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Parenthood and mental health: Findings from an English longitudinal cohort aged 32

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ABSTRACT

Studying the mental health effects of parenthood is challenging due to unequal selection into parenthood. This study used data from the English longitudinal cohort Next Steps (N = 7095) to examine the association between parenthood, psychological distress and life satisfaction at age 32, accounting for observable selection effects. A lifecourse perspective offered insights into early life inequalities that influence fertility decisions and parent's life stage, which, in turn, may shape the extent to which parenthood is a determinant of mental health. Results indicate a small positive effect of parenthood on mental health, with males reporting better outcomes than females. Parenthood had a greater impact on improving life satisfaction than reducing psychological distress. In the female sample, ethnic minority parents reported lower psychological distress than White parents, while ethnic differences in mental health were more pronounced among males without children. Sexual minorities reported higher psychological distress, particularly LGBQ female parents. Having a cohabiting partner and dual earnings protected mental health, especially for parents. Older age at first child was also associated with better mental health while a greater number of children was linked to worse mental health for females but not males. Among people without children, fertility intentions influenced mental health—males who did not want children reported the lowest life satisfaction, whereas for females, it was those uncertain about their fertility intentions. This study highlights modest mental health benefits of parenthood while emphasising social inequalities. Future research should explore long-term mental health trajectories and policies that mitigate mental health burdens associated with different fertility choices.

1. Introduction

According to the World Health Organisation (2022) mental health is the means by which an individual is able to function, cope and thrive, and includes both dimensions of wellbeing and distress. These mental health problems may reflect and perpetuate disadvantage and structural inequalities (Kirkbride et al., 2024). Documenting inequalities of mental health is therefore critical to identifying who the vulnerable and protected groups are, with the aim to then improve wellbeing, productivity and resilience of individuals and societies. In this paper we explore the social determinants of mental health, focusing on examining the mental health of parents and people without children from a public health and social policy perspective. We are interested in whether economic pressures and support systems (or lack thereof) affect people differently depending on their parental status and sex. Studying both parents and people without children helps ensure that we examine the diverse realities of early adulthood and family life in England.

The most cited prevalence statistics state that 68 % of women and 57 % of men with a mental health difficulty are parents (Royal College of Psychiatrists, 2016). Although, by selecting only those with a mental health difficulty and comparing parental status within this group, it is not possible to garner an understanding about the relationship between parental status and mental health among a whole population. Understanding parents' mental health has implications for policy interventions to support those individuals, but also beyond the parents' themselves, including for child outcomes (Nomaguchi and Milkie, 2020). However, studying the mental health effect of parenthood is challenging, not least because selection into parenthood is not equally distributed among the population. Addressing this selection effect will disentangle whether being a parent leads to poorer (or better) mental health, or whether people with poorer (or better) mental health are more likely to become parents.

It is increasingly recognised that in addition to early life inequalities (e.g., family income, education and composition) (Booth et al., 2008), an

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individual's mental health may also influence whether and when they become a parent (Laursen and Munk-Olsen, 2010). Studies using longitudinal data are emerging that examine the reciprocal relationship between mental health and parental status (Kalucza et al., 2015; Grundström et al., 2024), but they are limited, with no known evidence from English population-based studies. The current study aimed to fill this gap by using longitudinal data from the Next Steps cohort (born 1989–90). Based on recent national statistics that showed 50 % of women born in 1990 were parents by the age of 30, we might expect just over half of the current sample, aged 32, to have children (Office for National Statistics (ONS), 2022). This provides the opportunity for the first examination of parenthood and mental health in these data. We acknowledge that age 32 is relatively early in the reproductive window for this generation, meaning their fertility is not yet complete, more specifically, Pelikh and Goisis (2024) show that many study members who are not yet parents plan to be in the future. We also acknowledge that in addition to the parents being relatively young, so too are the children of the study members, meaning the analyses only captures parenthood and mental health at a particular life stage. We also recognise that a focus on child-free individuals, who have voluntarily decided to not have children, is often missed in research (Umberson et al., 2010). For these reasons, we examine the mental health of people without children with different fertility intentions in addition to those people with children.

1.1. Parenthood and mental health

Parenting is often described as the most challenging and rewarding job– the responsibility of raising a child can be stressful but it can also provide clear meaning and purpose. The tension between parenting strain and parental wellbeing has been coined the *demands-rewards perspective* (Nomaguchi and Milkie, 2020). Research findings that compare the mental health of parents with those without children mirror this complexity (Nelson et al., 2014). Early cross-sectional research using data from the United States (US) National Survey of Families and Households showed a mental health disadvantage for parents measured by depressive symptoms (Evenson and Simon, 2005). A year later, Helbig et al. (2006) published results from the 1998/99 German Health Survey and revealed a positive association between parenthood and mental health (i.e. lower rates of psychiatric morbidity), particularly for fathers. These findings were later replicated using a large Norwegian community sample however, authors described the differences as 'too small to have any public health significance', suggesting that differences were, in part, explained by relationship status and breakdown (Rimehaug and Wallander, 2010). A modest association between happiness and parenthood has also been evidenced across Europe and the US (Aassve et al., 2012; Nelson et al., 2013). Many of these early cross-sectional studies do not account for the fact that selection into parenthood is not equally distributed among the population. Consequently, differences in mental health between parents and people without children may instead represent the demographic, socioeconomic and health characteristics of those who selected into parenthood.

1.2. A lifecourse perspective

Applying a lifecourse perspective to parental mental health helps to account for inequalities that influence decisions about family formation and parents' life stage, which, in turn, shape their experience (Umberson et al., 2010). As noted, an individual's mental health may influence whether and when they become a parent over and above family background characteristics (Laursen and Munk-Olsen, 2010). Few longitudinal studies have explored selection into parenthood by early life mental health status. However, Kalucza et al. (2015) used data from a Swedish cohort study aged between 16 and 43 to examine the association between adolescent psychological difficulties and the likelihood of becoming a parent. They found that men with poorer mental health at age 16 were less likely to become parents by age 43, indicating a selection into parenthood based on mental health. No such effect was present for women. Furthermore, they found that after controlling for adolescent psychological difficulties, parental status was associated with better mental health for women but not men. Gendered selection effects were recently replicated using the Finnish Stress, Development and Mental Health Cohort (Grundström et al., 2024). This study also investigated the association between adolescent mental health and the timing of the parenthood transition and found that for women, adolescent depressive symptoms were associated with a greater likelihood of becoming a parent before the age of 24. After accounting for these selection effects, being a parent was associated with more positive mental health. Specifically, for both men and women being a parent was associated with greater sense of meaning in life, for men being a parent was associated with higher levels of self-esteem and for women being a parent was associated with lower levels of depressive symptoms in mid-adulthood.

The mental health benefits of parenthood could be explained by prospect theory, in which individuals who predict that having children will bring them happiness, are more likely to become parents (Aassve et al., 2015). However, reproductive decisions are complex and the extent to which having a child is a positive prospect will be driven by biological, contextual, personal and socio-cultural considerations (Novoa et al., 2024).

Factors such as discrimination, economic precarity, adverse childhood experiences and environmental concerns that are associated with reproductive decisions are also known contributors of depressive symptoms (Kirkbride et al., 2024). Depressive symptoms may lead to more negative predictions about the demands vs. rewards of parenthood and thus the decision to remain child-free (Cetre et al., 2016). More longitudinal research is therefore needed that firstly examines a selection effect based on early life mental health and then accounts for it in subsequent analyses comparing the mental health of parents and people without children. The present study contributes to this emerging body of literature.

1.3. Parenthood and mental health inequalities: cross national and within country perspectives

Parenting takes place within a specific context and research shows cross-national variation in the association between parenthood and happiness based on varying types and levels of support provided at the national level e.g., paid parental leave and childcare subsidies (Aassve et al., 2015; Glass et al., 2016). For example, Hansen et al. (2009) observed more positive effects of parenthood on mental health in Nordic countries compared to the US and noted national differences in social policies for supporting families.

In Britain, there has been a recent shift to more family friendly policies (Metzger and Gracia, 2023). However, Chanfreau (2023) argues that policies, related to childcare and parental leave (for example), have upheld the traditional gendering of the worker and the parent, where men are the breadwinner and women are the caregivers. More specifically, although the provision of universal free childcare increased in 2016, net childcare costs in the UK are still the highest in Europe (OECD, 2022a). This financial burden may partly explain the higher rates of part-time employment among women (OECD, 2022b) as a strategy to lower childcare expenses for households. Policies such as 'Shared Parental Leave', introduced in 2015, which enables eligible parents to equally share 50 weeks of leave, have very low uptake among fathers (Birkett and Forbes, 2019), meaning that mothers take on a greater share parenting in the early stages. These context-specific policies may also lead us to expect a differential experience of parenthood and mental health by sex.

There is also unequal distribution of parenting demands and resources and support available, with evidence of social gradients (Musick et al., 2016). Socioeconomic status plays a key role in shaping parental

mental health, with parenthood experiences differing markedly across educational, occupational and income lines (e.g. Metzger and Gracia, 2023). Parents with higher socioeconomic status may benefit from greater financial resources and security and access to high quality childcare. However, these advantages may be counterbalanced by greater work-family conflict due to demanding professional roles and expectations of more intensive parenting. Rising inequalities and changing parenting ideals give way to increasingly divergent parenting experiences with mothers, marginalised groups and people with greater economic precarity carrying a larger parental burden (Nomaguchi and Milkie, 2020). Partnership status, likely a proxy for emotional and financial support, has also been shown to play an important role in the effect of parenthood on mental health for both men and women (Aassve et al., 2016).

Younger age at first child and a higher number of children by age 30 are additional factors associated with increased risk of mental health difficulties across the lifecourse for women (Pearson et al., 2019). The negative association between adolescent childbearing and later mental health was shown to be particularly pronounced for black women in the US (Williams et al., 2015). These studies emphasise the benefits of taking an intersectional, lifecourse perspective to uncover inequalities in parental experiences. As a result, the experience of parenthood in England is likely to vary by sex, demographic characteristics, socioeconomic, partnership status and shaped by current policy frameworks.

1.4. Aims and research questions

The current study aims to examine the relationship between parental status and mental health while controlling for potential selection effects using data from an English longitudinal cohort. Multiple outcomes were included to capture the related but distinct dimensions of the complete mental health state: psychological distress and life satisfaction (World Health Organisation, 2022). Psychological distress encompasses emotional symptoms of depression and anxiety (Mirowsky and Ross, 1986) whereas life satisfaction is a global measure of quality of life, a cognitive appraisal of life as a whole (Diener, 1994). While some overlap exists, the correlates of mental illness and wellbeing are largely distinct, justifying the inclusion of both constructs in research to avoid their conflation (Patalay and Fitzsimons, 2016). In terms of parenthood, these dimensions may be of particular interest as life satisfaction may signal more fulfilment and meaning in a person's life, however we may see the daily stressors of parenthood captured more in the psychological distress measure. Some existing studies show that parents, especially mothers, experience high psychological distress compared to people without children (e.g. Divine et al., 2022), while other studies show that parents report having more meaning than those without children (Grundström et al., 2024).

After adjusting for demographic, socioeconomic and health characteristics during adolescence, including possible selection effects based on symptoms of psychological distress, we aim to answer the following research questions.

1. How does parents' mental health compare to people without children and are there differences between males and females?
2. To what extent are there demographic and socioeconomic inequalities in mental health within the parent group and among people without children?
3. For parents, are there differences in mental health by age when first child was born and number of children?
4. For people without children, are there differences in mental health by different fertility intentions?

2. Method

2.1. Data source

Next Steps, previously known as the Longitudinal Study of Young People in England, is a cohort study following the lives of individuals born within one year (1989–1990) in England (Fang-Wei Wu et al., 2024). The study was originally funded by the Department for Education with an initial sample of 15,770 cohort members recruited in 2004 and first surveyed at age 14. In 2013, the Centre for Longitudinal Studies at University College London received funding from the UK's Economic and Social Research Council to conduct another survey in 2015/2016 at age 25 and have since surveyed cohort members at age 32 in 2022/2023.

To understand what factors were associated with parental status and timing, demographic, socioeconomic and health characteristics, including psychological distress, were taken from the survey conducted at age 15. For the majority of cohort members, this data collection sweep preceded them having children so could be considered a baseline for mental health difficulties and other possible factors. It was also the first time the General Health Questionnaire (GHQ-12) was administered to participants, giving a full measure of depressive symptoms prior to having children.

2.2. Analytical sample

The analytical sample (N = 7095) included those who were alive, residing in England and who took part in the age 32 data collection sweep minus those who became parents prior to age 15 (N = 1). Stratified models were restricted to cohort members with available information on their sex from the first three sweeps of data (males N = 3,012, females N = 3952).

2.3. Measures

2.3.1. Parental status and fertility intentions

Parents in the current study were defined as cohort members with biological, adopted, foster or stepchildren or any other children that they considered themselves a parent or guardian of. Both parents with children living in the household (aged 0–15) and non-custodial parents with non-residential biological children were included. Those whose biological children had died were included in the parent sample, however, cohort members currently expecting their first baby were not. For parents who report having at least one biological child, age when first child was born was calculated. Number of children was also generated including both biological and non-biological children. For those without children, one item was used to determine fertility intentions: 'Which of these statements best describes the way you feel about having children?'. The following response options were provided: "*I would definitely like children, but I'm not currently trying*", "*I would definitely like children, and I'm currently trying*", "*I might like children in the future, I'm not sure yet*", "*I would definitely not like children"*, "*I don't know*" and "*Prefer not to say*". Those who preferred not to say were treated as having missing data and those who answered, "*I don't know*" were combined with "*I might like children in the future, I'm not sure yet*".

2.3.2. Mental health

Mental health outcomes were standardised using z-scores to enable comparisons between psychological distress and life satisfaction.

Psychological distress - General Health Questionnaire (GHQ-12) (Goldberg et al., 1997)

The short-form of the General Health Questionnaire (GHQ-12) was used to capture psychological distress in the current study at age 15 and age 32. The instrument is frequently adopted as a screening tool for psychological distress in the general population and non-clinical settings

and it has been validated for use with both adolescent and adult samples (Werneke et al., 2000). Participants are presented with 12 statements including 'Have you lost sleep over worry', 'Have you been constantly under strain' and 'have you been unhappy or depressed'. They are asked to indicate how often they have experienced psychological and psychosomatic symptoms over the past few weeks using a four-point scale: "*not at all*'' "*no more than usual*'' "*rather more than usual*" or "*much more than usual*". The Likert scale scoring method was used (0-1-2-3) with scores ranging between 0 and 36. Positively phrased questions (items 1, 3, 4, 7, and 12) were reverse coded so that a higher score indicated more psychological distress. The Cronbach's alpha coefficient is 0.98 suggesting a high degree of internal consistency.

2.3.3. Life satisfaction

Life satisfaction was assessed using one item 'Overall, how satisfied are you with your life nowadays?' scores ranged between 0 and 10 with higher scores indicating more satisfaction with life at age 32. This single-item measure, although commonly used in large-scale surveys as focussed measure of overall life satisfaction, does not capture more nuanced dimensions of satisfaction such as happiness or fulfilment.

2.3.4. Demographic, socioeconomic and health characteristics

Sex and ethnicity data were from the first available sweeps (up to sweeps 3 and 4). To ensure that demographic, socioeconomic and health characteristics represented a baseline prior to having children, all other variables were taken from the age 15 survey. Other demographic information included age of main parent and single parent household. Socioeconomic characteristics included family education level (highest qualification in the family), housing tenure (homeownership) and occupational social class (managerial, professional and intermediate occupations vs. routine occupations and long term unemployment). The quality of the young person's health in the last 12 months and disability status were also included in addition to psychological distress measured using the GHQ-12. See Supplementary Table S1 for weighted descriptive statistics for age 15 characteristics.

To investigate inequalities in mental health within the parent group and people without children, demographic and socioeconomic characteristics including ethnicity, sexual orientation, cohabiting partnership, combined labour market status, education level and self-reported financial difficulties were examined at age 32. Partnership status was based on reporting a cohabiting partner, regardless of whether that partner was the child(ren)'s biological parent. A derived variable was used to determine the combined labour market status of the study member as an indicator of household employment status and earnings (e.g., single or dual earnings). This accounted for partnership status whereby it was possible to code "*both employed*" (where a partner was present), *"one person employed"* (either the study member or their partner, or the study member only when no partner was present) and "*neither person employed*" (either the study member and their partner were unemployed, or only the study member when no partner was present). Education level was recoded to indicate whether a study member was educated at degree level or above. Finally, self-reported financial difficulties were based on one item 'How well would you say you are managing financially these days? with responses recoded into those who were "*Living comfortably, doing alright*" and "*Just about getting by, finding it quite/very difficult*".

2.4. Analytical strategy

Prior to the main models, selection effects based on adolescent psychological distress were examined. A modified Poisson regression model was conducted adjusting for age 15 demographic, socioeconomic and health characteristics, noted above, to investigate the association between adolescent psychological distress and parental status by age 32. The advantage of this approach over a logistic regression is that, when adjusting for covariates, it improves precision and directly estimates the relative risk (e.g., risk ratio) instead of calculating the odds ratio (Zou and Donner, 2013). The association between adolescent psychological distress and the timing of first biological child born was tested using a linear multivariable regression model adjusting for all other age 15 covariates.

To answer the main research questions, linear multivariable regression models were run with standardised psychological distress and life satisfaction as the outcomes. All models were conducted unadjusted and then adjusted for demographic, socioeconomic and health characteristics at age 15. As a sensitivity check, models were also run further adjusting for characteristics at age 32. All models were stratified by sex to explore differences in associations between males and females. A gender variable was available at age 32, however, the decision was taken to stratify using the more complete information on sex from the first three data collection sweeps. While we refer to literature on gendered patterns in parental mental health, we can only make inferences about sex differences with the knowledge that, by age 32, sex may have changed for some cohort members, and they may identify as a different gender. We use the terms male [parent] and female [parent] throughout as we are referring to biological sex.

2.4.1. Missing data strategy

Non-response is common and expected in longitudinal research but can introduce biases and reduce efficiency. Previous research has identified groups more likely to discontinue participation in Next Steps (e.g., males and those without internet access at home) improving the plausibility of the missing at random assumption (Silverwood et al., 2024). We therefore accounted for non-response bias in all analyses by applying inverse probability weights. This ensured that data from these groups was given more weight in the analyses, improving the sample representativeness of the target population i.e., adults aged 32 years, alive and living in England. For partially observed data, multiple imputation using chained equations was conducted using known auxiliary variables i.e., variables known to predict missingness which therefore help estimate imputed values, and all study variables (Silverwood et al., 2024). See Supplementary Table S2 for a breakdown of missing cases.

3. Results

Weighted sample characteristics at age 32 including demographic and socioeconomic characteristics, parental status and mental health outcomes can be found in Supplementary Table S3. The sample demographics were broadly representative of the English population in terms of ethnicity (85 % White) and sexual orientation (91 % heterosexual/straight) based on the 2021 Census (ONS, 2025). Education levels were also comparable with the national average (37 % with a university degree) (ONS, 2023). Just over half of the sample were parents (54 %). The average age of study members when their first child was born was 28 and the mean number of children was 1.43.

Prior to running the main models, selection effects based on symptoms of psychological distress during adolescence were tested, adjusting for demographic, socioeconomic and other health characteristics at age 15 (see Supplementary Table S4 and S5. for these results). Psychological distress was associated with a reduced likelihood of becoming a parent by age 32, indicating a small selection effect related to adolescent mental health. For males only, every one unit increase in psychological distress, reduced the likelihood of being a parent at age 32 by approximately 3 %. This association was not present for females. In the parent only sample, cohort member's age at first birth i.e., the timing of their parenthood transition, was associated with adolescent psychological distress in the unadjusted model such that higher psychological distress was associated with a younger transition to parenthood. However, after adjusting for all other demographic, socioeconomic and health characteristics at age 15, this association was no longer present. By adjusting for demographic, socioeconomic and health characteristics at age 15 in

all subsequent models, we account for observable selection effects.

Overall, females reported more psychological distress than males but also slightly higher life satisfaction. Sexual minorities reported higher psychological distress and lower life satisfaction when compared to heterosexual cohort members. The group reporting other ethnicity reported the worst mental health overall, while those with mixed ethnicity, Indian, Pakistani and Bangladeshi and Black African or Black Caribbean participants reported lower psychological distress than White participants. Considerably higher psychological distress and lower life satisfaction was reported by cohort members without a cohabiting partner. Unemployment, lower educational attainment and self-reported financial difficulties were all associated with higher reported psychological distress and lower life satisfaction. Parents showed slightly better mental health overall and, for those without children, people reporting that they never want to have children showed higher psychological distress and lower life satisfaction than people open to or actively trying to have children. Supplementary Table S6 presents the full set of unadjusted weighted means for psychological distress and life satisfaction by demographic and socioeconomic characteristics at age 32.

RQ1. How does parents' mental health compare to people without children and are there differences between males and females?

Table 1 presents results from the unadjusted and adjusted models for the association between parental status and psychological distress and life satisfaction. After adjusting for demographic, socioeconomic and health characteristics at age 15, being a parent was associated with fewer symptoms of psychological distress and higher life satisfaction for both males and females when compared to those without children. Results therefore indicate a small positive effect of parenthood on the mental health of adults at age 32. Standardised effects indicate that parenthood plays more of a role in improving life satisfaction than reducing psychological distress. The adjusted model predicted means for males and females are visualised in Fig. 1 and demonstrate that parents of both sexes report fewer symptoms of psychological distress and higher life satisfaction than people without children. Female parents experience more psychological distress than male parents, but their levels of life satisfaction are about the same. This finding highlights a complex picture of maternal well-being. While female parents report greater psychological distress—likely stemming from the demands of caregiving—they still report life satisfaction levels comparable to male parents. Females without children do however show slightly higher life satisfaction than their male counterparts. Further adjusting for age 32 characteristics did not significantly change the results.

RQ2. To what extent are there demographic and socioeconomic inequalities in mental health within the parent group and amongst people without children?

Weighted mean psychological distress and life satisfaction scores by sex and demographic and socioeconomic characteristics at age 32 can be found in Supplementary Table S7. The results below are based on models adjusting for age 15 demographic, socioeconomic and health characteristics. In most cases, further adjusting for age 32 characteristics did not significantly change conclusions. Where differences were observed, a summary is provided. Unadjusted and adjusted model results are presented in Supplementary Table S8 and margins plots presenting demographic and socioeconomic inequalities using model predicted mean psychological distress and life satisfaction scores can be found in Supplementary Fig. S1 and S2.

3.1. Ethnicity

Ethnic inequalities in psychological distress varied by parental status. Among male parents, ethnicity was not associated with psychological distress. In contrast, Indian, Pakistani, Bangladeshi, and Black African or Caribbean female parents showed fewer symptoms of psychological distress than White female parents. The same pattern was observed among females without children, while Black African or Caribbean males without children also reported fewer symptoms than their White counterparts. When further adjusting for age 32 characteristics, female parents with mixed ethnicity also showed fewer symptoms of psychological distress than White female parents. Ethnicity was not associated with life satisfaction in the parent group or for females without children. However, Black African or Caribbean males without children showed higher life satisfaction when compared to White males without children. Ethnic differences in psychological distress and life satisfaction among male parents were smaller than among males with no children. We did not observe this pattern for females.

3.2. Sexual orientation

Sexual minority inequalities in psychological distress persist regardless of parenthood. Female parents who identified as LGBQ reported higher psychological distress than their heterosexual counterparts, with a similar trend approaching significance for males. Sexual minority males without children also experienced higher distress while this association was approaching significance for the sexual minority females without children and completely disappeared when additionally controlling for age 32 characteristics in the model. Parenthood appears to slightly amplify sexual minority inequalities in psychological distress for females. However, small LGBQ parent sample sizes, especially for males (N = 29), resulted in large confidence intervals. Sexual minority status was not associated with life satisfaction in the male parent sample or among people without children after adjusting for age 15 characteristics. However, LGBQ female parents reported lower life satisfaction than their heterosexual counterparts.

3.3. Cohabiting partner

Having a cohabiting partner appears to be more protective for

Table 1
Unadjusted and adjusted regression models to examine the association between parental status and psychological distress and life satisfaction (full sample N = 7,095, males N = 3,012, females N = 3952).

	Coeff [95 % CI]					
	Psychological distress			Life satisfaction		
	Full sample	Males	Females	Full sample	Males	Females
Parental status (if parent)						
Unadjusted	−0.05 [-0.11 – 0.01]	−0.11** [-0.20 - −0.02]	−0.05 [-0.13 – 0.03]	0.23*** [0.16–0.29]	0.27*** [0.17–0.37]	0.17*** [0.09–0.25]
Adjusted for demographic, socioeconomic and health characteristics at age 15	−0.10*** [-0.16 - −0.04]	−0.10** [-0.19 - −0.01]	−0.10** [-0.18 - −0.02]	0.26*** [0.20–0.32]	0.28*** [0.19–0.38]	0.23*** [0.15–0.31]
Adjusted for demographic, socioeconomic and health characteristics at ages 15 and 32	−0.09*** [-0.15 - −0.02]	−0.06 [-0.15 – 0.03]	−0.11** [-0.19 - −0.02]	0.17*** [0.11–0.23]	0.15*** [0.06–0.24]	0.17*** [0.09–0.25]

Note: ***p < .01 **p < .05. The male and female samples do not total the full parent sample (N = 131 missing).

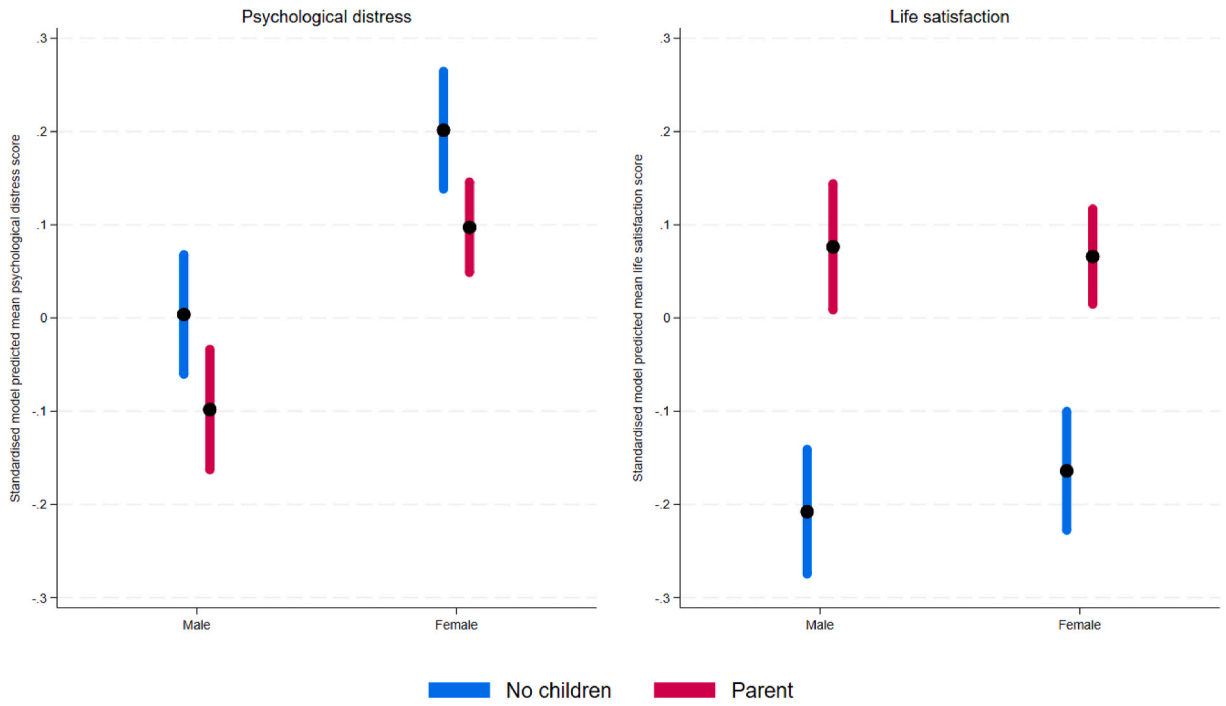

Fig. 1. Standardised and adjusted (age 15 characteristics only) model predicted psychological distress (left) and life satisfaction (right) mean scores for parents and people without children for males (N = 3012) and females (N = 3952).

parents' mental health than for those without children. However, in both groups, males and females without a cohabiting partner reported higher psychological distress. In models further adjusting for age 32 characteristics, having a cohabiting partner was not associated with psychological distress. This is likely due to overlap between having a cohabiting partner and other age 32 characteristics such as combined labour market status. Not having a cohabiting partner reduced life satisfaction for both parents and people without children with a stronger association observed in the parent group, especially among males.

3.4. Combined labour market status

Dual earnings were linked to lower psychological distress, regardless of parental status. Parents and people without children alike reported more distress when only one or neither person was employed, with a slightly stronger association for parents. In models further adjusting for age 32 characteristics, the relationship between higher psychological distress and single earnings for people without children was no longer statistically significant.All other results held after adjusting for age 32 characteristics, including having a cohabiting partner. Similarly, dual earnings were associated with higher life satisfaction for all. However, in models further adjusting for age 32 characteristics, this relationship was no longer statistically significant.

3.5. Education level

Having a degree was associated with fewer symptoms of psychological distress across all groups, though it was slightly less protective for female parents than for male parents. Those with a degree had higher life satisfaction when compared to those with below degree level education. Although having a degree improved life satisfaction for all, the strongest association was seen in the male parent group. In models further adjusting for age 32 characteristics, all associations disappeared.

3.6. Self-reported financial difficulties

Experiencing financial difficulties was consistently associated with higher psychological distress and lower life satisfaction across all groups, with no significant differences between parents and people without children.

Taken together, we find evidence that mental health is shaped by intersecting factors, including ethnicity, sexual orientation, relationship status, and socioeconomic characteristics measured by employment, education and financial strain.

RQ3. For parents, are there differences in mental health by age when first child was born and number of children?

Table 2 presents the results from the unadjusted and adjusted models examining the association between age when first child was born and number of children and psychological distress and life satisfaction. After adjusting for age 15 demographic, socioeconomic and health characteristics, parents' age when first biological child was born was negatively associated with psychological distress such that older age of parent (and therefore older age of first child) was associated with reduced psychological distress for male and female parents. A similar trend was observed for life satisfaction, with older age when first child was born associated with higher life satisfaction.

No association between number of children and mental health was observed for males. However, a greater number of children was associated with higher psychological distress and lower life satisfaction for female parents after controlling for age 15 demographic, socioeconomic and health characteristics. This finding suggests that the mental health burden of parenting a larger family falls disproportionately on female parents. See Supplementary Fig. S3 for margins plots presenting adjusted model predicted psychological distress and life satisfaction mean scores for parents by number of children. The figure presents results using a newly generated variable for number of children that collapses responses given small numbers of cohort members with five or more children (1, 2, 3 or 4+ children).

RQ4. For people without children, are there differences in mental health by different fertility intentions?

Table 3 presents the results from the unadjusted and adjusted models examining the association between fertility intentions and psychological

Table 2
Unadjusted and adjusted regression models to examine the association between parents' age when first biological child was born and number of children and psychological distress and life satisfaction.

	Coeff [95 % CI]					
	Psychological distress			Life satisfaction		
	Full sample	Males	Females	Full sample	Males	Females
Age when first biological child was born						
Unadjusted	−0.04*** [-0.05 - −0.03]	−0.04*** [-0.06 - −0.02]	−0.04*** [-0.05 - −0.03]	0.05*** [0.04–0.06]	0.05*** [0.03–0.07]	0.04*** [0.03–0.06]
Adjusted for demographic, socioeconomic and health characteristics at age 15	−0.03*** [-0.04 - −0.02]	−0.04*** [-0.05 - −0.02]	−0.03*** [-0.04 - −0.02]	0.04*** [0.03–0.05]	0.05*** [0.03–0.06]	0.03*** [0.02–0.05]
Adjusted for demographic, socioeconomic and health characteristics at ages 15 and 32	−0.01*** [-0.02 - −0.00]	−0.01 [-0.03 – 0.00]	−0.01** [-0.03 - −0.00]	0.02*** [0.01–0.03]	0.02*** [0.01–0.04]	0.01 [-0.00 – 0.02]
Number of children						
Unadjusted	0.10*** [0.05–0.14]	0.04 [-0.05 – 0.13]	0.11*** [0.06–0.17]	−0.05** [-0.10 - −0.00]	0.01 [-0.08 – 0.10]	−0.09*** [-0.14 - −0.03]
Adjusted for demographic, socioeconomic and health characteristics at age 15	0.07*** [0.02–0.11]	0.03 [-0.05 – 0.12]	0.08*** [0.03–0.13]	−0.03 [-0.07 – 0.02]	0.02 [-0.07 – 0.11]	−0.05** [-0.11 to −0.00]
Adjusted for demographic, socioeconomic and health characteristics at ages 15 and 32	0.01 [-0.03 – 0.06]	−0.03 [-0.11 – 0.05]	0.04 [-0.01 – 0.09]	0.01 [-0.03 – 0.06]	0.07 [-0.01 – 0.15]	−0.02 [-0.07 – 0.03]

Note: ***p < .01 **p < .05. For models examining age when first biological child was born, the sample includes only those who have biological children (N = 3496), N = 96 dropped who did not have any biological children or who had missing data. The male (N = 1253) and female (N = 2185) samples do not total the full parent sample who have biological children (N = 58 missing). For models examining number of children, the sample includes all parents (N = 3592). The male (N = 1293) and female (N = 2240) samples do not total the full parent sample (N = 131 missing). Age when first biological child was born ranged from 16-34 and number of children from 1-10.

Table 3
Unadjusted and adjusted regression models examining the association between the fertility intentions of people without children and psychological distress and life satisfaction (N = 3,503, males N = 1,719, females N = 1712).

Fertility intentions	Coeff [95 % CI]					
	Psychological distress			Life satisfaction		
	Full sample	Males	Females	Full sample	Males	Females
Unadjusted						
Definitely would like children, not trying (ref)						
Definitely would like children, trying	−0.06 [-0.20 – 0.09]	−0.05 [-0.28 – 0.17]	−0.09 [-0.29 – 0.11]	0.26*** [0.13–0.40]	0.21** [0.01–0.41]	0.32*** [0.14–0.50]
Maybe, not sure	0.12 [-0.00 – 0.25]	0.10 [-0.08 – 0.28]	0.16** [0.00–0.32]	−0.16*** [-0.27 - −0.05]	−0.17** [-0.34 - −0.00]	−0.16 [-0.31 – 0.00]
Definitely would not like children	0.20** [0.03–0.38]	0.31** [0.03–0.58]	0.04 [-0.14 – 0.23]	−0.28*** [-0.45 - −0.10]	−0.45*** [-0.73 - −0.18]	−0.04 [-0.26 – 0.17]
Adjusted for demographic, socioeconomic and health characteristics at age 15						
Definitely would like children, not trying (ref)						
Definitely would like children, trying	−0.06 [-0.20 – 0.08]	−0.05 [-0.26 – 0.16]	−0.09 [-0.27 – 0.09]	0.25*** [0.12–0.38]	0.21** [0.01–0.40]	0.31*** [0.14–0.48]
Maybe, not sure	0.10 [-0.02 – 0.22]	0.09 [-0.08 – 0.26]	0.13 [-0.02 – 0.29]	−0.16*** [-0.27 - −0.05]	−0.17** [-0.33 - −0.00]	−0.15 [-0.30 – 0.01]
Definitely would not like children	0.14 [-0.03 – 0.31]	0.24 [-0.02 – 0.49]	−0.01 [-0.20 – 0.18]	−0.24*** [-0.41 - −0.07]	−0.39*** [-0.66 - −0.13]	−0.02 [-0.22 – 0.19]
Adjusted for demographic, socioeconomic and health characteristics at ages 15 and 32						
Definitely would like children, not trying (ref)						
Definitely would like children, trying	0.03 [-0.10 – 0.16]	0.03 [-0.17 – 0.24]	0.00 [-0.16 – 0.17]	0.07 [-0.05 – 0.19]	0.01 [-0.17 – 0.19]	0.14 [-0.02 – 0.29]
Maybe, not sure	0.06 [-0.05 – 0.18]	0.04 [-0.12 – 0.21]	0.12 [-0.03 – 0.26]	−0.11** [-0.21 - −0.01]	−0.12 [-0.27 – 0.03]	−0.12 [-0.25 – 0.02]
Definitely would not like children	0.06 [-0.10 – 0.22]	0.14 [-0.10 – 0.38]	−0.06 [-0.24 – 0.12]	−0.19** [-0.35 - −0.04]	−0.34*** [-0.57 - −0.11]	0.01 [-0.18 – 0.21]

Note: ***p < .01 **p < .05. The male and female samples do not total the full parent sample (N = 72 missing).

distress and life satisfaction and Fig. 2 presents the standardised and adjusted model predicted psychological distress (left) and life satisfaction (right) mean scores by fertility intentions in the group without children. After adjusting for age 15 demographic, socioeconomic and health characteristics, the association between fertility intentions and psychological distress was not significant. However, model predicted means showed a pattern in which both males and females currently trying to have a child had the lowest psychological distress. For males, those who definitely did not want to have children had the highest psychological distress whereas for females it was those who were unsure about their fertility intentions.

Fertility intentions were associated with life satisfaction such that for both males and females, people currently trying to have a child reported the highest levels of life satisfaction. For males, those who reported definitely not wanting to have children reported lower life satisfaction when compared with people who would definitely like to have children but were not currently trying. This result held in the models further adjusting for age 32 characteristics. For females, those who definitely did not want to have children showed similar levels of life satisfaction to females who wanted to have children but were not currently trying, with lower levels of life satisfaction observed for females unsure about their fertility intentions. This indicates that having decided about fertility intentions improves females' life satisfaction and that for those actively trying to fulfil their goal of having a child, there is a mental health advantage. In the models further adjusting for age 32 characteristics, all significant associations between fertility intentions and life satisfaction disappeared in the female sample.

4. Discussion

This study provides evidence on the relationship between parenthood and mental health among a representative English cohort age 32. It was the first examination of parenthood and mental health in these data, with parents making up over half of the sample. Using longitudinal data and applying a lifecourse approach enabled the adjustment for observable selection effects, specifically, accounting for the possible reciprocal relationship between mental health and parent status. Furthermore, we explored demographic and socioeconomic inequalities within these groups and provide novel findings relating to fertility intentions and mental health among people without children.

4.1. Parenthood and mental health: small but positive effects

In line with emerging research on the reciprocal relationship between mental health and parent status, the current study finds that males with poorer mental health during adolescence are less likely to become parents in early to mid-adulthood (Kalucza et al., 2015; Grundström et al., 2024). Our main finding also indicates that, after adjusting for early-life demographic, socioeconomic and health characteristics, parenthood has a modest positive effect on mental health, with slightly fewer symptoms of psychological distress and higher life satisfaction (Aassve et al., 2012; Nelson et al., 2013). Standardised effects indicate that parenthood plays a greater role in improving life satisfaction than reducing psychological distress. This finding emphasises the importance of capturing the related but distinct dimensions of the complete mental health state. It also provides support for the *demands-rewards perspective* of parenthood (Nomaguchi and Milkie, 2020) with global improvements in quality of life and subjective well-being fostered by increased meaning and purpose despite potential increases in stress due to the demands of parenting.

Our findings are presented within the context of higher psychological distress among females. While parents of both sexes reported fewer symptoms of psychological distress and higher life satisfaction than people without children, male parents generally showed an advantage given overall better mental health compared to females. Although somewhat supportive of the unequal mental health burden of parenthood for mothers (Nomaguchi and Milkie, 2020), we instead conclude a more global female mental health penalty in this cohort. This points to the need for policies addressing structural gender inequalities that contribute to mental health burdens in the English context. For example, this may involve efforts to reduce the gender-pay gap and other workplace inequalities. The caregiving burden on mothers should be reduced by increasing the uptake of 'Shared Parental Leave' among fathers and through more equitable parental leave policies, flexible work arrangements and subsidised childcare as childcare costs in the UK are the highest in Europe (OECD, 2022a); and support services should be better integrated across mental health, reproductive health, employment and childcare.

4.2. Demographic and socioeconomic inequalities

Differences in mental health between parents and people without children reveal how economic pressure, social structures and support systems affect people differently depending on their parental status. Significant demographic and socioeconomic inequalities in mental health were observed within the parent group and among people without children. Ethnic minority female parents, specifically those with Indian, Pakistani, Bangladeshi and Black African or Caribbean ethnicities, reported lower psychological distress than White female parents. This finding contrasts recent research that suggests a mental health disadvantage among ethnic minorities (Kirkbride et al., 2024) and prior research indicating greater parental burden for marginalised groups (Nomaguchi and Milkie, 2020; Cheng et al., 2021; Whitaker et al., 2021). However, ethnic differences in mental health were more pronounced among males without children. Black African or Caribbean males without children reported fewer symptoms of psychological distress and higher life satisfaction than their White counterparts. This mental health advantage was not observed among male parents, perhaps suggesting greater parental burden for males from an ethnic minority background.

Sexual minorities reported higher psychological distress across by sex and parental status, confirming persistent mental health disparities for LGBQ individuals (Pitman et al., 2021). In the current study, these disparities were more pronounced for LGBQ female parents, suggesting that parenthood may amplify sexual minority stress among this particular group (Nomaguchi and Milkie, 2020). These findings underscore the need for anti-discrimination policies, recognition of the unique challenges faced by parents from minority backgrounds and tailored mental health services.

Having a cohabiting partner and being in a dual-earning household consistently protected against psychological distress and were associated with higher life satisfaction. Taken together, we provide further evidence for the mental health benefits of relationship stability and financial security (Musick et al., 2016). In line with previous research (Aassve et al., 2016), these protective effects were stronger among parents, suggesting that social and economic resources play a more pronounced role in buffering the mental health challenges associated with raising children. These findings also align with research that observes greater parental burden among those experiencing economic precarity (Nomaguchi and Milkie, 2020; Cheng et al., 2021; Whitaker et al., 2021). Policies that provide financial security such as income support, affordable housing and paid parental leave will may improve relationship stability by reducing household stress. Furthermore, policies that increase gender equality such as equal pay, flexible work and subsidised childcare may help with work life balance, particularly for low-income families. Previous research suggests that fathers happiness is compromised by financial strain (Pollmann-Schult, 2014). We might therefore have expected stronger associations between self-reported financial difficulties and worse mental health for male parents in the current study. However, financial difficulties were universally detrimental for mental health, with large effects across all groups.

Being educated to degree level or above was associated with fewer

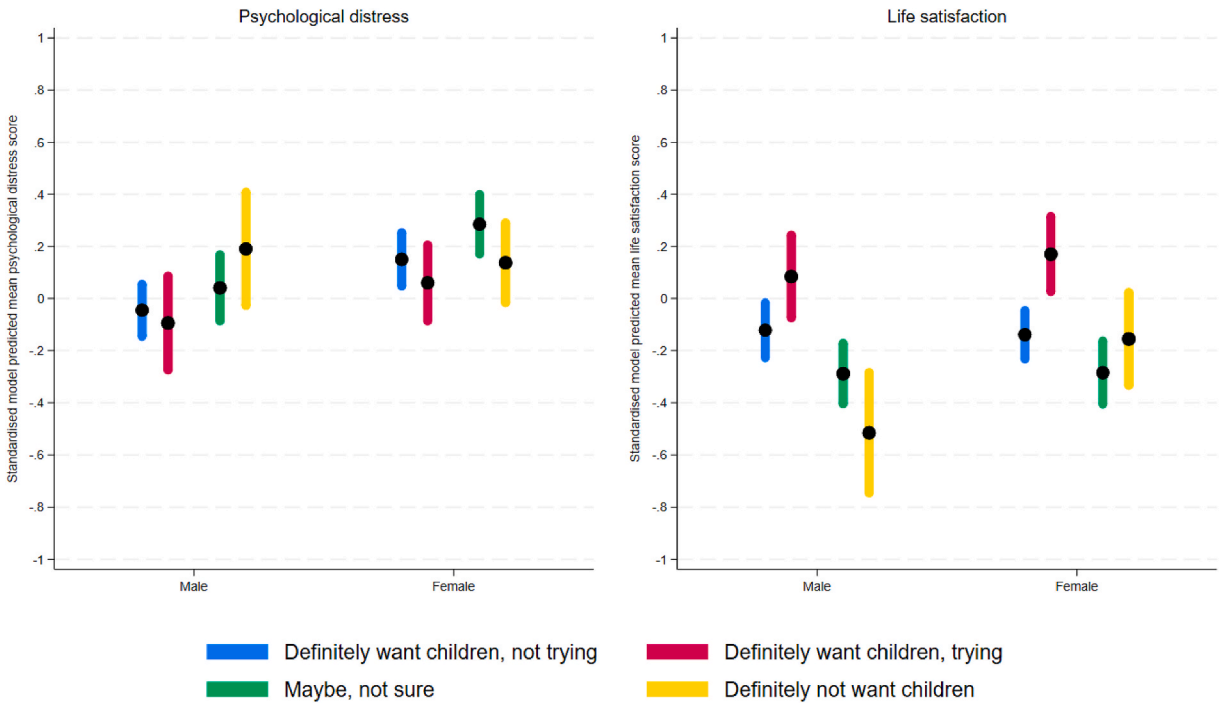

Fig. 2. Standardised and adjusted (age 15 characteristics only) model predicted psychological distress (left) and life satisfaction (right) mean scores by fertility intentions amongst people without children (N = 3,503, males N = 1,719, females N = 1712).

symptoms of psychological distress and higher life satisfaction across all groups, though it was slightly less protective for female rather than male parents. This finding suggests that more highly educated parents may have more financial resources, lower burden, better health behaviours, a greater sense of control and more social support (Schieman and Plickert, 2008; Lantz et al., 2005). Education is also linked to enhanced problem-solving skills, greater perceived control, and more effective stress management (Mirowsky and Ross, 2007), all of which may contribute to better mental health outcomes.

4.3. Timing of parenthood and number of children

The age at which individuals became parents was associated with mental health outcomes in the current study. Older age at first biological child was linked to lower psychological distress and higher life satisfaction, consistent with prior research suggesting that delayed parenthood allows for greater psychological and financial preparedness (Myrskylä and Margolis, 2014). A greater number of children was linked to worse mental health for females but not males. Females with more children reported significantly higher psychological distress and lower life satisfaction, reinforcing the notion that the mental health burdens of parenthood disproportionately affect female parents (Nomaguchi and Milkie, 2020). This aligns with research suggesting mothers' happiness is compromised due to the time demands of parenting, with women still carrying more responsibilities than men (Pollmann-Schult, 2014). However, it is important to note that the sample consists of relatively young parents with young children, which may limit the generalisability of the findings. Future research should explore how these patterns evolve as both parents and children age.

4.4. Fertility intentions and mental health among people without children

Among people without children, fertility intentions were associated with life satisfaction such that for both males and females, people currently trying to have a child reported the highest levels of life satisfaction. We conclude that for those actively trying to fulfil their goal of having a child, there is, on average, a mental health advantage. There will, of course, be heterogeneity within this group, given that some individuals will be experiencing fertility problems while trying to conceive and others may have experienced pregnancy loss.

Males who definitively did not want children reported the highest levels of psychological distress and the lowest life satisfaction which could mirror selection effects based on adolescent mental health. This could also reflect a social stigma associated with deviating from the social norms around family formation for men. However, these males may be influenced by other unobserved factors associated with both reproductive decisions and depressive symptoms e.g., discrimination, adverse childhood experiences and environmental concerns (Kirkbride et al., 2024). For females, those who were uncertain about their fertility intentions reported lower life satisfaction compared to those who either wanted children or definitely did not. This may be indicative of the psychological toll of ambiguity surrounding future parenthood and reflects the increasing tensions for women between starting a family, educational attainment, personal achievements and freedom (Kuipers et al., 2021). Policies should be inclusive of people who are child-free by choice and increase availability of counselling and reproductive education for those unsure about their fertility intentions.

4.5. Strengths, limitations and future directions

This study provides novel evidence on parenthood and mental health using a nationally representative English cohort. A key strength is the use of longitudinal data to account for observable selection effects. The inclusion of two different mental health indicators, psychological distress and life satisfaction, allows for a more nuanced understanding of the complex relationship between parenthood and mental health. Furthermore, stratification by sex and consideration of demographic and socioeconomic factors highlights persisting inequalities among parents and people without children, with implications for targeted policies. We also provided novel evidence on fertility intentions and mental health among people without children.

However, the current study has several limitations that must be acknowledged. While we adjusted for a range of adolescent demographic, socioeconomic and health characteristics, unmeasured

confounding variables (e.g., discrimination and adverse childhood experiences, environmental concerns, personality traits and social support networks) may still bias our estimates. Also the relatively small number of LGBQ parents in our sample limits the precision of our estimates for this subgroup. Given the demographic and socioeconomic inequalities observed in the current study, future research should investigate how policy interventions (e.g., parental leave, childcare subsidies) might buffer the mental health costs of parenthood for socioeconomically disadvantaged and marginalised groups.

While we provide unique findings relating to fertility intentions and mental health among people without children, we acknowledge that at age 32, this cohort is still very much within their reproductive window. Research suggests an increase in life satisfaction in the years leading up to becoming a parent (Baetschmann et al., 2016), as is indicated by our findings relating to those currently trying to have a child. By including those currently trying to have a child in the 'control' group, it could have biased our estimates. Future research should therefore explore the longitudinal mental health trajectories of individuals who have completed their fertility.

In our analysis, we use cohabiting partnership status as a proxy for relationship status, however we recognise that this does not fully capture the diversity of family and parenting arrangements—particularly among single parents and co-parents who do not reside together. We acknowledge that co-parenting can take many forms and is not necessarily reflected by residential status alone. Finally, we do not examine the heterogeneity within the parents group by age of youngest child or age spacing between children which may reveal interesting findings, rather we focus on the age of parent at first birth (and therefore age of the eldest child as a function). Future research could disentangle these patterns further.

5. Conclusion

Overall, our findings suggest that parenthood confers modest mental health benefits for both males and females at age 32, although these benefits are shaped by the timing of parenthood, the number of children and socioeconomic circumstances. Importantly, our study highlights significant inequalities in mental health within both the parent group and among people without children, with females, sexual minorities, those without cohabiting partners, and people facing economic precarity showing elevated psychological distress. Addressing these disparities requires targeted social policies and mental health interventions that recognise the diverse experiences of parents and people without children.

CRediT authorship contribution statement

Rosie Mansfield: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Conceptualization. **Morag Henderson:** Writing – review & editing, Supervision, Project administration, Methodology, Funding acquisition, Conceptualization.

Ethical approval

The Next Steps data used in this paper has received ethical approval. More specifically, the Department for Education managed ethical approval for Sweeps 1–7 (ages 14–20). The Centre for Longitudinal Study (CLS) received ethical approval for Sweep 8 (age 25) from the NHS Research Ethics Committee (REC), (REC Reference 14/LO/0096), and for Sweep 9 (age 32) from the NHS REC (REC Reference 22/EE/0052). This research has been approved by the University College London research ethics committee as part of the CLS research programme.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used ChatGPT in order to improve the readability of the manuscript. After using this tool, the author(s) reviewed and edited the content as needed and take full responsibility for the content of the publication.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2025.118471.

Data availability

Data are openly available via the UK Data Service

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