consult with the Participant information sheet.

I understand that:

- I agree to participate in this survey, which will take approximately 20-30 minutes to complete.

☐Yes

☐No

- I understand that my data, including email address, will be archived in UCL's Data Safe Haven, and will be kept strictly confidential.

☐Yes

☐No

- I agree to my anonymised data being used in reports, papers, and publications resulting from this study, but that I will not be identifiable in any of these outputs. I understand that all information used is anonymous.

☐Yes

☐No

- Research data arising from this survey, will be archived in a Data Repository (such as the UK Data Service), so that they may be shared with other researchers.

☐Yes

☐No

- If the themes of this survey are too difficult to handle, I am aware of the available support should I require it (as provided in the participant information sheet, and accessible as a webpage the end of the survey).

☐Yes

☐No

- I am aware that I can ask for my data to be removed at any time, and for any reason, to do this I need contact studyname@ucl.ac.uk to start the process. **REMINDER: ensure your email address is attached to your survey responses**

☐Yes

☐No

- I would like the study report and other outputs sent to me from a neutral email address (xxx@ucl.ac.uk) and email subject, and with my email address invisible to any other recipients.

☐Yes

☐No

Email (for research findings and outputs)

Date

- I consent to starting the study

☐Yes

☐No

1) What is your age?

- Under 18*
- 18-25
- 26-34
- 35-44
- 45-54
- 55+

***if under 18 survey will end and list of relevant resources and support will be presented

Thank you for showing interest, however this survey is designed for people for who aged 18 or older. If you are struggling with any of the issues mentioned in this survey, there is a lot of support out there for you. Please see below for details:

- Mermaids (https://mermaidsuk.org.uk/young-people/)
- Gendered Intelligence (http://genderedintelligence.co.uk/support/trans-youth/groups)
- Stonewall (https://www.stonewall.org.uk/category/youth-groups)
- All Sorts Youth (for those in Brighton and Hove) (https://www.allsortsyouth.org.uk/young-people)
- GenderJam NI (for those in Northern Ireland) (https://www.facebook.com/GenderJamNI/)
- If you need any immediate support please call Childline (0800 1111), Samaritans (08457 90 90 90), or you can discuss with Mermaids using their “chat now” function.

2) Do you consider yourself to be transgender, non-binary, or gender diverse?

- Yes
- Questioning
- No*

*If no, survey ends for participant. A screen will follow with the following text:

Thank you again for showing interest in this project, this project is only concerned with those who consider themselves to be transgender, non-binary, and/or gender diverse, or may be questioning their gender. However, If you have a history of mental health difficulties you may find the following list of sources of support useful:

- Rethink https://www.rethink.org/advice-and-information/about-mental-illness/learn-more-about-symptoms/NSSH/
- Young Minds https://youngminds.org.uk/find-help/feelings-and-symptoms/NSSH/
- MIND https://www.mind.org.uk/information-support/types-of-mental-health-problems/NSSH/for-friends-and-family/
- Mental Health Foundation https://www.mentalhealth.org.uk/publications/truth-about-NSSH
- The Mix https://www.themix.org.uk/mental-health/NSSH/supporting-someone-who-NSSHs-5690.html
- Samaritans : https://www.samaritans.org/
- NHS https://www.nhs.uk/conditions/NSSH/

3) Which of the following best describes your gender? [you may select multiple options]

- I have a constant and clear gender as a woman and/or trans woman
- I have a constant and clear gender as a man and/or trans man
- I have a constant and clear non-binary gender
- I have a variable or fluid non-binary gender or genders
- I have no gender
- I am unsure of my gender
- Gender not specified
- Prefer not to say

4) Do you consider a physical and/or medical ‘transition’ to be relevant to you? (by this we mean a process of using hormones and/or surgery to express your gender)”?

- No, I have not undergone and do not propose to undergo any part of a process of physical transition
- Yes, I am proposing to undergo a process (or part of a process) of a physical transition
- Yes, I am currently undergoing a process (or part of a process) of physical transition
- Yes, I have undergone a process (or part of a process) of physical transition

- Unsure
- Prefer not to say
- Other

If other please state
____
____
____

5) Do you consider social ‘transition’ to be relevant to you? (by this we mean changing name, pronouns, and/or clothing to express your gender)”?

- No, I have not undergone and do not propose to undergo any part of a process of transition
- Yes, I am proposing to undergo a process (or part of a process) of transition
- Yes, I am currently undergoing a process (or part of a process) of transition
- Yes, I have undergone a process (or part of a process) of transition
- Unsure
- Prefer not to say
- Other

If other please state
____
____
____

6) How do you think you are usually perceived/seen by others?

- As the gender I identify as
- As the sex I was assigned at birth
- As a trans person
- Prefer not to say
- I don’t know
- Other

If other please state
____
____
____

7) In which country are you normally resident?

- England
- Northern Ireland
- Scotland
- Wales
- Other

If other please state:

____
____
____

8) Would you consider where you live to be urban or rural? Urban here may mean a city or large town, whereas rural would be a village or small town

- Rural
- Urban

9) Which of the following options best describes your ethnicity? (please select all that apply)

Asian / Asian British

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background

Black / African / Caribbean / Black British

- African
- Caribbean
- Any other Black / African / Caribbean background

Mixed / Multiple ethnic groups

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed / Multiple ethnic background

White

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller

- Any other White background

Other ethnic group

- Arab
- Any other ethnic group

If other please state

____

10) Do you have any formal qualifications from school or further education? Please indicate the HIGHEST qualification you hold.

- No, I have no formal qualifications
- GCSE(s) or equivalent
- A' level(s), Scottish Highers, or equivalent
- Vocational qualification e.g., City and Guilds or HND
- University degree: e.g., BA or BSc
- Master’s degree or equivalent higher professional qualification
- Doctorate: e.g., MD or PhD

11) What type of accommodation do you currently live in? (in the previous 12 months) (tick all that apply)

- House
- Flat, maisonette or bedsit
- Sheltered flat
- Bed and breakfast hostel or lodging house
- Squat
- None: homeless

12) What is your housing situation? (tick all that apply)

- Homeowner
- Tenant
- Living with relative/friend
- Hostel
- Care home
- Homeless
- Other

If other, please state

____

____

13) How would you describe your current occupational status? (tick all that apply)

- Employed full-time (more than 20 hours per week)
- Employed part-time (less than 20 hours per week)
- Full-time homemaker (including caring for young children)
- Carer for parents or other relatives
- Student
- Waiting for a job you have been offered
- Waiting for temporary work
- Temporarily off work (e.g., for maternity leave; signed-off work as temporarily sick)
- Unemployed and looking for work
- Unemployed and unable to work due to long-term sickness or disability
- Retired
- Furloughed due to COVID
- Redundant due to COVID

14) How would you describe your sexual orientation? (tick all that apply)

- Lesbian
- Gay
- Bisexual
- Pansexual
- Heterosexual
- Queer
- Questioning
- Asexual
- Aromantic
- Prefer not to say
- Not listed

If your sexuality is not listed please state below:

____
____
____

15) What best describes your religious and/or spiritual beliefs?

- No religion and/or spiritual beliefs

- Buddhist
- Christian (all denominations)
- Hindu
- Jewish
- Muslim
- Pagan
- Sikh
- Any other religion

If your religion and/or spirituality is not listed, please provide this below

____
____
____

16) A - Do you have a physical or mental health condition or illness lasting or expected to last 12 months or more?

- Yes
- No

B - Does this condition or illness affect you in any of the following areas?

- Vision (for example blindness or partial sight)
- Hearing (for example deafness or partial hearing)
- Mobility (for example walking short distances or climbing stairs)
- Dexterity (for example lifting or carrying objects, using a keyboard)
- Learning or understanding or concentrating
- Memory
- Mental health
- Stamina or breathing or fatigue
- Socially or behaviourally (for example associated with autism, attention deficit disorder or Aspergers' syndrome)
- Other (please specify)
- None of the above

If your disability is not stated, please feel free to state here:

____
____
____

If yes to part A

17) does your condition or illness reduce your ability to carry-out day-to-day activities?
- Yes, a lot
- Yes, a little
- Not at all

Next we will ask you some questions about your mental health. These questions will focus on feelings of depression and, anxiety, or thoughts about NSSH or suicide. A reminder that all answers are kept strictly confidential and that your data will be anonymised. Data collection will not be monitored in real time (i.e., there may be a delay of some months before data are analysed). This means that responses here will not trigger an intervention from us or impact any care you are currently accessing or attempting to access.

18) Do you have a history of non-suicidal self-harm (that is self-harm without the intention of dying)?

- Yes
- No

19) Have you ever attempted to end your life?

- Yes
- No

20) Have you ever had thoughts of wanting to end your life (suicidal thoughts)?

- Yes
- No

21) Have you ever been diagnosed with any of the following mental health conditions? Note that some of these conditions overlap (e.g., anxiety, and phobic anxiety disorder). Please tick however many apply.

- I have not been diagnosed with any mental health conditions
- Anxiety, not specified

- Bipolar disorder
- Depression, not specified
- Generalised anxiety disorder
- Major depressive disorder
- Obsessive-compulsive disorder
- Panic disorder, with or without agoraphobia
- Phobic anxiety disorder
- Postpartum depression
- Post-traumatic stress disorder
- Other

If other, please describe below:

____
____
____

The following questions have been taken from validated measures which will ask you about low mood and depression, and about feelings of anxiety.

22) Over the **last two weeks,** how often have you been bothered by any of the following problems?

	Not at all	*Several days*	*More than half the days*	*Nearly every day*
Little interest or pleasure in doing things?	0	1	2	3
Feeling down, depressed, or hopeless?	0	1	2	3
Trouble falling or staying asleep, or sleeping too much?	0	1	2	3
Feeling tired or having little energy?	0	1	2	3
Poor appetite or overeating?	0	1	2	3
Feeling bad about yourself - or that you are a failure or have let yourself or your family down?	0	1	2	3
Trouble concentrating on things, such as reading the news or watching television?	0	1	2	3

Moving or speaking so slowly that other people could have noticed?	0	1	2	3
Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?	0	1	2	3

23) Over **the last two weeks**, how often have you been bothered by any of the following problems***?***

	Not at all	*Several days*	*More than half the days*	*Nearly everyday*
Feeling nervous, anxious or on edge?	0	1	2	3
Not being able to stop or control worrying?	0	1	2	3
Worrying too much about different things?	0	1	2	3
Trouble relaxing?	0	1	2	3
Being so restless that it is hard to sit still?	0	1	2	3
Becoming easily annoyed or irritable?	0	1	2	3
Feeling afraid as if something awful might happen?	0	1	2	3

The following questions are going to ask you about suicidal thinking, feelings, and any attempts you may have made. As a friendly reminder, your answers will not be monitored and we will be unable to intervene, if you are feeling suicidal, specific trans helplines along with widely accepted suicide support have been included in the Participant Information Sheet, and at the end of this survey.

Please check the number beside the statement or phrase that best applies to you.

24) Have you ever thought about attempting to kill yourself? (check one only)
1. Never
2. It was just a brief passing thought
3a. I have had a plan at least once to kill myself but did not try to do it

3b. I have had a plan at least once to kill myself and really wanted to die

4a. I have attempted to kill myself, but did not want to die

4b. I have attempted to kill myself, and really hoped to die

25) How often have you thought about killing yourself in the past year? (check one only)
1. Never
2. Rarely (1 time)
3. Sometimes (2 times)
4. Often (3-4 times)
5. Very Often (5 or more times)

26) Have you ever told someone that you were going to attempt suicide or that you might do it? (check one only)
1. No

2a. Yes, at one time, but did not really want to die

2b. Yes, at one time, and really wanted to die

3a. Yes, more than once, but did not want to do it

3b. Yes, more than once, and really wanted to do it

27) How likely is it that you will attempt suicide someday? (check one only)
0. Never
1. No chance at all
2. Rather unlikely
3. Unlikely
4. Likely
5. Rather likely
6. Very likely

	Very Uncertain									*Very Certain*
How certain are you that you could control future feelings of wanting to harm yourself	0	1	2	3	4	5	6	7	8	9

<u>We are now going to ask you some questions about how people interact with you.</u>

<u>These questions are from standardised and validated measures, which means we are able to compare scores between people taking this study and people who have taken other studies.</u>

The following questions ask you to think about yourself and other people. Please respond to each question by using your own current beliefs and experiences, **not** what you think is true in general, or what might be true for other people. Please base your responses on how you've been feeling recently. Use the rating scale to find the number that best matches how you feel and select that number. There are no right or wrong answers: we are interested in what you think and feel.

	Not at all true for me			*Somewhat true for me*			*Very true for me*
These days, the people in my life would be better off if I were gone	1	2	3	4	5	6	7
These days, the people in my life would be happier without me	1	2	3	4	5	6	7
These days, I think my death would be a relief to the people in my life	1	2	3	4	5	6	7
These days, I think they people in my life wish they could be rid of me	1	2	3	4	5	6	7

These days, I think I make things worse for the people in my life	1	2	3	4	5	6	7
These days, I feel like I belong	1	2	3	4	5	6	7
These days I am fortunate to have many caring and supporting friends	1	2	3	4	5	6	7
These days, I feel disconnected from other people	1	2	3	4	5	6	7
These days I often feel like an outsider in social gatherings	1	2	3	4	5	6	7
These days I am close to other people	1	2	3	4	5	6	7

For each of the following items, please indicate whether or not you strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree with the statements.

	Strongly Disagree	*Disagree*	*Neither Agree nor Disagree*	*Agree*	*Strongly Agree*
A loved one (e.g., family or friend) has told me that my gender nonconformity is just a phase.	1	2	3	4	5
Someone told me that my transgender identity or my gender nonconformity was just a phase	1	2	3	4	5
I was told that I made a family member uncomfortable because of my gender nonconformity or transgender identity.	1	2	3	4	5
LGB people have told me that my gender nonconformity is just a phase.	1	2	3	4	5
Strangers and acquaintances have called me by the wrong personal pronoun.	1	2	3	4	5
A loved one (e.g., friend or family) has called me by the wrong personal pronoun.	1	2	3	4	5
Someone wanted to engage in a sexual act with me only because they view transgender people as exotic.	1	2	3	4	5
Someone (e.g., family, friend, co-worker) has asked me personal questions about gender reassignment.	1	2	3	4	5
Someone (e.g., family, friend, co-worker) has asked me if I feel like	1	2	3	4	5

I'm trapped in the body of another sex.					
Someone avoided sitting next to me in a public or government setting (e.g., on public transport, libraries, council office, or general practitioner practice).	1	2	3	4	5
Someone avoided sitting next to me at a bar or restaurant because I am gender nonconforming.	1	2	3	4	5
My employer or co-worker was unfriendly to me because I dress gender nonconforming.	1	2	3	4	5
I was told that I complain too much about societal discrimination against gender nonconforming people.	1	2	3	4	5
I was told that I complain too much about how people react to my gender nonconformity.	1	2	3	4	5

What proportion of these microaggressions happen online compared to face to face?

1) Online only
2) Mostly online, sometimes face to face
3) Online and face to face equally
4) Mostly face to face, sometimes online
5) Only face to face

Please think carefully about your life as you answer the questions below. For each question, read the question and then answer it twice: answer once for what your ENTIRE LIFE (from when you were a child to now) has been like, and then once for what the PAST YEAR has been like. Circle the number that best describes events in YOUR ENTIRE LIFE, and in the PAST YEAR, using these rules:

Circle 1 If the event has NEVER happened to you.

Circle 2 If the event happened ONCE IN A WHILE (less than 10% of the time)

Circle 3 If the event happened SOMETIMES (10–25% of the time)

Circle 4 If the event happened A LOT (26–49% of the time)

Circle 5 If the event happened MOST OF THE TIME (50–70% of the time)

Circle 6 If the event happened ALMOST ALL OF THE TIME (more than 70% of the time)

	Never	*Once in a while*	*Sometimes*	*A lot*	*Most of the time*	*All of the time*
Microaggressions and harassment						
Have you ever had others deny or minimize your experiences of transgender discrimination?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever experienced people in your life who refused to use your true gender pronouns?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been judged by others after they learned about your gender identity?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever heard comments that all transgender persons are the same?						
Lifetime	1	2	3	4	5	6

Past year	1	2	3	4	5	6
Have you ever received demeaning messages about your physical appearance?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever heard intrusive comments about your body?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been expected to be or act in gender-conforming ways?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever experienced harassment from family members?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Career and work opportunities						
Have you ever experienced limited mentorship in career settings?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6

Have you ever been denied opportunities in the workplace?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been denied employment						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Healthcare experiences						
Have you ever experienced maltreatment in healthcare settings?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been discriminated against while trying to access health care?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever had to educate doctors, nurses, or administrative staff about transgender-related healthcare?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Experiences with law enforcement						
Have you ever experienced						

harassment by law enforcement?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been stopped by law enforcement and unfairly questioned?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever been unfairly questioned about your gender identity by law enforcement?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Bullying and harassment in education						
Have you ever experienced harassment or bullying from peers in educational settings?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever had teachers or instructors refuse to stop abuse or bullying directed towards you?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6

Have you ever experienced social rejection in educational settings?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6
Have you ever experienced harassment from faculty, staff, and administrators in educational settings?						
Lifetime	1	2	3	4	5	6
Past year	1	2	3	4	5	6

The next few questions are about experiences in your day-to-day life and experiences with others.

Please tick all that apply (for example, you may tick both ‘Yes, after age 18’ and ‘Yes, in the past year’ options if both are true).

In this survey gender expression means how masculine/feminine/androgynous one appears to the world based on many factors such as mannerisms, dress, personality, etc.

Please indicate how much you agree with the following statements.

	Never	*Yes, before age 18*	*Yes, after age 18*	*Yes, in the past year*
I have had difficulty getting medical or mental health treatment (transition-related or other) because of my gender identity or expression.	0	1	2	3
Because of my gender identity or expression, I have had difficulty	0	1	2	3

finding a bathroom to use when I am out in public.				
I have experienced difficulty getting identity documents that match my gender identity.	0	1	2	3
I have had difficulty finding housing or staying in housing because of my gender identity or expression.	0	1	2	3
I have had difficulty finding employment or keeping employment, or have been denied promotion because of my gender identity or expression	0	1	2	3
I have had difficulty finding a partner or have had a relationship end because of my gender identity or expression.	0	1	2	3
I have been rejected or made to feel unwelcome by a religious community because of my gender identity or expression.	0	1	2	3
I have been rejected by or made to feel unwelcome in my ethnic/racial community because of my gender identity or expression.	0	1	2	3
I have been rejected or distanced from friends because of my gender identity or expression.	0	1	2	3
I have been rejected at school or work because of my gender identity or expression.	0	1	2	3
I have been rejected or distanced from family because of my gender identity or expression	0	1	2	3
I have been verbally harassed or teased because of my gender identity or expression. (For example, being called “it”)	0	1	2	3

I have been threatened with being outed or blackmailed because of my gender identity or expression.	0	1	2	3
I have had my personal property damaged because of my gender identity or expression	0	1	2	3
I have been threatened with physical harm because of my gender identity or expression.	0	1	2	3
I have been pushed, shoved, hit, or had something thrown at me because of my gender identity or expression.	0	1	2	3
I have had sexual contact with someone against my will because of my gender identity or expression.	0	1	2	3

	Strongly Disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
I have to repeatedly explain my gender identity to people or correct the pronouns people use.	0	1	2	3	4
I have difficulty being perceived as my gender.	0	1	2	3	4
I have to work hard for people to see my gender accurately.	0	1	2	3	4
I have to be “hypermasculine” or “hyperfeminine” in order for people to accept my gender.	0	1	2	3	4
People don’t respect my gender identity because of my appearance or body.	0	1	2	3	4
People don’t understand me because they don’t see my gender as I do.	0	1	2	3	4

I resent my gender identity or expression.	0	1	2	3	4
My gender identity or expression makes me feel like a freak.	0	1	2	3	4
When I think of my gender identity or expression, I feel depressed.	0	1	2	3	4
When I think about my gender identity or expression, I feel unhappy.	0	1	2	3	4
Because my gender identity or expression, I feel like an outcast.	0	1	2	3	4
I often ask myself: Why can't my gender identity or expression just be normal?	0	1	2	3	4
I feel that my gender identity or expression is embarrassing.	0	1	2	3	4
I envy people who do not have a gender identity or expression like mine.	0	1	2	3	4
My gender identity or expression makes me feel special and unique.	0	1	2	3	4
It is okay for me to have people know that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I have no problem talking about my gender identity and gender history to almost anyone.	0	1	2	3	4
It is a gift that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I am like other people, but I am also special because my gender identity is different from my sex assigned at birth.	0	1	2	3	4

I am proud to be a person whose gender identity is different from my sex assigned at birth.	0	1	2	3	4
I am comfortable revealing to others that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I'd rather have people know everything and accept me with my gender identity and gender history.	0	1	2	3	4

	Yes, either all or most	*No, not living in affirmed gender*
Do you live currently live in your affirmed gender all or almost all of the time?	0	1

	Strongly Disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
If I express my gender identity/history, others wouldn't accept me.	0	1	2	3	4
If I express my gender identity/history, employers would not hire me.	0	1	2	3	4
If I express my gender identity/history, people would think I am mentally ill or "crazy."	0	1	2	3	4
If I express my gender identity/history, people would think I am disgusting or sinful.	0	1	2	3	4
If I express my gender identity/history, most people would think less of me.	0	1	2	3	4
If I express my gender identity/history, most people would look down on me.	0	1	2	3	4
If I express my gender identity/history, I could be a victim of crime or violence.	0	1	2	3	4

If I express my gender identity/history, I could be arrested or harassed by police.	0	1	2	3	4
If I express my gender identity/history, I could be denied good medical care.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I don’t talk about certain experiences from my past or change parts of what I will tell people.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I modify my way of speaking.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I pay special attention to the way I dress or groom myself.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I avoid exposing my body, such as wearing a bathing suit or nudity in locker rooms.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I change the way I walk, gesture, sit, or stand	0	1	2	3	4
I feel part of a community of people who share my gender identity.	0	1	2	3	4
I feel connected to other people who share my gender identity.	0	1	2	3	4
When interacting with members of the community that shares my gender identity, I feel like I belong	0	1	2	3	4
I’m not like other people who share my gender identity.	0	1	2	3	4

I feel isolated and separate from other people who share my gender identity.	0	1	2	3	4

The next questions are about relationships with others. For each one, please say how often you feel that way.

	Hardly ever, or never	*Some of the time*	*Often*		
How often do you feel that you lack companionship?	1	2	3		
How often do you feel left out?	1	2	3		
How often do you feel isolated from others?	1	2	3		
	Never	Hardly ever	Occasionally	Some of the time	Often/always
How often do you feel lonely?	1	2	3	4	5

It is completely normal to feel low in mood at times. People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed

Please indicate what you *generally* do, not what you think you should do.

How often do you...	*Almost never*	*Sometimes*	*Often*	*Almost Always*
Think “What am I doing to deserve this?”	1	2	3	4

Think "Why do I always react this way?"	1	2	3	4
Think about a recent situation, wishing it had gone better	1	2	3	4
Think "Why do I have problems other people don't have?"	1	2	3	4
Think "Why can't I handle things better?"	1	2	3	4
Analyse recent events to try to understand why you are depressed	1	2	3	4
Go away by yourself and think about why you feel this way	1	2	3	4
Analyse your personality to try to understand why you are depressed	1	2	3	4
Go someplace alone to think about your feelings	1	2	3	4

You have reached the end of the questionnaire. Thank you very much for your time.

All data have been saved on a secure password-protected central UCL drive in line with data protection legislation. Further details on how we will protect confidentiality are available in the Participant Information Sheet.

We will also be recruiting participants to join the second study in this project. The second study aims to measure day-to-day moods and feelings and experiences of microaggressions. If you are interested in participating, please indicate so below, followed by your email address. The email address will be stored in a separate database and will not be linked to the data collected in the study you have just completed, or any subsequent study data collection.

Would you like to receive more information about the second study? Please note that you would receive information about the study from a neutral email address and with a neutral subject header e.g., Study recruitment. Your email address will also not be visible to others.

- Yes
- No

If yes, please provide your email address

email address

confirm email address

Please bookmark our study website www.ucl.ac.uk/xxxxxxxxxxxxxx, where we will be publishing the findings of our study. If you would like to be emailed a copy of the study’s findings please provide your email address below. Note that we will email the findings to you from a neutral email address and with a neutral subject header e.g., Study findings.

email address

confirm email address

Expanded descriptive details of the cohort

Age

Participants were asked to provide their ages within categories. The category with the highest endorsement was 18-25 (39.2%) followed by those aged 26-34 years old (33.6%).

18-24 Those in this age category (n=225) had a mean PHQ-9 score of 13.39 (SD=6.36). On the GAD-7, 18–24-year-olds had a mean score of 11.53 (SD=6.01). For NSSH, suicidal thoughts, and suicide attempt outcomes, 93.8% (n=211) had endorsed suicidal thoughts at some point in their lifetime, 40.0% (n=90) had made an attempt to take their life, and 82.7% (n=186) had engaged in NSSH.

25-34 Those in this age category (n=193) had a mean PHQ-9 score of 11.82 (SD=6.04). On the GAD-7, 25–34-year-olds had a mean score of 9.55 (SD=5.66). For NSSH, suicidal thoughts, and suicide attempt outcomes, 92.2% (n=178) had endorsed suicidal thoughts at some point in their lifetime, 41.5% (n=80) had made an attempt to take their life, and 82.9% (n=160) had engaged in NSSH.

35-44 Those in this age category (n=87) had a mean PHQ-9 score of 11.18 (SD=6.74). On the GAD-7, 35–44-year-olds had a mean score of 9.10 (SD=6.23). For NSSH, suicidal thoughts, and suicide attempt outcomes, 87.4% (n=76) had endorsed suicidal thoughts at some point in their lifetime, 43.7% (n=38) had made an attempt to take their life, and 73.6% (n=64) had engaged in NSSH.

45+ Those in this age category (n=69) had a mean PHQ-9 score of 9.54 (SD=6.91). On the GAD-7, 45+ year-olds had a mean score of 8.00 (SD=5.82). For NSSH, suicidal thoughts, and suicide attempt outcomes, 87.0% (n=60) had endorsed suicidal thoughts at some point in their lifetime, 33.3% (n=23) had made an attempt to take their life, and 55.1% (n=38) had engaged in NSSH.

When looking at microaggression experiences, those in the lowest age category (18-24) had the highest mean of microaggression scores (43.92 SD 12.82), followed by those aged 35-44 (42.03 SD 14.69). then 25-34 (41.83 SD 12.42), and finally 45+ (39.96 SD 14.87).

Gender identity

Participants gave responses to gender identity, there were some inconsistencies in the numbers across the three identity categories, with non-binary people comprising the largest group (n=251, 46.2%), followed by trans women (n=188, 34.6%), and lastly with trans men (n=104, 19.2%).

Trans men Those who reported their identity as trans men (n=104) had a mean score on the PHQ-9 of 13.60 (SD 6.47). On the GAD-7 for anxiety, trans men had a mean score of 10.95 (SD 5.69). For NSSH, suicidal thoughts, and suicide attempt outcomes, 98.1% (n=102) had endorsed suicidal thoughts at some point in their lifetime, 50.0% (n=52) had made an attempt to take their life, and 86.5% (n=90) had engaged in NSSH.

Trans women Those who reported their identity as trans women (n=188) had a mean score on the PHQ-9 of 13.60 (SD 6.47). On the GAD-7 for anxiety, trans men had a mean score of 10.95 (SD 5.69). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.5% (n=172) had endorsed suicidal thoughts at some point in their lifetime, 36.7% (n=69) had made an attempt to take their life, and 67.6% (n=127) had engaged in NSSH.

Non-binary Those who reported their identity as non-binary (n=251) had a mean score on the PHQ-9 of 13.60 (SD 6.47). On the GAD-7 for anxiety, trans men had a mean score of 10.95 (SD 5.69). For NSSH, suicidal thoughts, and suicide attempt outcomes, 89.6% (n=225) had endorsed suicidal thoughts at some point in their lifetime, 39.8% (n=100) had made an attempt to take their life, and 82.5% (n=207) had engaged in NSSH.

For microaggression experiences as measured by the GIMS, trans men had a mean score of 43.58 (SD 13.06), trans women had a mean score of 43.39 (SD 14.02), and non-binary people had a mean score of 41.09 (12.40).

Perceived gender

Participants were asked to reflect on how they believe their gender is perceived by others in daily life. 114 (19.9%) of participants reported being seen as a trans person, 116 (20.2%) as the gender they identify as, 247 (43.0%) as the sex they were assigned at birth, and 49 (8.5%) not knowing and a further 48 (8.4%) stating other as an option. The following will discuss the first three options in relation to the outcomes and exposure.

As a trans person Those who reported believing they were seen as a trans person by others (n=114) had a mean score on the PHQ-9 of 12.23 (SD 6.63). On the GAD-7 for anxiety, those who felt they were seen as a trans person by others had a mean score of 10.15 (SD 5.96). For NSSH, suicidal thoughts, and suicide attempt outcomes, 95.6% (n=109) had endorsed suicidal thoughts at some point in their lifetime, 45.6% (n=52) had made an attempt to take their life, and 71.9% (n=82) had engaged in NSSH.

As the gender they identify as Those who reported believing they were seen as the gender they identify as from others (n=116) had a mean score on the PHQ-9 of 11.05 (SD 6.66). On the GAD-7 for anxiety, those who felt they were seen as the gender they identify with from others had a mean score of 9.45 (SD 6.12). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.4% (n=106) had endorsed suicidal thoughts at some point in their lifetime, 39.7% (n=46) had made an attempt to take their life, and 76.7% (n=89) had engaged in NSSH.

As the sex they were assigned at birth Those who reported believing they were seen as the sex they were assigned at birth by others (n=247) had a mean score on the PHQ-9 of 12.49 (SD 6.54). On the GAD-7 for anxiety, those who felt people perceived their gender to be that of the sex they were assigned at birth had a mean score of 10.49 (SD 6.04). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.1% (n=225) had endorsed suicidal thoughts at some point in their lifetime, 41.7% (n=103) had made an attempt to take their life, and 81.8% (n=202) had engaged in NSSH.

When looking at experiences of microaggressions using the GIMS, those who felt they were seen as a trans person had a mean score of 47.24 (SD 13.02), those who felt they were seen as the gender they identify with had a mean score of 42.28 (SD 15.04). Lastly, those who felt they were seen as the sex they were assigned at birth had a mean score of 39.99 (SD 11.93).

Physical transition

Participants were asked to respond to a question on the stage of their physical transition. 13.0% (n=70) of participants stated that they had not undergone or intended to undergo a physical transition, 21.1% (n=123) were proposing to undergo a physical transition, 34.7% (n=200) were currently undergoing a physical transition, and 18.6% (n=113) had undergone a physical transition.

Not undergone physical transition Those who had not undergone a physical transition (n=70) had a mean score on the PHQ-9 of 10.39 (SD 6.26). On the GAD-7 for anxiety, those who had not undergone a physical transition had a mean score of 8.41 (SD 5.96). For NSSH, suicidal thoughts, and suicide attempt outcomes, 84.3% (n=59) had endorsed suicidal thoughts at some point in their lifetime, 37.1% (n=26) had made an attempt to take their life, and 71.4% (n=50) had engaged in NSSH.

Proposing to undergo physical transition Those who were proposing to undergo physical transition (n=123) had a mean score on the PHQ-9 of 13.53 (SD 6.45). On the GAD-7 for anxiety, those who were proposing to undergo physical transition had a mean score of 11.41 (SD 6.17). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.3% (n=116) had endorsed suicidal thoughts at some point in their lifetime, 40.7% (n=50) had made an attempt to take their life, and 83.7% (n=103) had engaged in NSSH.

Currently undergoing physical transition Those who were currently undergoing physical transition (n=200) had a mean score on the PHQ-9 of 12.52 (SD 5.95). On the GAD-7 for anxiety, those who were currently undergoing a physical transition had a mean score of 10.23 (SD 5.67). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.5% (n=189) had endorsed suicidal thoughts at some point in their lifetime, 44.5% (n=89) had made an attempt to take their life, and 76.5% (n=153) had engaged in NSSH.

Undergone a physical transition Those who had undergone a physical transition (n=113) had a mean score on the PHQ-9 of 10.96 (SD 7.02). On the GAD-7 for anxiety, those who had undergone a physical transition had a mean score of 9.04 (SD 6.05). For NSSH, suicidal thoughts, and suicide attempt outcomes, 89.4% (n=101) had endorsed suicidal thoughts at some point in their lifetime, 41.6% (n=47) had made an attempt to take their life, and 76.1% (n=86) had engaged in NSSH.

When looking at experiences of microaggressions using the GIMS, those who had undergone a physical transition had a mean score of 36.09 (SD 11.78), those who were proposing to undergo a physical transition had a mean score of 42.09 (SD 11.41). Those who were currently undergoing a physical transition had a mean score of 45.91 (SD 12.56) Lastly, those who had undergone a physical transition had a mean score of 43.04 (SD 15.04).

Social transition

Participants were asked to respond to a question on the stage of their social transition. 2.3% (n=13) of participants stated that they had not undergone or intended to undergo a social transition, 7.7% (n=44) were proposing to undergo a social transition, 28.1% (n=161) were currently undergoing a social transition, and 58.4% (n=335) had undergone a social transition.

Not undergone social transition Those who had not undergone a social transition (n=13) had a mean score on the PHQ-9 of 11.00 (SD 8.42). On the GAD-7 for anxiety, those who had not undergone a social transition had a mean score of 8.08 (SD 5.65). For NSSH, suicidal thoughts, and suicide attempt outcomes, 76.9% (n=10) had endorsed suicidal thoughts at some point in their lifetime, 23.1% (n=3) had made an attempt to take their life, and 46.2% (n=6) had engaged in NSSH.

Proposing to undergo social transition Those who were proposing to undergo social transition (n=44) had a mean score on the PHQ-9 of 14.84 (SD 6.30). On the GAD-7 for anxiety, those who were proposing to undergo social transition had a mean score of 13.34 (SD 5.62). For NSSH, suicidal thoughts, and suicide attempt outcomes, 90.9% (n=40) had endorsed suicidal thoughts at some point in their lifetime, 40.9% (n=18) had made an attempt to take their life, and 72.7% (n=32) had engaged in NSSH.

Currently undergoing social transition Those who were currently undergoing social transition (n=161) had a mean score on the PHQ-9 of 12.64 (SD 6.34). On the GAD-7 for anxiety, those who were currently undergoing a social transition had a mean score of 10.57 (SD 6.21). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.9% (n=148) had endorsed suicidal thoughts at some point in their lifetime, 46.0% (n=74) had made an attempt to take their life, and 82.0% (n=132) had engaged in NSSH.

Undergone a social transition Those who had undergone a social transition (n=335) had a mean score on the PHQ-9 of 11.60 (SD 6.38). On the GAD-7 for anxiety, those who had undergone a social transition had a mean score of 9.62 (SD 5.83). For NSSH, suicidal thoughts, and suicide attempt outcomes, 93.4% (n=313) had endorsed suicidal thoughts at some point in their lifetime, 39.1% (n=131) had made an attempt to take their life, and 78.8% (n=264) had engaged in NSSH.

When looking at experiences of microaggressions using the GIMS, those who had not undergone a social transition had a mean score of 33.31 (SD 13.29), those who were proposing to undergo a social transition had a mean score of 39.61 (SD 11.36). Those who were currently undergoing a social transition had a mean score of 41.70 (SD 11.76).

Lastly, those who had undergone a social transition had a mean score of 44.16 (SD 13.71).

Ethnicity

Participants were asked to provide data on their ethnicity. The distribution of ethnicities included very small numbers in minority ethnic categories. Therefore, the ethnic minority categories were combined to prevent identification of individual participants. 8.5% (n=49) participants belonged to an ethnic minority group, and 91.5% (n=525) were categorised at white.

Minority ethnicity Those who were grouped into the ethnic minority category (n=49) had a mean score on the PHQ-9 of 11.35 (SD 7.90). On the GAD-7 for anxiety, ethnic minority participants had a mean score of 10.55 (SD 7.33). For NSSH, suicidal thoughts, and suicide attempt outcomes, 75.5% (n=37) had endorsed suicidal thoughts at some point in their lifetime, 42.9% (n=21) had made an attempt to take their life, and 59.2% (n=29) had engaged in NSSH.

White Those who were grouped under the white category (n=525) had a mean score on the PHQ-9 of 12.13 (SD 6.35). On the GAD-7 for anxiety, those who were currently undergoing a social transition had a mean score of 10.03 (SD 5.89). For NSSH, suicidal thoughts, and suicide attempt outcomes, 93.0% (n=488) had endorsed suicidal thoughts at some point in their lifetime, 40.0% (n=210) had made an attempt to take their life, and 79.8% (n=419) had engaged in NSSH.

When looking at experiences of microaggressions using the GIMS, ethnic minority participants had a mean score of 40.35 (SD 16.00), and those who were grouped into the white category had a mean score of 42.65 (SD 13.00). in a two samples t-test no significant difference was found between microaggression scores (mean difference 1.21 (95%CI -1.59 to 6.20)).

Sexuality

Participants were asked to select their sexuality. Of the 574 participants, 78 (13.6%) indicated they were gay, 185 (32.2%) as bisexual, 72 (12.5%) as pansexual, 75 (13.1%) as lesbian, 26 (4.5%) as heterosexual, 84 (14.6%) as queer, 11 (1.9%) as questioning their sexuality, 32 (5.6%) as asexual, and 11 (1.9%) indicated their sexuality was not listed.

Gay (n=78) participants had a mean score on the PHQ-9 of 12.72 (SD 6.63). On the GAD-7 for anxiety, gay participants had a mean score of 9.73 (SD 5.30). For NSSH, suicidal thoughts, and suicide attempt outcomes, 92.3% (n=72) had endorsed suicidal thoughts at some point in their lifetime, 32.1% (n=25) had made an attempt to take their life, and 76.9% (n=60) had engaged in NSSH.

Bisexual (n=185) participants had a mean score on the PHQ-9 of 11.73 (SD 6.56). On the GAD-7 for anxiety, bisexual participants had a mean score of 10.20 (SD 6.49). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.9% (n=170) had endorsed suicidal thoughts at some point in their lifetime, 42.2% (n=78) had made an attempt to take their life, and 80.0% (n=148) had engaged in NSSH.

Pansexual (n=72) participants had a mean score on the PHQ-9 of 13.58 (SD 6.54). On the GAD-7 for anxiety, pansexual participants had a mean score of 11.25 (SD 6.10). For NSSH, suicidal thoughts, and suicide attempt outcomes, 95.8% (n=69) had endorsed suicidal thoughts at some point in their lifetime, 51.4% (n=37) had made an attempt to take their life, and 81.9% (n=59) had engaged in NSSH.

Lesbian (n=75) participants had a mean score on the PHQ-9 of 11.31 (SD 6.45). On the GAD-7 for anxiety, lesbian participants had a mean score of 8.96 (5.40). For NSSH, suicidal thoughts, and suicide attempt outcomes, 89.3% (n=67) had endorsed suicidal thoughts at some point in their lifetime, 33.3% (n=25) had made an attempt to take their life, and 69.3% (n=52) had engaged in NSSH.

Heterosexual (n=26) participants had a mean score on the PHQ-9 of 10.77 (SD 6.41). On the GAD-7 for anxiety, heterosexual participants had a mean score of 9.15 (SD 5.64). For NSSH, suicidal thoughts, and suicide attempt outcomes, 80.8% (n=21) had endorsed suicidal thoughts at some point in their lifetime, 42.3% (n=11) had made an attempt to take their life, and 76.9% (n=20) had engaged in NSSH.

Queer (n=84) participants had a mean score on the PHQ-9 of 11.01 (SD 5.81). On the GAD-7 for anxiety, queer participants had a mean score of 9.54 (SD 6.04). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.1% (n=79) had endorsed suicidal thoughts at some point in their lifetime, 45.2% (n=38) had made an attempt to take their life, and 83.3% (n=70) had engaged in NSSH.

Questioning (n=11) participants had a mean score on the PHQ-9 of 12.82 (SD 7.40). On the GAD-7 for anxiety, participants questioning their sexuality had a mean score of 11.82 (SD 5.78). For NSSH, suicidal thoughts, and suicide attempt outcomes, 90.9% (n=10) had endorsed suicidal thoughts at some point in their lifetime, 45.5% (n=5) had made an attempt to take their life, and 72.7% (n=8) had engaged in NSSH.

Asexual/Aromantic (n=32) participants had a mean score on the PHQ-9 of 13.91 (SD 6.45). On the GAD-7 for anxiety, asexual/aromantic participants had a mean score of 10.72 (SD 6.17). For NSSH, suicidal thoughts, and suicide attempt outcomes, 90.6% (n=29) had endorsed suicidal thoughts at some point in their lifetime, 31.3% (n=10) had made an attempt to take their life, and 75.0% (n=24) had engaged in NSSH.

When looking specifically at microaggression experiences, gay participants scored a mean of 44.22 (SD 13.38) on the GIMS. Bisexual participants scored a mean of 42.25 (SD 12.51). Pansexual participants scored a mean of 45.54 (SD 10.95). Lesbian participants scored a mean of 40.67 (SD 14.97). Heterosexual participants scored a mean of 36.46 (SD 16.23). Queer participants scored a mean of 43.57 (SD 12.97). Questioning participants scored a mean of 42.00 (SD 11.27). Asexual/Aromatic participants scored a mean of 39.38 (SD 13.33).

Religion

Due to the low response rate from several religious identity groups, I am only able to give an overview on the outcomes and exposure for Christian (all denominations), Atheist, and Pagan groups. When asked to describe their religious and/or spiritual beliefs, 34 participants (5.9%) indicated being Christian, 426 (74.2%) as Atheist, and 50 (8.7%) as Pagan.

Christian participants (n=34) had a mean score on the PHQ-9 of 11.50 (SD 6.14). On the GAD-7 for anxiety, Christian participants had a mean score of 10.35 (SD 5.15). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.2% (n=31) had endorsed suicidal thoughts at some point in their lifetime, 35.3% (n=12) had made an attempt to take their life, and 76.5% (n=26) had engaged in NSSH.

Atheist participants (n=426) had a mean score on the PHQ-9 of 11.88 (SD 6.58). On the GAD-7 for anxiety, Atheist participants had a mean score of 9.87 (SD 6.09). For NSSH, suicidal thoughts, and suicide attempt outcomes, 90.4% (n=385) had endorsed suicidal thoughts at some point in their lifetime, 37.8% (n=161) had made an attempt to take their life, and 75.1% (n=320) had engaged in NSSH.

Pagan participants (n=50) had a mean score on the PHQ-9 of 13.26 (SD 5.40). On the GAD-7 for anxiety, Pagan participants had a mean score 11.24 (SD 6.15). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.0% (n=47) had endorsed suicidal thoughts at some point in their lifetime, 58.0% (n=29) had made an attempt to take their life, and 92.0% (n=46) had engaged in NSSH.

When looking at microaggression experiences, Christian participants had a mean score of 44.97 (SD 15.08) on the GIMS. Atheist participants had a mean score of 42.10 (SD 13.09), and atheist participants had a mean score of 42.96 (SD 13.03).

Disability

Participants were asked if they had a physical or mental health condition which was expected to last 12 months or longer. 436 (76.0%) of participants reported having a condition. Of the total sample, 26 (6.0%) stated it did not affect them at all on a day-to-day basis, 273 (62.6%) stating that it does affect them a little bit every day, and 137 (31.4%) stating that it affects them a lot every day.

No disability Participants who did not have a disability (n=138) had a mean score on the PHQ-9 of 8.79 (SD 5.85). On the GAD-7 for anxiety, participants without a disability had a mean score of 7.70 (SD 5.80). For NSSH, suicidal thoughts, and suicide attempt outcomes, 79.7% (n=110) had endorsed suicidal thoughts at some point in their lifetime, 20.3% (n=28) had made an attempt to take their life, and 58.7% (n=81) had engaged in NSSH.

With disability Participants who do have a disability (n=436) had a mean score on the PHQ-9 of 13.10 (SD 6.34). On the GAD-7 for anxiety, participants without a disability had a mean score of 10.82 (SD 5.90). For NSSH, suicidal thoughts, and suicide attempt outcomes, 95.2% (n=415) had endorsed suicidal thoughts at some point in their lifetime, 46.6% (n=203) had made an attempt to take their life, and 84.2% (n=367) had engaged in NSSH.

Disability – no reduced ability Participants whose ability is not reduced from disability (n=26) had a mean score on the PHQ-9 of 7.92 (SD 5.86). On the GAD-7 for anxiety, participants without a disability had a mean score of 6.85 (SD 5.39). For NSSH, suicidal thoughts, and suicide attempt outcomes, 88.5% (n=23) had endorsed suicidal thoughts at some point in their lifetime, 34.6% (n=9) had made an attempt to take their life, and 76.9% (n=20) had engaged in NSSH.

Disability – a little reduced ability Participants who do have a disability (n=273) had a mean score on the PHQ-9 of 12.29 (SD 5.87). On the GAD-7 for anxiety, participants without a disability had a mean score of 10.30 (SD 5.59). For NSSH, suicidal thoughts, and suicide attempt outcomes, 96.0% (n=262) had endorsed suicidal thoughts at some point in their lifetime, 44.0% (n=120) had made an attempt to take their life, and 83.2% (n=227) had engaged in NSSH.

Disability – a lot of reduced ability Participants who do have a disability (n=137) had a mean score on the PHQ-9 of 15.7 (SD 6.34). On the GAD-7 for anxiety, participants without a disability had a mean score of 12.61 (SD 6.07). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.9% (n=130) had endorsed suicidal thoughts at some point in their lifetime, 54.0% (n=74) had made an attempt to take their life, and 87.6% (n=120) had engaged in NSSH.

When looking at microaggression experiences, those who do not have a disability had a mean score of 38.89 (SD 13.17) on the GIMS, whereas those with a disability had a mean score of 43.58 (SD 13.13). For those with a disability and no reduced ability day to day, the mean on the GIMS was 41.73 (SD 14.44), for those with a little reduced ability the mean was 42.74 (SD 12.57), finally those with a lot of reduced ability day to day the mean GIMS score was 45.62 (SD 13.81).

Education

Participants were asked to state their highest qualification awarded. 367 (63.9%) of participants had degree (BSc, MSc, and/or PhD), 196 (34.2%) had either GCSE's, A-levels, or a vocational qualification, and 11 (1.9%) participants did not have any qualifications.

No qualifications Participants who did not have any qualifications (n=11) had a mean score on the PHQ-9 of 12.55 (SD 8.91). On the GAD-7 for anxiety, participants without qualifications had a mean score of 9.45 (SD 7.29). For NSSH, suicidal thoughts, and suicide attempt outcomes, 81.8% (n=9) had endorsed suicidal thoughts at some point in their lifetime, 63.6% (n=7) had made an attempt to take their life, and 90.9% (n=10) had engaged in NSSH.

GSCE/A-level/Vocational qualifications Participants with GSCE/A level/Vocational qualifications (n=196) had a mean score on the PHQ-9 of 13.70 (SD 6.23). On the GAD-7 for anxiety, participants with GCSE/A-level/Vocational qualifications had a mean score of 11.30 (SD 6.02). For NSSH, suicidal thoughts, and suicide attempt outcomes, 94.9% (n=186) had endorsed suicidal thoughts at some point in their lifetime, 41.8% (n=82) had made an attempt to take their life, and 80.6% (n=158) had engaged in NSSH.

Degree (BSc, MSc, PhD) qualification Participants with degree qualifications (n=367) had a mean score on the PHQ-9 of 11.17 (SD 6.39). On the GAD-7 for anxiety, participants with degree qualifications had a mean score of 9.44 (SD 5.90). For NSSH, suicidal thoughts, and suicide attempt outcomes, 89.9% (n=330) had endorsed suicidal thoughts at some point in their lifetime, 38.7% (n=142) had made an attempt to take their life, and 76.3% (n=280) had engaged in NSSH.

When looking at microaggression experiences, those who had no qualifications had a mean GIMS score of 42.45 (SD 13.87). Those who had GCSE, A level, and/or vocational qualifications had a mean score of 43.28 (SD 13.69), whereas those who had a degree (BSc, MSc, PhD) had a mean score of 42.02 (SD 13.05).

Employment

Participants were asked to describe their current occupational status. This was then cleaned further to four distinct categories. 348 (60.6%) were in either full time or part time employment, 13 (2.3%) were full time homemakers and/or carers, 96 (16.7%) were students. And 117 (20.4%) were unemployed, either temporarily, unable to work, or currently looking for work.

Employed (full-time/part-time) Participants in full time or part time employment (n=348) had a mean score on the PHQ-9 of 11.05 (SD 6.40). On the GAD-7 for anxiety, participants in full time or part time employment had a mean score of 9.45 (SD 5.95). For NSSH, suicidal thoughts, and suicide attempt outcomes, 90.8% (n=316) had endorsed suicidal thoughts at some point in their lifetime, 36.5% (n=127) had made an attempt to take their life, and 76.2% (n=265) had engaged in NSSH.

Homemaker/Carers Participants who indicated being full time homemakers and/or carers (n=13) had a mean score on the PHQ-9 of 11.54 (SD 7.34). On the GAD-7 for anxiety, participants who indicated being full time homemakers and/or carers had a mean score of 8.00 (SD 5.70). For NSSH, suicidal thoughts, and suicide attempt outcomes, 76.9% (n=10) had endorsed suicidal thoughts at some point in their lifetime, 38.5% (n=5) had made an attempt to take their life, and 53.9% (n=7) had engaged in NSSH.

Students (n=96) had a mean score on the PHQ-9 of 12.86 (SD 6.09). On the GAD-7 for anxiety, participants who indicated being students currently had a mean score of 10.55 (SD 5.37). For NSSH, suicidal thoughts, and suicide attempt outcomes, 95.8% (n=92) had endorsed suicidal thoughts at some point in their lifetime, 40.6% (n=39) had made an attempt to take their life, and 84.4% (n=81) had engaged in NSSH.

Unemployed (unable/temporarily/looking for work) Participants who were unemployed, either temporarily, unable, or looking for work (n=117) had a mean score on the PHQ-9 of 14.47 (SD 6.34). On the GAD-7 for anxiety, participants who were unemployed, either temporarily, unable, or looking for work had a mean score of 11.77 (SD 6.45). For NSSH, suicidal thoughts, and suicide attempt outcomes, 91.5% (n=107) had endorsed suicidal thoughts at some point in their lifetime, 51.3% (n=60) had made an attempt to take their life, and 81.2% (n=95) had engaged in NSSH.

When looking at microaggression experiences, those who were employed either part time or full time had a mean score of 42.67 (SD 13.07) on the GIMS. Those who were full time homemakers and/or carers had a mean score of 37.85 (SD 17.49). Those who indicated being students had a mean score of 43.84 (SD 12.66), and those who were unemployed, either temporarily, unable to work, or looking for work, had a mean score of 41.19 (SD 13.84).

Appendix 3 – Follow-up survey materials

Website content

Division of Psychiatry

Website edit request form – New study page(s)

Number of pages: 1
Menu (which department does your study reside): **Epidemiology and Applied Clinical Research Department**
Study Title (100 characters): **TRANS: Microaggressions & Mental Health**
Content intro/summary (200 characters): ***The TRans And Non-binary Suicidality (TRANS): Microaggressions & Mental Health*** Project is a PhD study funded by the Economic and Social Research Council (ESRC) and approved by UCL REC (200485/001). It aims to explore the mental health of transgender and non-binary people in the United Kingdom, with a focus on experiences of microaggression, loneliness, rumination, and gender minority stress.

Content: **New page under "Information Sheet and Consent form"**

Title "TRANS: Microaggressions & Mental Health - Longitudinal Study"

Note: this content is only relevant to those who have been invited to take part in the TRANS: Microaggressions & Mental Health - follow-up study.

Brief description of the study

We are recruiting participants from the people who took part in the baseline survey for the 2021/22 TRANS: Microaggressions & Mental Health online survey and who volunteered to take part in further studies. The follow-up study involves filling out some of the same questions as found in the baseline survey. This will allow us to examine whether there are any changes in depression, anxiety, and suicidality over this period, and to test whether experiences of microaggressions might influence these changes. A microaggression is an everyday exchange between yourself, and others that results in a sense of being devalued because of your identity.

Why is this study needed?

Whilst the baseline survey we conducted online in 2021/22 has given us a broad picture of mental health within the trans and non-binary community, there are still several gaps remaining in our knowledge. Answering these would help policymakers consider how to redesign services to ensure better health outcomes for trans and non-binary people. We designed the follow-up study to address these gaps in our knowledge. Questions in the survey explore experiences of microaggressions, depression, anxiety, suicidality, loneliness, rumination, and gender minority stress.

There are very few studies in trans mental health research that collect data at two or more time points (also called longitudinal datasets). These are urgently needed in trans mental health research because this form of evidence will allow us to make stronger recommendations for how to improve trans mental health through public health messaging and clinical interventions.

What is expected of me?

If invited to take part, you will be asked to fill out the follow-up survey hosted on the online survey programme Opinio. More information about Opinio and data security can be found in the Participant Information Leaflet. The study should take around 20 to 30 minutes to complete.

When can I see the results of the study?

After the follow-up data are collected, the PhD student will analyse the data and summarise the findings for her thesis report. She will submit this report for publication in academic journals as well as in clearly written reports aimed at communicating findings to the general public (a lay summary). If you have consented to receive either the formal report and/or the lay summary, you will receive this in an individual email with the subject heading “Longitudinal Study” and from the email address TMH@ucl.ac.uk.

If you want to keep updated with the progress of the study, do follow the study Twitter account @TransMMH

Team members: **Page four “Team Members”**

Talen Wright (PhD Student) ‑ Division of Psychiatry, UCL

Dr Alexandra Pitman (Principal Supervisor) ‑ Division of

Psychiatry, UCL Dr Gemma Lewis (Subsidiary Supervisor) ‑

Division of Psychiatry, UCL Dr Talya Greene (Thesis Committee

member) - University of Haifa

Dr Ruth Pearce (Thesis Committee member) ‑ University of Glasgow

Content footer (bottom of the page): **page six entitled “Support lines and services”**

If you need further support, do consider any of the resources on list. We have selected these as trans focused charities and support services, or services that are trusted amongst the trans community.

- **Gendered Intelligence** provide a Support Line that is open on Mon/Tues/Thurs from 2-7pm and on Wed/Friday 10-3pm. Phone: 0330 3559678 Text/WhatsApp: 07592 650 496. Email: supportline@genderedintelligence.co.uk. Website: https://genderedintelligence.co.uk/

- **Mindline Trans+** is a support line for trans, non-binary or gender variant people and their families, friends, colleagues, and carers. The phone line is open Mondays and Fridays 8pm to midnight. Phone: 0300 330 5468. Website: https://mindlinetrans.org.uk/
- **Give Us a Shout** is the first 24/7 text service provided in the UK for people in crisis and is free on all major mobile networks. It's suitable for people who are struggling to cope and in need of immediate help. Text Shout to 85258. Website: https://giveusashout.org/
- **Switchboard** is a LGBT+ helpline that is open 10am-10pm every day. Phone: 0300 330 0630. Email: chris@switchboard.lgbt/. Online chat is also available through their homepage. Website: https://switchboard.lgbt/
- **Mindout** - is the MindOut Lesbian, Gay, Bisexual, Trans & Queer Mental Health Service and provides a telephone and email support service. Phone:01273 234839 Email: info@mindout.org.uk Online Support service: https://mindout.org.uk/get-support/mindout-online/ (open at varying dates and times but check the website for details).
- **Mind** provide advice and support to empower anyone experiencing a mental health problem. It is open Monday to Friday 9am-6pm. Phone: 0300 123 3393 Email: info@mind.org.uk. Website: https://www.mind.org.uk/
- **SAMH (Scottish Association for Mental Health)** - supporting people in Scotland to improve their mental health. Telephone: 0141 530 1000. Email: enquire@samh.org.uk. Website: samh.org.uk
- **Samaritans** offer a safe place to talk about whatever's getting to you, whether over the phone or via email. It is not only for people who feel suicidal. Their service is 24 hours and is free from a landline or mobile. Phone: 116 123 Email: jo@samaritans.org. Website: https://www.samaritans.org/

Links (social media, sign up page, partner orgs etc.):

Follow our study page on Twitter for updates: @TransMMH

Contact us at TMH@ucl.ac.uk if you have any questions/concerns.

Email template

Subject heading: Invitation to take part in a follow-up study

Thank you for taking part in our online TMH study conducted at UCL (UCL Research Ethics Committee approval ID number: 20485/01) between September 2021 and September 2022.

Your participation in that survey has been very helpful in improving our understanding of how microaggressions might impact on the mental health of trans and non-binary people.

We are getting in touch because you had expressed interest in your survey responses in being involved in future studies related to the TRANS: Microaggressions & Mental Health project.
We would like to invite you to take part in the TMH follow-up study. This survey contains some of the same questions as those you answered previously, in order to check on how you are now. However, it is shorter than the previous one you completed.
Please note that the survey will close on the 22nd of March at 11:59pm.

You can download a copy of the participant information leaflet and consent form at these embedded links, so that you can read through them to see if you are happy to take part. You can also download them from this link on our study website: https://www.ucl.ac.uk/psychiatry/research/epidemiology-and-applied-clinical-research-department/trans-microaggressions-mental-health

As a benefit of taking part, we would like to give you the option of entering a prize draw for a £50 Love2Shop voucher. These will be drawn at random from those who opt into this. The winners will receive an email to inform them that they have won by the end of March 2023.
If you would like to take part in the TMH follow-up study, please click the link below to start the survey. Please note that it is unique to you:
https://opinio.ucl.ac.uk/s?s=79544&i=[ID]&k=[KEY]&ro=[REOPEN]

Best wishes,

Talen Wright (she/her)
on behalf of the TRANS: Microaggressions & Mental Health Project team, UCL Institute of Mental Health

Participant information leaflet

TRans And Non-binary Suicidality (TRANS): Microaggressions & Mental Health

Participant information Leaflet: Follow-up Study

Contact Details:

Title of study: TRANS: Microaggressions & Mental Health – Follow-up Study

Department: Division of Psychiatry, UCL

Name and Contact Details of the Researcher: Talen Wright, TMH@ucl.ac.uk, mailto:talen.wright.20@ucl.ac.uk,

Name and Contact Details of the Principal Researcher: Dr Alexandra Pitman a.pitman@ucl.ac.uk

Name and Contact Details of the UCL Data Protection Officer: data-protection@ucl.ac.uk (reference: Z6364106/2021/07/03 Health Research)

This study has been approved by the UCL Research Ethics Committee: Project ID Number: 20485/001

Hello, and thank you for having taken part in the first survey in the TRANS: Microaggressions & Mental Health study. When you completed that survey (known as the baseline survey) you expressed your interest in taking part in further research within the TRANS: Microaggressions & Mental Health project.

We are now planning a follow-up survey, in which we will ask some of the same questions in order to gain a picture of your current experiences and whether or how things have changed for you since you took part in the baseline survey.

Who can participate?

To be eligible to participate in this study you must identify as transgender, non-binary, and/or gender diverse, at least 18 years old, and have participated in the baseline survey of the TRANS: Microaggressions & Mental Health study. For ethical reasons, you must usually reside in the United Kingdom.

Who will be conducting the research?

For transparency, the study is led by a trans woman who has lived experience of depression and suicidality and lived experience of conducting research on marginalised and minoritised communities. She believes firmly in an affirmative approach towards trans health and the intersectional role that gender, sexuality, religion, disability, and ethnicity play on mental health experiences.

About the study

We are conducting this study so that we can examine whether and how mental health might change for trans and non-binary people in relation to their experiences of microaggressions and/or microaffirmations. Using this approach allows us to examine changes in these experiences and in mental health over time, and understand the impact of microaggressions on mental health, leading to better public health messaging and clinical interventions.

If you take part in this follow-up survey, you will be asked some of the same questions from the baseline survey in case any have changed. As a reminder, these related to the following:

- Your characteristics e.g., age, gender, transition, disability, housing status, employment status,
- Your mental health, including depression, anxiety, and suicidality
- Any microaggressions experienced
- Loneliness
- Rumination
- gender minority stresses experienced.

In order to participate, it is not expected that you are, or are not, currently experiencing mental health distress. However, collecting the above information will help us to assess any changes in your mental health over the period between the baseline survey and the follow-up study. **Please be aware that we will not be able to establish or offer a formal diagnosis based on the data we collect. We will also not share your data with your healthcare provider, or with anyone outside the research team**.

Some of the personal identifiable information we collected in the baseline survey will be linked to the data we collect in the follow-up study.

Your involvement

To participate you will need access to the internet. Within the email you have received inviting you to take part in the follow-up survey there is a link to the Opinio website that hosts the survey. On this survey site you will be asked to confirm whether you have read the Participant Information Leaflet (PIL) for the follow-up study, and if so, you will be asked whether you provide consent. After this, you will be able to fill in the survey. This should take around 20 to 30 minutes to complete.

Privacy and your data

If you were to take part in this study, your data would be stored and managed securely using UCL's Data Safe Haven. Your data will be pseudonymised and kept strictly confidential. **Pseudonymisation** in this instance means we will not use (or ask you to divulge) information such as name, date of birth, or address, but do ask for (and store) information such as disability and gender, all of which possess some risk for identifying you. To protect your privacy, your email address, will be stored separately to the main dataset. Data will be collected via Opinio, a secure web-based survey platform. The survey will be live online for one month after you receive the invitation, to give you time to complete it. After the completion of the study, your data will be archived in the UK Data Service. The UK Data Service is a secure site that will hold the data and allow it to be shared with other researchers. Researchers will need to make an application to the UK Data Service in order to gain permission to access the dataset. All identifiable information (e.g., email address) will be removed from the dataset prior to being deposited in the UK Data Service archive.

If at any time you wish to withdraw your data after submitting, you can do this by emailing TMH@ucl.ac.uk. To ensure you retain the right to change/delete your data, we have provided a space in the survey to write your email address, which will link your data to you..

Privacy notice

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk

This 'local' privacy notice sets out the information that applies to this particular study. Further

information on how UCL uses participant information can be found in our 'general' privacy notice: For participants in research studies, click here

The information that is required to be provided to participants under data protection legislation (GDPR and DPA 2018) is provided across both the 'local' and 'general' privacy notices.

The lawful basis that will be used to process your personal data are: 'Public task' for personal data and 'Research purposes' for special category data.

Your personal data will be processed for as long as it is required for the research project. If we are able to anonymise or pseudonymise the personal data, you provide we will undertake this and will endeavour to minimise the processing of personal data wherever possible.

If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk.

Benefits and possible harms of taking part

In recognition of the time required of you to participate in this study, you will be invited to opt in to receive one of two £50 vouchers. Participants who opt in for this prize draw will be selected at random and will receive the vouchers through email.

The survey does by its nature touch on sensitive topics, and it is possible that this may cause you some distress. Therefore, it is important that you are aware of the sources of short- and long-term support that are available to you. Information about this support will be provided at regular points throughout the survey, in case you need them, and have been included below on this Participant Information Leaflet.

What if there is a problem?

If you have a concern about any aspect of this project, please email Talen Wright (talen.wright.20@ucl.ac.uk) and/or her research supervisor Dr Alexandra Pitman (a.pitman@ucl.ac.uk) who will do their best to answer your concern within 5 working days and give you an indication of how they will deal with it. If you remain unhappy or wish to make a formal complaint, please contact the chair of the Research Ethics Committee (ethics@ucl.ac.uk) who will seek to resolve the matter in a reasonably expeditious manner.

Support available

- Switchboard is a LGBT+ helpline that is open 10am–10pm every day. Phone: 0300 330 0630. Email: chris@switchboard.lgbt/. Online chat is also available through their homepage. Website: https://switchboard.lgbt/
- Gendered Intelligence provide a Support Line that is open on Mon/Tues/Thurs from 2-7pm and on Wed/Friday 10-3pm. Phone: 0330 3559678 Text/WhatsApp: 07592 650 496. Email: supportline@genderedintelligence.co.uk. Website: https://genderedintelligence.co.uk/
- Mindline Trans+ is a support line for trans, non-binary or gender variant people and their families, friends, colleagues, and carers. The phone line is open Mondays and Fridays 8pm to midnight. Phone: 0300 330 5468. Website: https://mindlinetrans.org.uk/
- Give Us a Shout is the first 24/7 text service provided in the UK for people in crisis and is free on all major mobile networks. It’s suitable for people who are struggling to cope and in need of immediate help. Text Shout to 85258. Website: https://giveusashout.org/
- Mindout – is the MindOut Lesbian, Gay, Bisexual, Trans & Queer Mental Health Service and provides a telephone and email support service. Phone:01273

234839 Email: info@mindout.org.uk Online Support service: https://mindout.org.uk/get-support/mindout-online/ (open at varying dates and times but check the website for details).

- Mind provide advice and support to empower anyone experiencing a mental health problem. It is open Monday to Friday 9am-6pm. Phone: 0300 123 3393 Email: info@mind.org.uk. Website: https://www.mind.org.uk/
- SAMH (Scottish Association for Mental Health) – supporting people in Scotland to improve their mental health. Telephone: 0141 530 1000. Email: enquire@samh.org.uk. Website: https://www.samh.org.uk/
- Samaritans offer a safe place to talk about whatever's getting to you, whether over the phone or via email. It is not only for people who feel suicidal. Their service is 24 hours and is free from a landline or mobile. Phone: 116 123 Email: jo@samaritans.org. Website: https://www.samaritans.org/

Consent form

TRans And Non-binary Suicidality (TRANS): Microaggressions & Mental Health

Consent Form: Follow-up study

This consent form is only to be completed after you have read the Participant Information Leaflet (PIL) to ensure that you have received full information on the study

Title of study: Mental health of transgender people and the role of microaggression in depression, anxiety, and suicidality: *Follow-up study*
Department: Division of Psychiatry, UCL

Name and Contact details of the Researcher: Talen Wright, TMH@ucl.ac.uk, talen.wright.20@ucl.ac.uk

Name and Contact details of the Principal Researcher: Dr Alexandra Pitman a.pitman@ucl.ac.uk **Name and Contact Details of the UCL Data Protection Officer**: data-protection@ucl.ac.uk (reference: **Z6364106/2021/07/03 health research)**

This study has been approved by the UCL Research Ethics Committee: Project ID Number: 20485/001

Thank you for considering taking part in this research. This consent form is only to be filled in once you have read the Participant Information Leaflet (PIL), which will give you information about what is involved in taking part.

If you have any questions about the research before deciding whether to take part, please email the PhD Researcher (Talen Wright): TMH@ucl.ac.uk.

Please note that if you do take part in the follow-up study, we will be asking you the same set of consent-based questions at the beginning of the survey, so there is no need to sign and return this consent form. Below is the list of consent questions you can expect to see if you do decide to take part

1	I confirm that I have read and understood the Participant Information Leaflet (PIL), for the *TRans And Non-binary Suicidality (TRANS): Microaggressions & Mental Health follow-up study* and agree to participate in this project.
2	I understand that my data, including email address, will be archived in UCL's secure password-protected Data Safe Haven, and will be kept strictly confidential.
3	I understand that my personal data, such as gender identity, religious/spiritual beliefs, ethnicity, disability, will be used for the purposes explained to me in the Participant Information Leaflet (PIL) i.e., for research. I understand that according to data protection legislation, 'public task' will be the lawful basis for processing my data.
4	I agree to my pseudonymised data being used in reports, papers, and publications resulting from this study, but that I will not be identifiable in any of these outputs. I understand that all information used is anonymous.
5	I agree that pseudonymised data arising from this survey will be archived in a Data Repository (the UK Data Service), so that they may be shared with other researchers but without me being identifiable to anyone.
6	If I find the themes raised by this survey difficult to handle, I am aware of the available support should I require it (as provided in the list of resources within the participant information leaflet, and accessible as a webpage at the end of the survey).
7	I am aware that I can ask for my data to be removed at any time, and for any reason, and that to do this I need to email the study team at TMH@ucl.ac.uk to start the process. REMINDER: For you to be identifiable if you subsequently request for your data to be removed, you will need to have included your email address where prompted at the end of your survey responses.
8	I understand that my information may be subject to review by responsible individuals from the University and the ESRC for monitoring and audit purposes.
9	I am aware of whom I should contact if I wish to lodge a complaint
10	I would like a copy of the study report and other outputs to be emailed to me from a neutral email address (TMH@ucl.ac.uk) and using a neutral email subject, and with my email address invisible to any other recipients.

Survey

UCL Transgender and non-binary mental health

Thank you for agreeing to take part in this UCL trans and non-binary mental health survey.

The following questions are designed to find out about who you are and how trans people with different identities experience their mental health. All free text boxes are optional and are made available in case you find that the tick box response options offered do not describe your experience adequately and you would like to provide more detail, However, if you do decide to fill in free text boxes please do **also** choose the tick box response that best fits your experience.

At the end of the survey, you will be given the chance to opt into a raffle to win one of two £50 vouchers

There are several places where you can find support should you need it. To see a list of support sources identified by our team, please visit https://www.ucl.ac.uk/psychiatry/research/epidemiology-and-applied-clinical-research-department/trans-microaggressions-mental-3

This list is also provided on the Participant Information Leaflet.

The first part of this survey checks that we have your consent to take part. Please read the Participant Information Leaflet before starting the first question below.

Email (for research findings and outputs, and for correcting/deleting data)

Now that we have your consent to take part, we are going to ask you a few questions about your own characteristics.

28) What is your age?

- 18-25

- 26-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+

29) Which of the following best describes your gender? [you may select multiple options]

- I have a constant and clear gender as a woman and/or trans woman
- I have a constant and clear gender as a man and/or trans man
- I have a constant and clear non-binary gender
- I have a variable or fluid non-binary gender or genders
- I have no gender
- I am unsure of my gender
- Gender not specified
- Prefer not to say

30) Do you consider a physical and/or medical ‘transition’ to be relevant to you? (by this we mean a process of using hormones and/or surgery to express your gender)”?

- No, I have not undergone and do not propose to undergo any part of a process of physical transition
- Yes, I am proposing to undergo a process (or part of a process) of a physical transition
- Yes, I am currently undergoing a process (or part of a process) of physical transition
- Yes, I have undergone a process (or part of a process) of physical transition
- Unsure
- Prefer not to say
- Other

If other please state
____
____
____

31) Do you consider social ‘transition’ to be relevant to you? (by this we mean changing name, pronouns, and/or clothing to express your gender)”?

- No, I have not undergone and do not propose to undergo any part of a process of transition
- Yes, I am proposing to undergo a process (or part of a process) of transition
- Yes, I am currently undergoing a process (or part of a process) of transition
- Yes, I have undergone a process (or part of a process) of transition
- Unsure
- Prefer not to say
- Other

If other please state
____
____
____

32) How do you think you are usually perceived/seen by others?

- As the gender I identify as
- As the sex I was assigned at birth
- As a trans person
- Prefer not to say
- I don’t know
- Other

If other please state
____
____
____

33) Do you currently live in your affirmed gender all or almost all of the time?

- Yes, either all or most of the time
- No, not living in affirmed gender

34) Do you have any formal qualifications from school or further education? Please indicate the HIGHEST qualification you currently hold.

- No, I have no formal qualifications
- GCSE(s) or equivalent
- A' level(s), Scottish Highers, or equivalent
- Vocational qualification e.g., City and Guilds or HND

- University degree: e.g., BA or BSc
- Master’s degree or equivalent higher professional qualification
- Doctorate: e.g., MD or PhD

35) What type of accommodation do you currently live in? (tick all that applied over the last year)

- House
- Flat, maisonette or bedsit
- Sheltered flat
- Bed and breakfast hostel or lodging house
- Squat
- None: homeless

36) What is your current housing situation? (tick all that apply)

- Homeowner
- Tenant
- Living with relative/friend
- Hostel
- Care home
- Homeless
- Other

If other, please state
____

37) How would you describe your current occupational status? (tick all that apply)

- Employed full-time (more than 20 hours per week)
- Employed part-time (less than 20 hours per week)
- Full-time homemaker (including caring for young children)
- Carer for parents or other relatives
- Student
- Waiting for a job you have been offered
- Waiting for temporary work
- Temporarily off work (e.g., for maternity leave; signed-off work as temporarily sick)
- Unemployed and looking for work
- Unemployed and unable to work due to long-term sickness or disability
- Retired
- Redundant due to COVID

38) A - Do you have a physical or mental health condition or illness lasting or expected to last 12 months or more?

- Yes
- No

B - Does this condition or illness affect you in any of the following areas?

- Vision (for example blindness or partial sight)
- Hearing (for example deafness or partial hearing)
- Mobility (for example walking short distances or climbing stairs)
- Dexterity (for example lifting or carrying objects, using a keyboard)
- Learning or understanding or concentrating
- Memory
- Mental health
- Stamina or breathing or fatigue
- Socially or behaviourally (for example associated with autism, attention deficit disorder or Aspergers' syndrome)
- Other (please specify)
- None of the above

If your disability is not stated, please feel free to state here:

____
____
____

If yes to part A

39) Does your condition or illness reduce your ability to carry-out day-to-day activities?

- Yes, a lot
- Yes, a little
- Not at all

Next we will ask you some questions about your mental health.

These questions will focus on feelings of depression, anxiety, and/or thoughts about non-suicidal self-harm or suicide. A reminder that all answers are kept strictly confidential and that your data will be anonymised. Data collection will not be monitored in real time (i.e., there may be a delay of some months before data are analysed). This means that responses here will not trigger an intervention from us or impact any care you are currently accessing or attempting to access.

Have you thought that life was not worth living during the last year?

● Yes

○ No

○ Prefer not to say

Have you wished that you were dead during the last year?

○ Yes

○ No

○ Prefer not to say

Have you thought of taking your life, even though you would not actually do it during the last year?

○ Yes

○ No

○ Prefer not to say

Have you made an attempt to take your life, by taking an overdose of tablets or in some other way during the last year?

○ Yes

○ No

○ Prefer not to say

Have you deliberately harmed yourself in any way but not with the intention of killing yourself during the last year?

○ Yes

○ No

○ Prefer not to say

Have you been diagnosed with an anxiety disorder, a depressive disorder, drug or alcohol problems, or other mental health difficulties during the last year?

○ Yes

○ No

○ Don't know

○ Prefer not to say

The following questions will ask you about low mood and depression, and about feelings of anxiety.

40) Over the **last two weeks,** how often have you been bothered by any of the following problems?

	Not at all	*Several days*	*More than half the days*	*Nearly every day*

Little interest or pleasure in doing things?	0	1	2	3
Feeling down, depressed, or hopeless?	0	1	2	3
Trouble falling or staying asleep, or sleeping too much?	0	1	2	3
Feeling tired or having little energy?	0	1	2	3
Poor appetite or overeating?	0	1	2	3
Feeling bad about yourself - or that you are a failure or have let yourself or your family down?	0	1	2	3
Trouble concentrating on things, such as reading the news or watching television?	0	1	2	3
Moving or speaking so slowly that other people could have noticed?	0	1	2	3
Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?	0	1	2	3

41) Over **the last two weeks**, how often have you been bothered by any of the following problems***?***

	Not at all	*Several days*	*More than half the days*	*Nearly everyday*
Feeling nervous, anxious or on edge?	0	1	2	3
Not being able to stop or control worrying?	0	1	2	3
Worrying too much about different things?	0	1	2	3
Trouble relaxing?	0	1	2	3

Being so restless that it is hard to sit still?	0	1	2	3
Becoming easily annoyed or irritable?	0	1	2	3
Feeling afraid as if something awful might happen?	0	1	2	3

We are now going to ask you some questions about how people interact with you.

These questions are from standardised measures, which means we are able to compare scores between people taking this study and people who have taken other studies.

The following questions ask you to think about yourself and other people. Please respond to each question by using your own current beliefs and experiences, **not** what you think is true in general, or what might be true for other people.

Please base your responses on how you've been feeling recently. Use the rating scale to find the number that best matches how you feel and select that number. There are no right or wrong answers: we are interested in what you think and feel.

	Not at all true for me			*Somewhat true for me*			*Very true for me*
These days, the people in my life would be better off if I were gone	1	2	3	4	5	6	7
These days, the people in my life would be happier without me	1	2	3	4	5	6	7
These days, I think my death would be a relief	1	2	3	4	5	6	7

to the people in my life							
These days, I think they people in my life wish they could be rid of me	1	2	3	4	5	6	7
These days, I think I make things worse for the people in my life	1	2	3	4	5	6	7
These days, I feel like I belong	1	2	3	4	5	6	7
These days I am fortunate to have many caring and supporting friends	1	2	3	4	5	6	7
These days, I feel disconnected from other people	1	2	3	4	5	6	7
These days I often feel like an outsider in social gatherings	1	2	3	4	5	6	7
These days I am close to other people	1	2	3	4	5	6	7

For each of the following items, think about your experiences over the last year and please indicate whether or not you currently strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree with the statements.

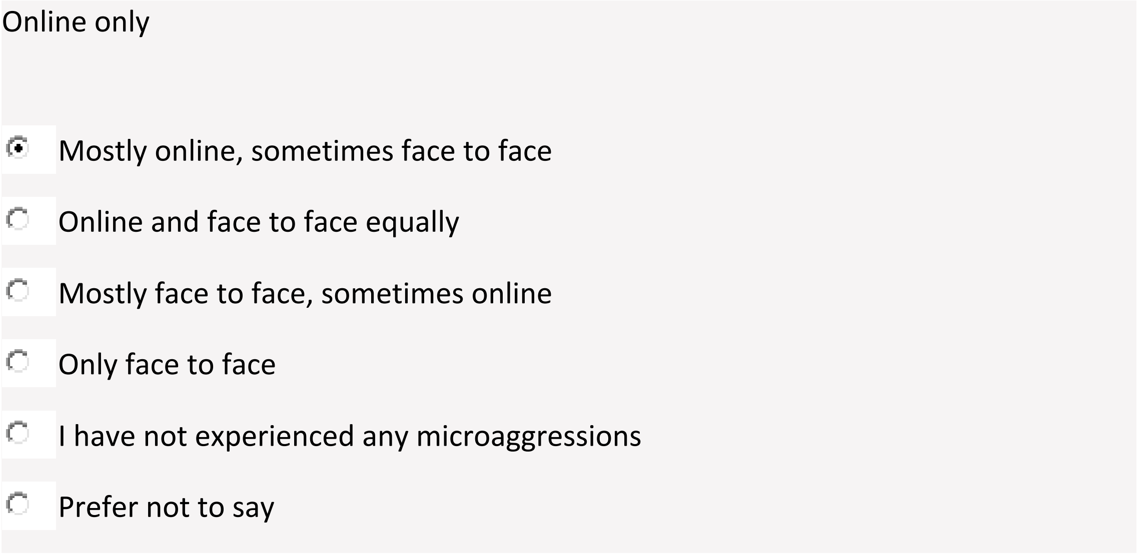
	Strongly Disagree	*Disagree*	*Neither Agree nor*	*Agree*	*Strongly Agree*

			Disagree		
A loved one (e.g., family or friend) has told me that my gender nonconformity is just a phase.	1	2	3	4	5
Someone told me that my transgender identity or my gender nonconformity was just a phase	1	2	3	4	5
I was told that I made a family member uncomfortable because of my gender nonconformity or transgender identity.	1	2	3	4	5
LGB people have told me that my gender nonconformity is just a phase.	1	2	3	4	5
Strangers and acquaintances have called me by the wrong personal pronoun.	1	2	3	4	5
A loved one (e.g., friend or family) has called me by the wrong personal pronoun.	1	2	3	4	5
Someone wanted to engage in a sexual act with me only because they view transgender people as exotic.	1	2	3	4	5
Someone (e.g., family, friend, co-worker) has asked me personal questions about gender reassignment.	1	2	3	4	5
Someone (e.g., family, friend, co-worker) has asked me if I feel like I’m trapped in the body of another sex.	1	2	3	4	5
Someone avoided sitting next to me in a public or government setting (e.g., on public transport, libraries, council office, or general practitioner practice).	1	2	3	4	5

Someone avoided sitting next to me at a bar or restaurant because I am gender nonconforming.	1	2	3	4	5
My employer or co-worker was unfriendly to me because I dress gender nonconforming.	1	2	3	4	5
I was told that I complain too much about societal discrimination against gender nonconforming people.	1	2	3	4	5
I was told that I complain too much about how people react to my gender nonconformity.	1	2	3	4	5

The scale you have just completed gives us a sense of your experience of microaggressions. These are defined as an everyday exchange between yourself, and others that results in a sense of being devalued because of your identity.

What proportion of these microaggressions happen online compared to face to face during the last year?



Online only

- ● Mostly online, sometimes face to face
- ○ Online and face to face equally
- ○ Mostly face to face, sometimes online
- ○ Only face to face
- ○ I have not experienced any microaggressions
- ○ Prefer not to say

The next few questions are about experiences in your day-to-day life and experiences with others.

For each question, circle the number that best describes events in in the past year, using these rules:

Circle 1 If the event has **never** happened to you.

Circle 2 If the event happened **once in a while** (less than 10% of the time)

Circle 3 If the event happened **sometimes** (10–25% of the time)

Circle 4 If the event happened **a lot** (26–49% of the time)

Circle 5 If the event happened **most of the time** (50–70% of the time)

Circle 6 If the event happened **all of the time** (more than 70% of the time)

	Never	*Once in a while*	*Sometime s*	*A lot*	*Most of the time*	*All of the time*
Have you ever had others deny or minimize your experiences of transgender discrimination?						
In the past year	1	2	3	4	5	6
Have you ever experienced people in your life who refused to use your true gender pronouns?						
In the past year	1	2	3	4	5	6
Have you ever been judged by others after they learned about your gender identity?						
In the past year	1	2	3	4	5	6
Have you ever heard comments that all transgender persons are the same?						
In the past year	1	2	3	4	5	6
Have you ever received demeaning						

messages about your physical appearance?						
In the past year	1	2	3	4	5	6
Have you ever heard intrusive comments about your body?						
In the past year	1	2	3	4	5	6
Have you ever been expected to be or act in gender-conforming ways?						
In the past year	1	2	3	4	5	6
Have you ever experienced harassment from family members?						
In the past year	1	2	3	4	5	6
Have you ever experienced limited mentorship in career settings?						
In the past year	1	2	3	4	5	6
Have you ever been denied opportunities in the workplace?						
In the past year	1	2	3	4	5	6
Have you ever been denied employment						
In the past year	1	2	3	4	5	6
Have you ever experienced maltreatment in healthcare settings?						
In the past year	1	2	3	4	5	6

Have you ever been discriminated against while trying to access health care?						
In the past year	1	2	3	4	5	6
Have you ever had to educate doctors, nurses, or administrative staff about transgender-related healthcare?						
In the past year	1	2	3	4	5	6
Have you ever experienced harassment by law enforcement?						
In the past year	1	2	3	4	5	6
Have you ever been stopped by law enforcement and unfairly questioned?						
In the past year	1	2	3	4	5	6
Have you ever been unfairly questioned about your gender identity by law enforcement?						
In the past year	1	2	3	4	5	6
Have you ever experienced harassment or bullying from peers in educational settings?						
In the past year	1	2	3	4	5	6
Have you ever had teachers or instructors refuse to stop abuse or						

bullying directed towards you?						
In the past year	1	2	3	4	5	6
Have you ever experienced social rejection in educational settings?						
In the past year	1	2	3	4	5	6
Have you ever experienced harassment from faculty, staff, and administrators in educational settings?						
In the past year	1	2	3	4	5	6

The next few questions are about other experiences in your day-to-day life and in relation to other people.

In this survey gender expression means how masculine/feminine/androgynous one appears to the world based on many factors such as mannerisms, dress, personality, etc.

Please indicate whether you have had the following experiences in the past year.

	Not in the past year	*Yes, in the past year*
I have had difficulty getting medical or mental health treatment (transition-related or	0	1

other) because of my gender identity or expression.		
Because of my gender identity or expression, I have had difficulty finding a bathroom to use when I am out in public.	0	1
I have experienced difficulty getting identity documents that match my gender identity.	0	1
I have had difficulty finding housing or staying in housing because of my gender identity or expression.	0	1
I have had difficulty finding employment or keeping employment, or have been denied promotion because of my gender identity or expression	0	1
I have had difficulty finding a partner or have had a relationship end because of my gender identity or expression.	0	1
I have been rejected or made to feel unwelcome by a religious community because of my gender identity or expression.	0	1
I have been rejected by or made to feel unwelcome in my ethnic/racial community because of my gender identity or expression.	0	1
I have been rejected or distanced from friends because of my gender identity or expression.	0	1
I have been rejected at school or work because of my gender identity or expression.	0	1
I have been rejected or distanced from family because of my gender identity or expression	0	1

I have been verbally harassed or teased because of my gender identity or expression. (For example, being called “it”)	0	1
I have been threatened with being outed or blackmailed because of my gender identity or expression.	0	1
I have had my personal property damaged because of my gender identity or expression	0	1
I have been threatened with physical harm because of my gender identity or expression.	0	1
I have been pushed, shoved, hit, or had something thrown at me because of my gender identity or expression.	0	1
I have had sexual contact with someone against my will because of my gender identity or expression.	0	1

	Strongly Disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
I have to repeatedly explain my gender identity to people or correct the pronouns people use.	0	1	2	3	4
I have difficulty being perceived as my gender.	0	1	2	3	4
I have to work hard for people to see my gender accurately.	0	1	2	3	4
I have to be “hypermasculine” or “hyperfeminine” in order for people to accept my gender.	0	1	2	3	4
People don’t respect my gender identity because of my appearance or body.	0	1	2	3	4

People don’t understand me because they don’t see my gender as I do.	0	1	2	3	4
I resent my gender identity or expression.	0	1	2	3	4
My gender identity or expression makes me feel like a freak.	0	1	2	3	4
When I think of my gender identity or expression, I feel depressed.	0	1	2	3	4
When I think about my gender identity or expression, I feel unhappy.	0	1	2	3	4
Because my gender identity or expression, I feel like an outcast.	0	1	2	3	4
I often ask myself: Why can’t my gender identity or expression just be normal?	0	1	2	3	4
I feel that my gender identity or expression is embarrassing.	0	1	2	3	4
I envy people who do not have a gender identity or expression like mine.	0	1	2	3	4
My gender identity or expression makes me feel special and unique.	0	1	2	3	4
It is okay for me to have people know that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I have no problem talking about my gender identity and gender history to almost anyone.	0	1	2	3	4
It is a gift that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I am like other people, but I am also special because my gender	0	1	2	3	4

identity is different from my sex assigned at birth.					
I am proud to be a person whose gender identity is different from my sex assigned at birth.	0	1	2	3	4
I am comfortable revealing to others that my gender identity is different from my sex assigned at birth.	0	1	2	3	4
I'd rather have people know everything and accept me with my gender identity and gender history.	0	1	2	3	4

	Strongly Disagree	*Disagree*	*Neither agree nor disagree*	*Agree*	*Strongly agree*
If I express my gender identity/history, others wouldn't accept me.	0	1	2	3	4
If I express my gender identity/history, employers would not hire me.	0	1	2	3	4
If I express my gender identity/history, people would think I am mentally ill or "crazy."	0	1	2	3	4
If I express my gender identity/history, people would think I am disgusting or sinful.	0	1	2	3	4
If I express my gender identity/history, most people would think less of me.	0	1	2	3	4
If I express my gender identity/history, most people would look down on me.	0	1	2	3	4
If I express my gender identity/history, I could be a victim of crime or violence.	0	1	2	3	4
If I express my gender identity/history, I could be arrested or harassed by police.	0	1	2	3	4

If I express my gender identity/history, I could be denied good medical care.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I don’t talk about certain experiences from my past or change parts of what I will tell people.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I modify my way of speaking.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I pay special attention to the way I dress or groom myself.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I avoid exposing my body, such as wearing a bathing suit or nudity in locker rooms.	0	1	2	3	4
Because I don’t want others to know my gender identity/history, I change the way I walk, gesture, sit, or stand	0	1	2	3	4
I feel part of a community of people who share my gender identity.	0	1	2	3	4
I feel connected to other people who share my gender identity.	0	1	2	3	4
When interacting with members of the community that shares my gender identity, I feel like I belong	0	1	2	3	4
I’m not like other people who share my gender identity.	0	1	2	3	4
I feel isolated and separate from other people who share my gender identity.	0	1	2	3	4

The next questions are about relationships with others. For each one, please say how often you feel that way.

	Hardly ever, or never	*Some of the time*	*Often*
How often do you feel that you lack companionship?	1	2	3
How often do you feel left out?	1	2	3
How often do you feel isolated from others?	1	2	3

	Never	Hardly ever	Occasionally	Some of the time	Often/always
How often do you feel lonely?	1	2	3	4	5

It is completely normal to feel low in mood at times. People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you almost never, sometimes, often, or almost always think or do each one when you feel down, sad, or depressed

Please indicate what you *generally* do, not what you think you should do.

How often do you...	*Almost never*	*Sometimes*	*Often*	*Almost Always*
Think “What am I doing to deserve this?”	1	2	3	4

Think “Why do I always react this way?”	1	2	3	4
Think about a recent situation, wishing it had gone better	1	2	3	4
Think “Why do I have problems other people don’t have?”	1	2	3	4
Think “Why can’t I handle things better?”	1	2	3	4
Analyse recent events to try to understand why you are depressed	1	2	3	4
Go away by yourself and think about why you feel this way	1	2	3	4
Analyse your personality to try to understand why you are depressed	1	2	3	4
Go someplace alone to think about your feelings	1	2	3	4

You have reached the end of the questionnaire. Thank you very much for your time.

All data have been saved on a secure password-protected central UCL drive in line with data protection legislation. Further details on how we will protect confidentiality are available in the Participant Information Leaflet.

If you would like to receive information about taking part in further studies on this topic you can provide your email address below. Please note that this would involve receiving information about further studies from a neutral email address and with a neutral subject header e.g., Study recruitment. Your email address will also not be visible to others.

- Yes – I would like to be sent more information about further studies
- No – I am not interested in being contacted about taking part in more studies on this topic

Would you like to be entered into our raffle to win one of the two £50 vouchers?

- Yes

- No

If yes, please provide your email address

email address _________________________

confirm email address ___________________

Now that you have come to the end, please bookmark our study website where we will be publishing the findings of our study: https://www.ucl.ac.uk/psychiatry/research/epidemiology-and-applied-clinical-research-department/trans-microaggressions-mental-health