Childhood Trauma Experiences, Epistemic Stance, And Social Relationships in Adolescents Receiving Therapy

Sally Bell

DClinPsy thesis (Volume 1), 2024

University College London

UCL Doctorate in Clinical Psychology

Thesis declaration form

I 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.

Signature:

Name: Sally Bell

Date: 12/06/2024

Thesis Overview

This thesis explores psychological factors that contribute to relationship formation, including a literature review focusing on therapeutic alliance, and an empirical study looking at adolescent personal and professional relationships. The systematic review and meta-analysis in Chapter 1 provides updated synthesis of the relationship between various attachment styles and the therapeutic alliance within psychological settings, in adolescence and adulthood. This study seeks to understand the impact of pre-intervention individual attachment styles have on therapeutic alliance formation, while considering other confounding variables. Small, significant effects are observed between four categories of attachment – Secure, Anxious/Preoccupied, Avoidant/Dismissive, and Fearful/Disorganised – and therapeutic alliance. Considerations for future research are proposed, alongside the clinical benefits of deepening understanding in this area.

The empirical study in Chapter 2 was conducted as part of a joint project (Appendix A) exploring epistemic stances in adolescence. This specific project investigated experiences of childhood trauma, epistemic stance (trust, mistrust and credulity), and mentalizing, and how these factors associate with adolescent social relationships, both personal and professional. Most notably, epistemic mistrust emerged as a significant negative effect in personal relationship quality, but not professional, in the multi-level analyses. Epistemic credulity emerged as a significant positive effect in professional relationships, while no effect was observed in personal relationships. The results are considered as preliminary evidence due to limitations

in the sample size of the study, and directions for future, larger scale research are proposed.

The critical reflection in Chapter 3 reflects on the process of the research, including the research strategy, data collection protocol, and reflection on the measurement of social networks within the empirical project in Chapter 2. Directions for future research are discussed, as well as considering the bi-directional impact of completing research alongside clinical work in related areas.

Impact Statement

Adolescence is a vulnerable stage of development during which the risk of developing mental health difficulties increases. Child and Adolescent Mental Health services are under rising pressure due to the increase support being sought for mental health difficulties, with 20.3% of 16-year-olds and 23.3% of 17- to 19-year-olds meeting the criteria for a “probable mental disorder” according to the Mental Health of Children and Young People in England 2023 report by the NHS. Adolescence is also a period during which there is more intense engagement with peers and wider social influences which have been long considered as mechanisms of support and protection against mental health risks. However, the availability of such protective factors varies between individuals.

In Chapter 2, this thesis empirically explores factors that may contribute to adolescent relationships, including childhood trauma experiences, epistemic stance, and mentalizing. This study has contributed to understanding the complex web of adolescent social networks, highlighting potential differences of psychological functions at play between personal and professional relationships. An improved understanding of how these factors relate to perception of social connection in adolescence provides crucial information for services and wider policymakers to better meet adolescent needs. Ultimately, this could enable more young people to benefit from vital interventions to improve social functioning, and in turn increase protection from mental health development. Areas for improvement in the literature are identified and potential methods to overcome barriers in this type of research are discussed.

Furthermore, this study has added to the limited evidence base of epistemic trust research in adolescent samples, which is a developing area of psychological theory. Increasing individual clinician and service understanding of adolescent social networks, and the psychological factors that may contribute to their formation, is vital for ensuring the success of psychological interventions. The findings of the empirical study suggest that not only psychological professionals can have an impact on adolescent social functioning, and involving important personal relationships and other professionals, such as school and education staff, in interventions could allow for targeted support in improving relationship quality for adolescents.

The literature review in Chapter 1 considers the relationship between attachment styles of both adolescents and adults in therapy and therapeutic alliance. Recognising client attachment styles can support clinicians to adapt their interventions to meet the needs of the client, by providing predictive insights into potential engagement barriers. Knowledge of attachment-related traits can help therapists mentalize their clients' experiences more effectively and adapt their interventions to foster trust and security. Moreover, the possibility of more fully integrating attachment theory into clinical practice, particularly in training and supervision contexts is discussed. The literature review was conducted as part of a wider project involving a larger structural equation model analysis to be disseminated journal publication.

The empirical research will be fed-back to participating services and presented to an NHS child and adolescent trauma team. The research project is continuing based on recommendations made within this study, with plans to pursue dissemination through journal publication.

Table of Contents

List of Tables

Chapter 1:

Chapter 2:

List Of Figures

Chapter 1:

Chapter 2:

Acknowledgements

Firstly, I want to thank all the young people, parents/carers, and CAMHS key workers that made this project possible. Their participation and enthusiasm for the project was so motivating. Thank you to my supervisors, Professor Peter Fonagy, Dr Tobias Nolte, Dr Rob Saunders, and Dr Ciaron O'Driscoll, for their guidance and direction. I am so grateful for my colleagues on this project, Susie Taplin, and Shannon Potter. Your support has been invaluable. My final thank you goes to my friends and family for holding me up through this process.

Chapter 1: Literature Review

The Relationship between Attachment Style and Therapeutic Alliance: A Systematic Review and Meta-Analysis

Abstract

Introduction

This systematic literature review and meta-analysis explored the relationship between attachment style and therapeutic alliance, updating research conducted over a decade ago.

Methods

This review encompassed English-language, peer-reviewed studies of adolescent and adult patient groups aged 12 and above, receiving psychological intervention, which reported a correlation between early therapy patient-rated therapeutic alliance and attachment traits as measured by the Experiences of Close Relationships Scale (ECR) and Relationships Questionnaire/Relationships Scales Questionnaire (RQ/RSQ). The databases searched from inception to 27/11/23 included PsycINFO, Medline, Embase, CINAHL, and Scopus PubMed. Longitudinal studies were appraised using the Newcastle Ottawa Scale and cross-sectional studies with the Joanna Brigg's Institute critical appraisal tool. Correlational data was extracted from included papers and categorised by attachment style: Secure, Anxious/Preoccupied, Avoidant/Dismissive, and Fearful/Disorganised. Four meta-analyses were conducted to investigate the relationship between each category and therapeutic alliance, reporting a pooled effect size. Moderator analyses were conducted for age, gender, and ethnicity of the included samples.

Results

The review included 22 studies in the Anxious/Preoccupied category (N = 2574), 21 in the Avoidant/Dismissive category (N = 2528), 6 in the Fearful/Preoccupied category (N = 276), and 5 in the Secure category (N = 227). The average age of

participants in the studies ranged from 27.39 to 45.98. The percentage of female participants ranged from 52.7% to 100%, and the percentage of white participants ranged from 58.33% to 100%.

A small yet significant positive effect size was observed between secure attachment and alliance ($r = .22$, CI [.12, .32], $p < .05$). A small yet significant negative effect was observed in all insecure categories – Anxious/Preoccupied ($r = -.18$, CI [-.25, -.11], $p < .05$), Avoidant/Dismissive ($r = -.09$, CI [-.13, -.05], $p < .05$), and Fearful/Disorganised ($r = -.17$, CI [-.37, .04], $p < .05$). No significant moderators were observed in any category.

Discussion

This study compared only two commonly used measures of attachment, which limits the generalisability of these results. The statistical differences between the reported effect sizes were not explored, and moderator analysis for different diagnostic groups or treatment types was not investigated due to the heterogeneity within the study samples.

The results of this study support the notion that attachment style may influence an individual's ability to form a therapeutic alliance. However, due to small effect sizes, the results should be interpreted with caution, considering other confounding variables. Nonetheless, understanding a client’s attachment tendencies could support clinicians in sensitively adapting therapeutic engagement techniques to meet the needs of the client and promote favourable therapeutic outcomes.

Introduction

Therapeutic Alliance

An alliance is a dyadic, collaborative relationship between two individuals (Bordin, 1994). Within the context of psychological treatment, a therapeutic alliance is proposed to exist between the therapist and the client (Bordin, 1979). Historical psychoanalytical thinking considered the dynamics between a therapist and client as a transference of the client's early caregiver relationships, viewing any emotional connection as a redirection of feelings the client experienced in childhood (Diener & Monroe, 2011; Freud, 1912). However, developments in theoretical understanding soon established that a therapeutic working alliance was a distinct entity, where genuine feelings, whether positive or negative, exist between the therapist and client in their own right (Diener & Monroe, 2011; Greenson & Wexler, 1969; Horvath, 2000). Some literature suggests that a working alliance is a necessary precondition for therapeutic success (Weck et al., 2015; Baier, Kline & Feeny, 2020), while others argue that it is a mechanism of change, especially in relational therapies (Baier, Kline & Feeny, 2020; Siev, Huppert & Chambless, 2009). Nonetheless, the therapeutic alliance is a common factor across therapeutic modalities and is consistently reported as important in promoting favourable outcomes across therapeutic modalities in both adolescent and adult populations (Baier, Kline & Feeny, 2020; Ryan, Berry & Hartley, 2021).

It is proposed that an alliance can be established within the early stages of therapy (Hilsenroth, Peters & Ackerman, 2004; Horvath, 2000). Three key features are considered to be prerequisite to a positive therapeutic alliance: an agreement on the goals of therapy, an agreement on the tasks needed to achieve said goals, and

the development of an emotional bond consisting of trust, respect, and personal attachment (Bordin, 1979). To support the development of these conditions, a collaborative and trusting environment may be efficacious. This could include both parties being able to openly and honestly communicate, listen to each other, and establish a safe-enough environment to be vulnerable and explore emotions (Anderson & Perlman, 2020; MacFarlane, Anderson & McClintock, 2015).

How easily these conditions are available to each person to encourage the formation of a good alliance may vary depending on individual differences, such as attachment tendencies (Bucci et al., 2016; O'Connor et al., 2019), motivation and stage of change (Cheng & Lo, 2018; Porter & Ketring, 2011), and global mental health symptomatology (Bourke, Barker & Fornells-Ambrojo, 2021). Therapist factors in the alliance formation are increasingly researched, with associations noted in adult literature between alliance and therapist empathy and genuineness (Nienhuis et al., 2018) and therapist attachment style (Bucci et al., 2016), and in adolescent literature between in-session behaviour and interpersonal style (Ryan, Berry & Hartley, 2021) and high attunement to the patient's alliance perception (Escudero et al., 2022). Research indicates that clients and therapists may rate the same alliance differently, with clients providing ratings of higher quality (Igra et al., 2020; Shick Tryon, Blackwell, & Hammel, 2007). Attachment styles may have a role to play in this difference, potentially altering perception of alliance quality based on an internal view of relationship formation (Degnan et al., 2016; Sauer et al., 2010).

Attachment Theory and Alliance

Patient attachment patterns, informed by developmental experiences with early caregivers, are considered to influence the formation of the therapeutic alliance

in adolescents and adults (Levin, Henderson & Ehrenreich-May 2012; Satterfield & Lyddon, 1998; Sauer et al., 2010). Attachment theory posits that early childhood intersubjective experiences are internalised into cognitive/affective representations that depict perceptions of self-worth and expectations of trust and dependence on others (Bowlby, 1979; Sroufe, 2005). These internal working models (IWMs) shape an individual's understanding of the world, which can persist across the lifespan to some degree (Shaver, Collins, & Clark, 2014). Contemporary conceptualisation of attachment theory considers that individual differences in attachment styles are not static and can be modified in response to significant life events or later relationships (Fraley, Gillath & Debock, 2021; Hazan & Shaver, 1994). This suggests that a person can exhibit characteristics of different attachment styles to varying degrees of intensity and that expressions of attachment can be fluid and dependent on a given relationship or context (Cassidy, Jones & Shaver, 2014; Taylor et al., 2015).

Nonetheless, quantitative measures of attachment aim to capture a person's current attachment patterns based on how they seek comfort, closeness, and support in their relationships with others, with some considering parental relationships and others considering romantic relationships (Brennan, Clark & Shaver, 1998). Some measures aim to specify a person's overriding attachment style representation categorically by identifying them within one of four categories: Secure, Anxious/Preoccupied, Avoidant/Dismissive, or Fearful/Disorganised (e.g., Adult Attachment Interview (AAI); George, Main, & Kaplan, 1985). Other measures aim to identify the underlying characteristics that contribute to an attachment style, such as relationship anxiety or avoidance (e.g., Experiences of Close Relationships Scale (ECR); Brennan, Clark & Shaver, 1998).

Secure Attachment and Alliance

Receiving responsive, sensitive, and attuned care as an infant lays the foundation for secure attachments to develop. Secure attachment is characterised by a sense of trust and safety in relationships, a positive self-image, and a belief that one's needs will be met by others (Mikulincer & Shaver, 2005). Having a secure attachment is linked with lower mental health symptomatology (e.g., Carr, Hardy & Fornells-Ambrojo, 2018; Dagan, Facompre & Bernard, 2018) and is associated with stronger therapeutic alliances in both adolescents and adults, characterised by positive affect, collaboration, a perception of therapist relationships as trusting, and a willingness to engage in therapy (Diener & Monroe, 2011; Levin, Henderson & Ehrenreich-May 2012; Smith et al., 2010).

Secure caregiving promotes the development of important intrapersonal capacities, such as emotional regulation (Pallini et al., 2018), mentalizing (the ability to reflect on one's own and others' mental states; Luyten et al., 2020), and epistemic trust (the innate openness to learning new information from others; Campbell et al., 2021; Fonagy, Luyten & Allison, 2015). These core skills are proposed to enable a person to develop self-autonomy while also being able to rely on and support others as needed with a sense of openness, vulnerability, and collaboration (Mikulincer, Shaver, & Berant, 2013). In a therapeutic context, these skills may translate to a client feeling understood by their therapist, which has been proposed as an important route for information transmission and knowledge acquisition that is vital for therapeutic outcomes (Fonagy & Allison, 2014).

Insecure Attachment and Alliance

Conversely, individuals with insecure attachment styles may struggle to form trusting bonds with therapists, leading to difficulties with self-disclosure, increased resistance, and ultimately, poorer therapeutic outcomes (Levy et al., 2018; Mikulincer & Shaver, 2016). The important core capacities that are promoted in secure attachments are opposingly inhibited in insecure attachments, such as mentalizing (Santoro et al., 2021), epistemic trust (Fonagy & Allison, 2014), and emotional regulation (Pallini et al., 2018). Insecure attachment is consistently reported as a risk factor for the development of psychiatric conditions in adolescence and adulthood (Colonnesi et al., 2011; Dagan, Facompre & Bernard, 2018; Hertsell et al., 2021; Spruit et al., 2020). Driven by inconsistent and mis-attuned caregiving, where a child's needs are not consistently met, insecure attachment can be further categorised based on specific IWMs of the self and others (Bartholomew & Horowitz, 1991).

Anxious/preoccupied attachments are driven by a fear of abandonment or rejection, leading to an overdependence on others and a negative view of the self as unlovable (Bartholomew & Horowitz, 1991; Mikulincer, 1998). While individuals with anxious attachment styles may feel initially at ease in therapy due to their desire to rely on a supportive other, they can find ruptures and the ending of therapy particularly challenging to manage due to feelings of rejection and anger (Eames & Roth, 2000; Levy et al., 2018; Marmarosh, 2017). However, some literature has proposed that anxious attachment and the associated fear of being rejected may improve engagement in services (McGonagle et al., 2021).

Avoidant/dismissive attachment tendencies, driven by emotional invalidation or rejection from caregivers, include a positive view of self-reliance paired with a

negative distrust and distancing from others (Bartholomew & Horowitz, 1991; Mikulincer, 1998). A fear of depending on others and difficulty expressing emotions create significant barriers for creating trusting and vulnerable relationships, making the beginning of therapy challenging as the person starts to navigate this new interpersonal connection (Levy et al., 2018; Mallinckrodt, Gantt & Coble, 1995). Furthermore, attachment avoidance has been proposed to negatively associate with engagement in services in some clinical contexts (McGonagle et al., 2021).

Secure, anxious, and avoidant attachment styles are considered to be organised patterns that are adaptive in response to caregiver experiences. A fourth category of attachment, Fearful/Disorganised, represents a disorganisation in patterns of response, as the name suggests (Main & Solomon, 1990). Fearful attachment combines aspects of both avoidant and anxious attachment tendencies, where a person feels a desire to be close to others while also fearing this intimacy. Stemming from unpredictable or frightening caregiving experiences, individuals with fearful attachments are reported to have a negative view of themselves as unworthy of care, and view others as distrustful and rejecting (Bartholomew & Horowitz, 1991). People who fearfully avoid interactions with others are likely to find the initial stages of therapy frightening, and they may also perceive any ruptures and endings as threatening or rejecting (Reis & Grenyer, 2004). This can present numerous barriers to the formation of a good therapeutic alliance and the associated outcomes.

Attachment and Alliance in Clinical Practice

Therapists must therefore recognise that each person will enter therapy with their own blueprint of what a relationship is and how to form one. It is also important for therapists themselves to recognise their own attachment tendencies, as these are

likely to be activated in their interactions with clients and contribute to the therapeutic outcome in both adolescent and adult populations (Bucci et al., 2016; Degnan et al., 2016; Ryan, Berry & Hartley, 2021). However, a good therapeutic alliance and the associated outcomes may still be achievable in any case. Fonagy & Allison (2014) proposed that through three systems of communication, effective psychotherapy can alter IWMs, leading to changes in presenting problems and quality of social adaptation. Firstly, the teaching and learning of content which is personalised and relevant can make the client feel understood. The accurate mentalizing of the client's needs models open and trusting social interactions, allowing the opportunity for clients themselves to mentalize and understand the therapist's intentions, which is an important second step in the therapeutic process. The success of the first two steps allows for the third step to emerge, which is the ability to trust in the information being shared as relevant and generalisable, termed epistemic trust, improving the capacity for social learning and willingness to modify interactions in interpersonal relationships (Fonagy & Allison, 2014).

Therapists may have to alter their approaches to these components of therapeutic process, depending on how able a client is to access this social learning, which attachment styles and related IWMs may be a helpful marker of (Fonagy & Campbell, 2017). Accurately adapting to the client's attachment needs and successfully mentalizing their experiences could form an important base for the formation of a good alliance, allowing an emotional connection to be established and a shared understanding of the client's goals to develop, ultimately improving outcomes (Baier, Kline & Feeny, 2020; Fonagy & Allison, 2014; Levy et al., 2018).

Previous Reviews

The relationship between attachment style and therapeutic alliance has long been a subject of interest in psychological research. A 2010 systematic review explored the relationship between attachment security, anxiety, and avoidance, each with the therapeutic alliance. This review reported that greater attachment security predicted a stronger alliance with a medium effect size, but the results for attachment avoidance were inconsistent. Additionally, no significant relationship was found between alliance and attachment anxiety (Smith et al., 2010). Although this narrative review reported effect sizes from included studies, it did not perform a meta-analysis to consider the pooled effects. To address this gap, a 2011 meta-analysis used correlation coefficients from included studies on adult populations and found that greater attachment security was significantly positively correlated with stronger reports of therapeutic alliance ($r = .17$, $p < .001$), however the limitations of included literature prevented further exploration of potential moderators of this relationship, such as therapy type or client diagnosis (Diener & Monroe, 2011). Similarly, a 2013 meta-analysis found that both attachment anxiety and avoidance were significantly negatively correlated with alliance ($r = -.121$, $p<.001$ and $r = -.137$, $p <.001$ respectively), however by only including studies with adult samples in outpatient therapy this may have limited generalizability to other settings, such as couple or group therapy, inpatients, or adolescents (Bernecker, Levy, & Ellison, 2013).

A more recent literature review focused specifically on attachment and alliance in the context of psychosis and observed small negative associations between avoidant attachment and alliance as measured by both client and clinician perspective, though not all included studies observed such an effect. Furthermore, this review observed that attachment anxiety may have less important contributions

to alliance formation, though it was significantly implicated in engagement with services in general (McGonagle et al., 2021). This study aimed to include literature from populations across the lifespan, however the final sample of included literature spanned an adult age range of only 21 years, from aged 23 to aged 44. Additionally, as this study only included literature on individuals with psychosis, the findings cannot be generalised to a wider clinical population.

While attachment theory remains central to psychologists' understanding of how people form relationships, including therapeutic alliances (Berry & Danquah, 2020), there has not been an updated meta-analysis on this topic within a general clinical sample since 2013. It is important to clarify whether the relationships observed remain similar or have changed, now that more than a decade has passed. Additionally, more recent literature may bring more possibility to explore differences in any observed relationship between diagnostic groups or treatment types, as has been possible in other recent reviews considering therapeutic alliance and treatment outcomes (Baier, Kline & Feeny, 2020). While literature poses a similar relationship between attachment and alliance in both adolescent and adult samples (e.g., Diener & Monroe, 2011; Levin, Henderson & Ehrenreich-May 2012), no previous meta-analysis has included adolescent studies. Doing so may allow for a greater understanding of the impact that age and stage of life has on the relationship between the two.

Furthermore, no meta-analysis exploring the relationship between measures of fearful/disorganised attachment and alliance has been published. This may be because fearful/disorganised attachments are well documented in infancy, but the literature in adulthood is sparser (Paetzold, Rholes, & Kohn, 2015). Additionally, since fearful attachment includes facets of both attachment anxiety and avoidance, it

is likely that individuals who would fall into the category of fearful attachment are captured within measures of attachment traits rather than categories. Nonetheless, it would be beneficial to explore if meta-analysis data supports the theoretical understanding that fearful/avoidant attachment impacts the formation of a therapeutic alliance.

The Current Study

This study aims to fill a critical gap by presenting an updated systematic literature review and meta-analysis of the relationship between client attachment styles and client-reported therapeutic alliance. Considering the potential for attachment styles to change during therapeutic interventions (Taylor et al., 2015), this study will focus on early therapy measures of alliance and attachment. By doing so, it seeks to understand the impact that pre-intervention individual attachment styles have on the formation of a therapeutic alliance. In alignment with previous findings, it is hypothesised that greater attachment security will be positively correlated with a stronger alliance. Conversely, it is anticipated that higher scores of attachment anxiety, avoidance, and fearful attachment will be negatively correlated with alliance. This approach will provide insights into how initial attachment orientations influence the therapeutic process and may guide more tailored and effective therapeutic interventions.

Methods

This systematic review was conducted as a precursor to a wider project investigating the direct and indirect associations between attachment style, mentalizing, and therapeutic alliance. The wider project will utilise a meta-structural-

equation model and is registered on PROSPERO (Registration: CRD42023447454). The focus of this current study is solely on the association between attachment and therapeutic alliance, with other trainees examining the relationships between mentalizing and attachment, and mentalizing and alliance specifically. All systematic searches and analyses for each project were conducted independently.

The current study adheres to PRISMA guidelines (Gates & March, 2016), and both a PRISMA 2020 Checklist and PRISMA 2020 Abstract Checklist are included in Appendix B.

Search Design

A systematic literature search was performed using strategies designed to identify studies exploring the association between attachment and therapeutic alliance in individuals receiving psychological treatment for any mental health disorder or difficulty. The search strategy was designed similarly to previous reviews (e.g., Diener & Monroe, 2011), using a limited number of key search terms to specifically capture research measuring attachment and therapeutic alliance. Detailed search strategies are provided in Appendix C. Literature searches were conducted across several databases, including PsycINFO, Medline, Embase, CINAHL, Scopus, and PubMed. The final search was executed on the 27th of November 2023.

Eligibility Criteria

This systematic review aimed to encompass studies featuring a diverse range of adolescent and adult patient groups across various settings, all receiving psychological treatment. This treatment was defined as any type of psychological intervention delivered by a trained professional. Accordingly, the inclusion criteria

covered studies involving participants with a minimum age of 12, with no upper age limit, who have received any type of intervention for psychological concerns. To effectively capture studies reporting on the relationship between attachment and alliance, quantitative cross-sectional and longitudinal studies utilising continuous, validated measures of attachment and alliance were included. Originally, any validated measure was intended for inclusion. However, due to the large volume of articles identified, it was decided to only include articles using the three most frequently reported attachment measures in the identified studies, alongside any validated measure of alliance. These were identified as the Relationships Questionnaire (RQ; Bartholomew & Horowitz, 1991) and Relationships Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994), which both assess secure, anxious/preoccupied, avoidant/dismissing, and fearful traits of attachment, and the Experiences of Close Relationships Scale (ECR; Brennan, Clark & Shaver, 1998), which measures attachment anxiety and avoidance traits. More information about the structure and validation of the included measures can be found in Appendix D.

The review included peer-reviewed journal articles published from database inception up to November 2023 and published in the English language. The exclusion criteria were set to omit individual case studies; non-human studies; qualitative studies; literature reviews; non-peer reviewed and published dissertations; studies that did not provide effect sizes; and studies involving children under the age of 12.

Screening

Searches were conducted on each database and all results of potential studies were downloaded to Zotero reference manager software. Duplicates

identified by multiple databases were removed. In line with PRISMA guidelines (Gates & March, 2016), all studies from the combined searches were independently screened by the first reviewer based on the title and abstract for their suitability. The remaining studies were then independently screened by the first reviewer by reading the full text and removed if they did not meet the inclusion criteria. A second reviewer (ST) independently reviewed 10% of studies at each stage to ensure consistency in the application of inclusion criteria.

Quality Assessment

The risk of bias in the included studies was assessed independently by the primary author (SB), and a second reviewer (ST) independently assessed 10 studies, representing 45% of the total studies included. Any discrepancies were discussed, and a consensus score was agreed upon. Longitudinal studies were assessed using the Newcastle Ottawa Scale (NOS; Wells, Shea & O'Connell, 2009); cross-sectional studies were assessed using the Joanna Briggs Institute (JBI) critical appraisal tool.

The NOS (Wells, Shea & O'Connell, 2009) is a validated and reliable tool for assessing the quality of non-randomised studies (Luchini et al., 2017). An adapted version of this tool (Appendix E), as used in other systematic reviews (e.g., Bawor et al., 2015; Peter et al., 2018), was selected as most suitable for the current study, due to the absence of a “non-exposed cohort” in the studies and their observational design. The adapted tool uses seven items to assess four domains of risk or bias: selection bias, performance bias, detection bias, and information bias. Each of the seven items was scored from high risk (0 points) to low risk (3 points), with a higher overall score indicating a lower level of risk (maximum score of 21 points).

The JBI critical appraisal tool is designed to assess the quality of quasi-experimental studies (Tufanaru et al., 2017). This tool includes eight items, as detailed in Appendix F, with response options of "yes, no, unclear, or not applicable." Due to its non-applicability in the context of the current study's observational, trans-diagnostic designs, Question 3 from the original JBI checklist ("Was the exposure measured in a valid and reliable way?") was omitted. For the remaining seven items, a score of 1 was assigned to all "yes" responses, and a score of 0 was assigned to all other responses, yielding an overall score. This scoring approach aligns with methods used in previous systematic reviews (e.g., Saikia et al., 2024).

Scores from each assessment tool were then transformed into percentages. These percentages were used to categorize the overall quality of the studies into four levels: very low (0-30%), low (30-50%), medium (50-70%), and high (70-100%). This categorization facilitates a clear and structured evaluation of the methodological quality of the included studies, helping to highlight the robustness of the findings presented in the systematic review.

Data Extraction.

Relevant characteristics of each study were independently extracted and reported in the results section by the lead researcher (SB). Correlational results were extracted as the effect size metric for the meta-analyses. Since this study focuses on the early phase of therapy, measures were extracted from the earliest point after therapy commencement. Authors were contacted via email if the necessary correlation data was not reported to request the raw data. All included studies reported a correlation between two or more attachment domains and therapeutic alliance scores. The extracted data was categorised into four groups based on the

attachment measures used: Secure, Anxious/Preoccupied, Avoidant/Dismissing, and Fearful/Disorganised.

Demographic variables such as age, gender, and ethnicity were extracted if reported. Information regarding patient diagnoses and types of therapeutic intervention were also extracted if the study focused on a specific diagnostic group or therapy type. If the study involved transdiagnostic groups or trans-therapeutic interventions, such data was only extracted if the study performed between-group analyses. Authors were not contacted for missing demographic, diagnostic, or treatment variables, as it was assumed that the omission of this data indicated it was not collected.

Analytic Strategy

Four meta-analyses were conducted using Meta-Essentials 1.5 on Microsoft Excel (Suurmond, van Rhee & Hak, 2017), each focusing on the correlation between one of the attachment domains—Secure, Anxious/Preoccupied, Avoidant/Dismissing, and Fearful/Disorganised—and therapeutic alliance. All studies included in the meta-analyses reported correlation coefficients, (r), representing the association between client attachment and therapeutic alliance. Due to the diversity in study characteristics, such as the instruments used, scales reported, and populations studied, a random effects model was employed (Riley, Higgins, & Deeks, 2011), with two-sided p-values and 95% confidence intervals (CI) reported. Heterogeneity among the studies was estimated using the I^2 statistic, considering 25% as low, 50% as moderate, and 75% as high heterogeneity (Peter et al., 2021).

In alignment with best practices, effect sizes were first transformed into Fisher's Z of r weighted by their inverse variances, averaged, and then transformed

back into r using standard meta-analytic procedures (Diener & Monroe, 2011; Hedges, Higgins, Rothstein & Borenstein, 2009). Demographic variables (age, gender, and ethnicity), clinical diagnostic groups, and types of therapeutic intervention available from the included studies were examined as potential moderators of effect size, using a random effects model.

To assess publication bias, Funnel plots, Egger's regression, and the Trim and Fill procedure were conducted, which are commonly used in meta-analyses, especially when the number of studies is relatively small (Duval & Tweedie, 2000) as was the case for the Secure and Fearful/Disorganised analyses. These methods help evaluate the extent to which the effect sizes observed might be influenced by unpublished studies or studies reporting non-significant results.

Results

Identified Studies

As depicted in Figure 1, the initial search resulted in 6,845 records, which was reduced to 3,734 after duplicates were removed. A total of 3,518 studies were excluded during the title and abstract screening stage, leaving 216 studies for full-text screening. At this stage, 187 studies were excluded for the following reasons: 1. Not being published in a peer-reviewed journal, 2. Not using a validated measure of attachment or alliance, 3. Not employing the pre-identified measures of attachment, 4. Using an inappropriate sample, 5. Inability to access the full text or an English language version, and 6. Employing unsuitable methodologies or data. This left 29 studies deemed suitable for inclusion.

Of these, 11 studies did not report the necessary correlation data required for this meta-analysis. The authors of these studies were contacted to request the raw data; however, 7 authors either did not respond or were unable to provide the data. Four authors did provide the necessary data, resulting in the final sample for this meta-analysis consisting of 22 publications.

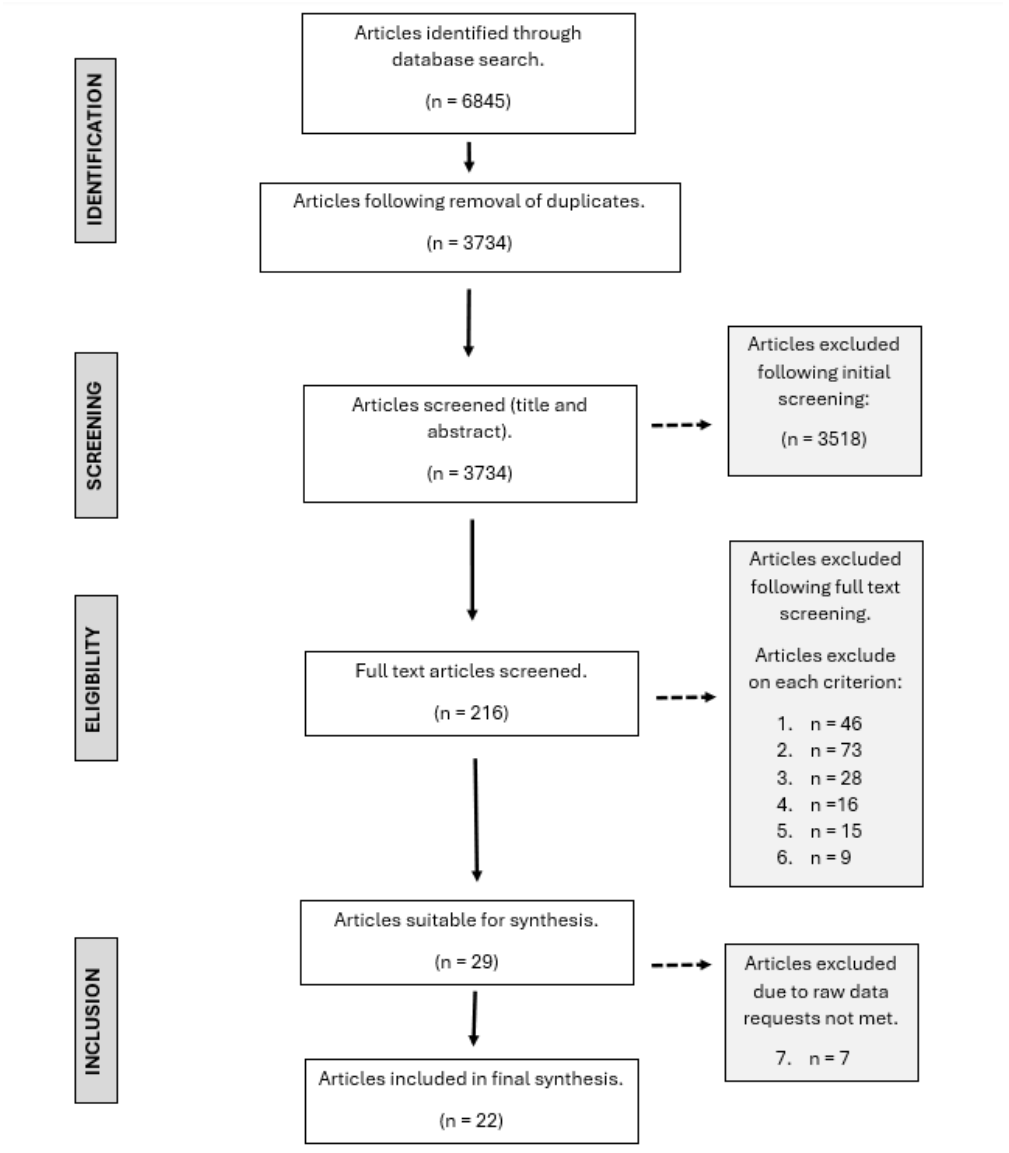

Figure 1. PRISMA Flow Diagram of Study Selection.

Study Characteristics

22 studies were included in this meta-analysis. Table 1 outlines the characteristics of the included studies. The average age of participants across studies ranged from 27.39 to 45.98 years. No studies focusing on adolescents were identified as appropriate to include. The percentage of female participants varied from 52.7% to 100%, and the percentage of white participants ranged from 58.33% to 100%. Various diagnoses were reported among the participants, including major depression and panic disorder, though most studies encompassed multiple diagnoses and did not report differences between diagnostic groups. A variety of therapeutic modalities were represented in the included studies, such as cognitive-behavioural therapy (CBT), counselling, and supportive expressive therapy. Many of these studies employed an observational design and, consequently, did not analyse or report differences across specific therapeutic interventions. Sixteen included studies employed a longitudinal design, while six utilized a cross-sectional design.

Attachment Measures

Of the included studies, 13 used the Experiences of Close Relationships (ECR) and 3 utilised the revised short version of ECR (ECR-S). Four studies employed the Relationship Questionnaire (RQ), and two studies used the Relationship Scales Questionnaire (RSQ). More information about these attachment measures is detailed reported in Appendix D.

Alliance Measures

Most studies, 15 in total, used the Working Alliance Inventory (WAI; Horvath & Greenberg, 1986), also referred to as the WAI-Client Version (WAI-C). Four studies employed the short-revised version of WAI (WAI-SR; Tracey & Kokotovic, 1989).

One study (Siefert & Hilsenroth, 2015) used the Combined Alliance Short Form-Patient Version (CASF-P; Hatcher & Barends, 1996), and another study (Miller et al., 2015) utilized the Couples Therapy Alliance Scale (CTAS; Pinsof & Catherall, 1986). One included study (Sullivan, Lawson & Akay-Sullivan, 2020) used the Individual Therapy Alliance: Revised/Short (ITA-RS; Pinsof et al., 2008). More information about these alliance measures is detailed in Appendix G.

Table 1. *Summary of Study Characteristics.*

Study	Study Design	N	Mean Age	% Female	% White	Primary Dx	Tx type	Alliance measure	Mean alliance score (SD)	Attach-ment measure	Mean attachment score (SD)			
											Secure	Anxious/ Preoccupied	Avoidant/ Dismissive	Fearful/ Disorganised
David-sela et al., 2021	L	65	32	61.5	-	MDD	SET	WAI	5.292 (0.923)	ECR	-	4.23 (1.206)	4.0683 (1.011)	-
Miller et al, 2015	L	115	31.25 (M); 29.4 (F)	-	78.8	-	Marriage and family therapy	CTAS-R	M=32.40 (7.33) F= 32.37 (7.34)	ECR	-	M = 59.84 F = 51.54	M = 46.3 F = 51.54	-
Barreto & Matos, 2022	L	12	29	75	-	-	-	WAI-S	4.02 (0.73)	ECR	-	2.67	3.64	-
Sauer et al., 2010	L	95	27.71	68.42	84.2	-	Counselling	WAI-C	209.32 (25.74)	ECR	-	71.39 (26.76)	54.06 (23.86)	-
Mallinckrodt, Porter & Kivlighan Jr et al., 2005	CS	38	27.39	67	89			WAI	214.03 (25.74)	ECR-S	-	4.35 (1.24)	3.29 (1.37)	-
Schiff & Levit, 2010	CS	95	39.95	100	-	Meth-adone users	Social care	WAI	5.7 (1.28)	ECR	-	3.92 (1.19)	4.08 (0.96)	-
Aafjes-van Doorn, Bekes, & Luo, 2021	L	466	30.61	76	84.3	-	Psycho-therapy	WAI-SR	3.75 (0.84)	ECR	-	3 (1.83)	2.74 (1.59)	-
Lafrenaye-Dugas, Hebert & Godbout, 2018	CS	278	38.9	53.6	-	-	Sex therapy	WAI-CS	70.1 (10.06)	ECR	-	*Not reported*		-
Sullivan, Lawson & Akay-Sullivan, 2020	L	56	-	100	65.95	CSA	TF-CBT	ITA-RS	5.9 (1.3)	ECR	-	CSA: 4.6 (1.2) No abuse: 3.8 (1.4)	CSA: 3.6 (1.1) No abuse: 2.7 (.97)	-
Bekes & Aafjes-Van Doorn, 2023	L	719	31.07	70.5	80.8	-	-	WAI-SR	3.84 (0.86)	ECR-RS	-	2.5 (1.84)	2.69 (1.58)	-
Lafrenaye-Dugas, Hebert & Godbout ,2023	L	74	37.9	52.7	-	-	Sex therapy	WAI	72.9 (8.5)	ECR	-	*Group 1: 4.9 (1.4) Group 2: 4.1 (1.9) Group 3: 3.7 (1.2)	*Group 1: 3.1 (1.5) Group 2: 3.0 (1.5) Group 3: 3.1 (1.4)	-
Marmarosh et al., 2014	CS	48	29.81	58.33	58.33	-	-	WAI	61.78 (9.17)	ECR	-	3.96 (1.39)	3.54 (1.37)	-
Coyne et al., 2018	L	119	38.64	71	-	MDD	IPT	WAI	203.53 (24.53)	ECR	-	77.84 (21.43)	60.93 (20.38)	-
Marmarosh et al., 2009	L	31	24.6	71	87.1	-	Counselling	WAI-S	5.54 (0.86)	ECR-S	-	3.93 (1.32)	3.27 (1.37)	-

Taylor et al., 2015	L	58	40.07	62.06	100	-	CBT	WAI	208.74 (29.35)	ECR	-	76.07 (22.16)	69.8 (24.77)	-
Romano, Fitzpatrick & Janzen, 2008	L	59	28.97	91.52	66.1	-	Counselling	WAI	5.93 (0.69)	ECR	-	3.45 (1.07)	2.62 (1.18)	-
Lange et al., 2021	L	49	32.2	67.3	100	Panic disorder	CBT	WAI	4.08 (0.65)	RSQ	-	2.87 (0.73)	2.13 (0.73)	-
Bucci et al., 2016	CS	30	-	73	97	-	-	WAI	208.86 (24.53)	RQ	3.5 (1.93)	4.71 (1.74)	3.57 (1.73)	3.39 (2.1)
Satterfield & Lyddon, 1998	CS	63	23.37	80.95	61.9	-	Counselling	WAI	217.33 (24.17)	RQ	3.76 (2.09)	3 (2.13)	2.56 (2.04)	2 (1.76)
Siefert & Hilsenroth, 2015	L	46	30.02	80.4	-	-	Psycho-therapy	CASF-P	*Not reported*	RQ	-	-	-	-
Reis & Grenyer, 2004	L	58	45.98	58.62	-	MDD	SET	WAI-C	5.56 (0.79)	RQ	38.29 (26.5)	61.24 (26.93)	44.78 (26.74)	51.73 (28.52)
Eames & Roth, 2000	L	30	34.7	56.66	100	-	-	WAI	*Not reported*	RSQ	2.43 (0.6)	3.46 (0.78)	3.18 (0.91)	3.41 (0.79)

Notes: L refers to longitudinal studies; CS refers to cross sectional studies; M refers to Male participants; F refers to Female participants; MDD refers to Major Depressive Disorder; SET refers to Supportive Expressive Therapy; TF-CBT refers to Trauma-Focused Cognitive Behavioural Therapy; IPT refers to Interpersonal Therapy

**Group 1 = "Progress below average", Group 2 = "Average level of progress", Group 3 = "Progress above average" (Lafrenaye-Dugas, Hebert & Godbout, 2023)*

Table 2. *Quality Assessment.*

Study	JBI 1	JBI 2	JBI 3	JBI 4	JBI 5	JBI 6	JBI 7	Total Score (out of 6)	% score	Quality Rating
Miller et al., 2015	0	0	N/A	1	0	1	1	3	50%	*Medium*
Bucci et al., 2016	0	1	N/A	1	0	1	1	4	66.66%	*Medium*
Satterfield & Lyddon, 1998	0	1	1	1	0	1	0	4	66.6%	*Medium*
Mallinckrodt, Porter & Kivlighan Jr et al., 2005	0	1	N/A	0	0	1	1	3	50%	*Medium*
Schiff & Levit, 2010	0	1	1	1	1	1	1	6	85.7%	*High*
Lafrenaye-Dugas, Hebert & Godbout, 2018	0	1	1	0	0	1	1	4	66.66%	*Medium*
Marmarosh et al., 2014	0	1	N/A	0	0	1	1	4	66.6%	*Medium*
	NOS 1	**NOS 2**	**NOS 3**	**NOS 4**	**NOS 5**	**NOS 6**	**NOS 7**	**Total Score (out of 21)**		
David-Sela et al., 2021	2	2	1	3	2	3	2	15	71.43%	*High*
Barreto & Matos, 2015	2	1	1	3	1	3	2	13	61.9%	*Medium*
Sauer et al., 2010	2	2	1	3	2	3	2	15	71.43%	*High*
Siefert & Hilsenroth, 2015	1	2	1	3	2	3	1	13	61.9%	*Medium*
Aafjes-van Doorn, Bekes & Luo, 2021	1	2	2	3	2	3	2	13	61.9%	*Medium*
Reis & Greyner, 2004	1	2	1	3	2	3	3	13	61.9%	*Medium*
Sullivan, Lawson & Akay-Sullivan, 2020	2	1	1	3	1	2	2	11	52.38%	*Medium*
Eames & Roth, 2000	1	1	1	3	2	3	1	12	57.14%	*Medium*
Bekes & Aafjes-Van Doorn, 2023	1	3	2	3	1	3	2	15	71.43%	*High*
Lafrenaye-Dugas, Hebert & Godbout, 2023	1	2	1	2	2	2	2	12	57.14%	*Medium*
Coyne et al.,2018	1	2	2	3	2	3	2	15	71.43%	*High*
Marmarosh et al., 2009	1	2	2	3	2	3	2	15	71.43%	*High*
Taylor et al., 2015	1	2	1	3	2	3	2	14	66.66%	*Medium*
Romano, Fitzpatrick & Janzen, 2008	1	2	1	3	2	3	2	14	66.66%	*Medium*
Lange et al., 2021	2	1	2	3	2	3	1	14	66.66%	*Medium*

Quality Assessment

All included studies were rated as Medium or High quality, with percentage scores of rating tools ranging from 50% to 85.7% (Table 2).

Moderator Analyses

Due to the diversity within the study samples, including the use of multiple treatment modalities and inclusion of various diagnoses, it was often not feasible to code for diagnosis or treatment moderators. However, continuous moderator analyses were carried out for mean age (though 2 studies did not report this data), percentage of female participants (with 1 study not reporting), and percentage of white participants (not reported in 8 studies). Details of specific moderator analyses are presented within each respective subcategory below.

Secure Attachment and Alliance

In the meta-analysis focusing on secure attachment and its correlation with therapeutic alliance, a small yet significant positive effect was observed in the pooled effect size ($r = .22$, [CI] [0.12, 0.32], $p < .05$). This analysis included five studies ($K = 5$; $N = 227$), and heterogeneity among these studies was low ($I^2 = 0\%$). The correlations from individual studies are detailed in Table 3 and illustrated in Figure 2.

Egger's regression analysis was conducted to assess publication bias, revealing no statistical significance (intercept = -1.17, $p = .51$), suggesting no evidence of publication bias. This conclusion is supported by Figure 3, which shows all studies falling symmetrically within the funnel plot. The application of the trim-and-fill method indicated no adjustments were required for the dataset.

No continuous moderator analyses were statistically significant for age ($K = 4$, $\beta = 0.02$, $p = .985$), gender ($K = 5$, $\beta = 0.49$, $p = .591$), or ethnicity ($K = 3$, $\beta = -0.44$,

p = .716). These findings indicate that the observed effect sizes for secure attachment and alliance were not significantly influenced by these demographic variables across the studies included.

Table 3. *Secure Attachment and Alliance Overview.*

Study name	Correlation	CI Lower limit	CI Upper limit	Weight
Bucci et al., 2016	.25	-.14	.57	12.74%
Satterfield & Lyddon, 1998	.21	-.04	.44	28.30%
Siefert & Hilsenroth, 2015	.30	0	.55	20.28%
Reis & Grenyer, 2004	.24	-.03	.47	25.94%
Eames & Roth, 2000	.05	-.33	.42	12.74%
POOLED EFFECT SIZE	**.22**	**.12**	**.32**	-

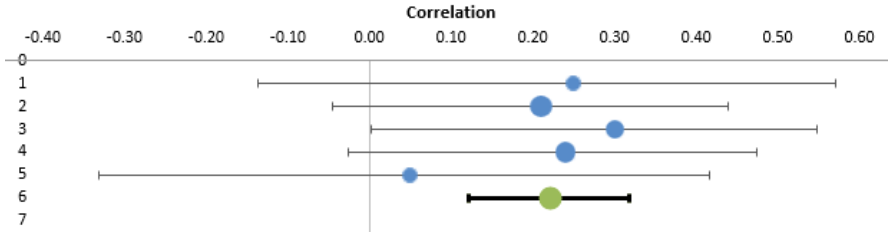

Figure 2. *Forest Plot of Secure Attachment and Alliance.*

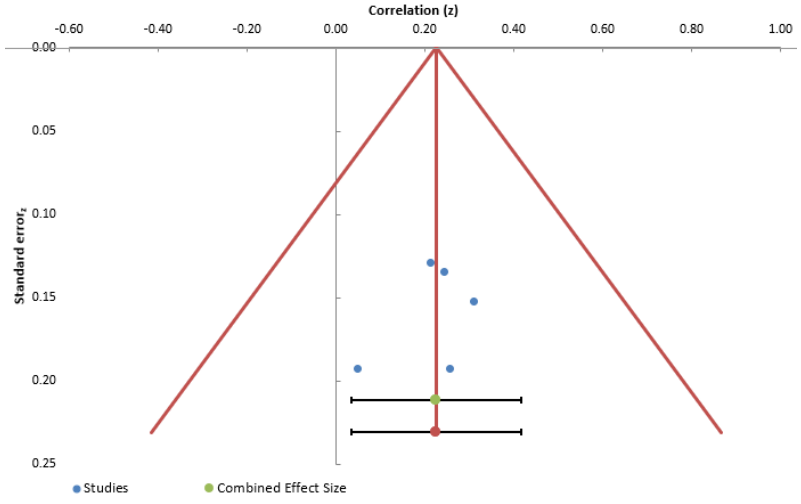

Figure 3. *Funnel Plot of Secure Attachment and Alliance Publication Bias.*

Anxious/Preoccupied Attachment and Alliance

In the meta-analysis examining the relationship between anxious/preoccupied attachment and therapeutic alliance, a small but significant negative effect was observed in the pooled effect size (r = -.18, [-0.25, -0.11], p < .05). This analysis included 22 studies (K = 22; N = 2574), and the heterogeneity among these studies was high (I^2 = 72.72%). Details of the individual studies' correlations, CIs, and their contributions to the pooled effect are outlined in Table 4 and depicted in Figure 4.

Egger's regression analysis, conducted to assess publication bias, showed no significant results (intercept = 2.02, p = .07), suggesting no evidence of publication bias. This finding is supported by Figure 5, which displays most studies falling within the funnel plot, although two studies are located below and one just above the main concentration of data points. The application of the trim-and-fill method indicated that no adjustments were required for the dataset.

Furthermore, none of the continuous moderator analyses proved to be statistically significant for age (K = 17, β = 0.24, p = .386), gender (K = 20, β = -0.17, p = .551), or ethnicity (K = 14, β = -0.15, p = .683). These results suggest that the negative relationship between anxious/preoccupied attachment and therapeutic alliance was consistent regardless of variations in age, gender, or ethnicity across the included studies.

Table 4. *Anxious/Preoccupied Attachment and Alliance Overview.*

Study name	Correlation	CI Lower limit	CI Upper limit	Weight

David-Sela et al., 2021	.11	-.15	.35	4.58%
Miller et al., 2015	-.17	-.34	.02	5.54%
Barreto & Matos, 2022	-.18	-.72	.50	1.39%
Sauer et al., 2010	-.26	-.44	-.06	5.25%
Mallinckrodt, Porter & Kivlighan Jr et al., 2005	-.33	-.59	0	3.53%
Schiff & Levit, 2010	-.11	-.31	.10	5.25%
Aafjes-van Doorn, Bekes & Luo, 2021	-.43	-.50	-.35	6.90%
Lafrenaye-Dugas, Hebert & Godbout, 2018	-.28	-.39	-.17	6.55%
Sullivan, Lawson & Akay-Sullivan, 2020 (CSA* group)	-.10	-.36	.17	4.30%
Sullivan, Lawson & Akay-Sullivan, 2020 (Non abuse group)	-.29	-.52	-.02	4.30%
Bekes & Aafjes-Van Doorn, 2023	-.43	-.49	-.37	7.10%
Lafrenaye-Dugas, Hebert & Godbout, 2023	-.04	-.27	.19	4.82%
Marmarosh et al., 2014	.10	-.20	.38	4.00%
Coyne et al., 2018	-.12	-.30	.06	5.59%
Marmarosh et al., 2009	-.11	-.46	.27	3.11%
Taylor et al., 2015	-.27	-.50	-.01	4.37%
Romano, Fitzpatrick & Janzen, 2008	-.20	-.44	.06	4.40%
Lange et al., 2021	-.03	-.31	.26	4.04%
Bucci et al., 2016	-.12	-.47	.27	3.05%
Satterfield & Lyddon, 1998	-.18	-.41	.08	4.52%
Reis & Grenyer, 2004	.03	-.24	.29	4.37%
Eames & Roth, 2000	-.16	-.50	.23	3.05%
POOLED EFFECT SIZE	**.18**	**-.25**	**-.11**	**-**

NOTE: *CSA = Child Sexual Abuse

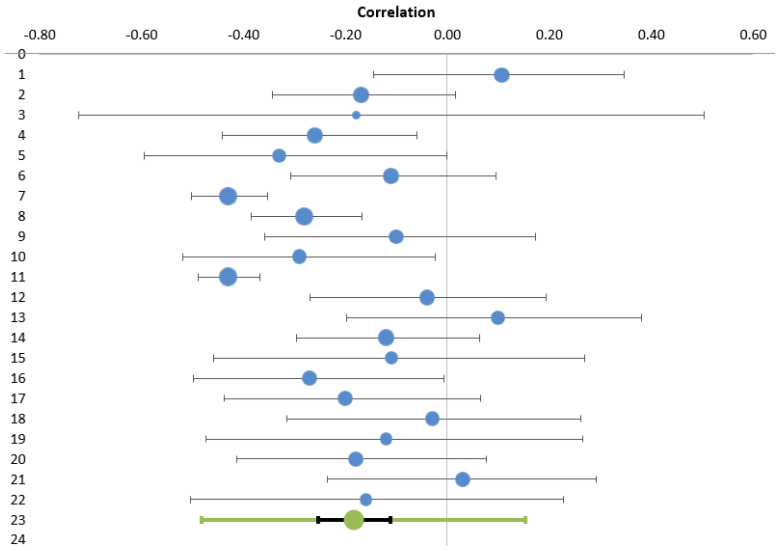

Figure 4. *Forest Plot of Anxious/Preoccupied Attachment and Alliance.*

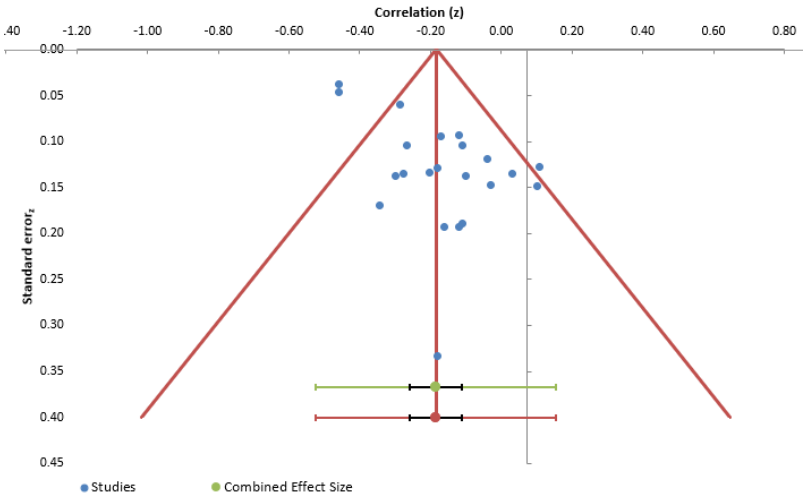

Figure 5. *Funnel Plot of Anxious/Preoccupied Attachment and Alliance Publication Bias.*

Avoidant/Dismissive Attachment and Alliance

In the meta-analysis focused on avoidant/dismissive attachment and therapeutic alliance, a small but significant negative effect was detected in the pooled effect size (r = -.09, [-0.13, -0.05], p < .05). This analysis encompassed 21 studies (K = 21, N = 2528), with heterogeneity among these studies being low (I^2 = 0%). The correlations from individual studies, along with their CIs and contributions to the pooled effect, are provided in Table 5 and visually represented in Figure 6.

Egger's regression, used to assess publication bias, did not indicate any statistical significance (intercept = -0.43, p = .32), suggesting no evidence of publication bias. This conclusion is corroborated by Figure 7, which shows all studies evenly distributed within the funnel plot. The application of the trim-and-fill method further confirmed that no adjustments were necessary for the dataset.

Additionally, none of the continuous moderator analyses reached statistical significance for age (K = 18, β = -0.40, p = .132), gender (K = 19, β = 0.01, p = .974), or ethnicity (K = 13, β = -0.17, p = .554). These results indicate that the negative

relationship between avoidant/dismissive attachment and therapeutic alliance was consistent across the studies, irrespective of variations in demographic factors such as age, gender, and ethnicity.

Table 5. *Avoidant/Dismissive Attachment and Alliance Overview.*

Study name	Correlation	CI Lower limit	CI Upper limit	Weight
David-Sela et al., 2021	-.19	-.42	.06	2.48%
Miller et al., 2015	-.28	-.44	-.10	4.48%
Barreto & Matos, 2022	.32	-.38	.79	0.36%
Sauer et al., 2010	0	-.20	.20	3.68%
Mallinckrodt, Porter & Kivlighan Jr et al., 2005	-.24	-.53	.10	1.40%
Schiff & Levit, 2010	-.17	-.36	.04	3.68%
Aafjes-van Doorn, Bekes & Luo, 2021	-.06	-.15	.03	18.51%
Lafrenaye-Dugas, Hebert & Godbout, 2018	-.12	-.23	0	10.99%
Sullivan, Lawson & Akay-Sullivan, 2020 (CSA* group)	-.12	-.38	.15	2.12%
Sullivan, Lawson & Akay-Sullivan, 2020 (Non abuse group)	-.08	-.34	.19	2.12%
Bekes & Aafjes-Van Doorn, 2023	-.06	-.13	.01	28.62%
Lafrenaye-Dugas, Hebert & Godbout, 2023	-.03	-.26	.20	2.84%
Marmarosh et al., 2014	-.03	-.32	.26	1.80%
Coyne et al., 2018	-.02	-.20	.16	4.64%
Marmarosh et al., 2009	-.32	-.62	.05	1.12%
Taylor et al., 2015	-.21	-.45	.06	2.20%
Romano, Fitzpatrick & Janzen, 2008	-.24	-.47	.02	2.24%
Bucci et al., 2016	-.08	-.44	.30	1.08%
Satterfield & Lyddon, 1998	.10	-.16	.34	2.40%
Reis & Grenyer, 2004	-.27	-.50	-.01	2.20%
Eames & Roth, 2000	-.03	-.40	.35	1.08%
POOLED EFFECT SIZE	**-.09**	**-.13**	**-.05**	-

NOTE: *CSA = Child Sexual Abuse

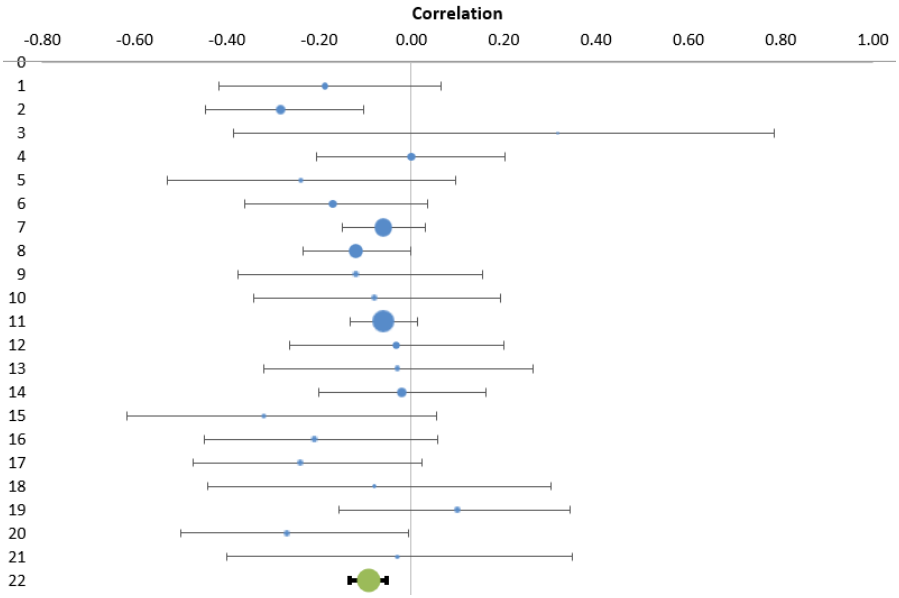

Figure 6. *Forest Plot of Avoidant/Dismissive Attachment and Alliance.*

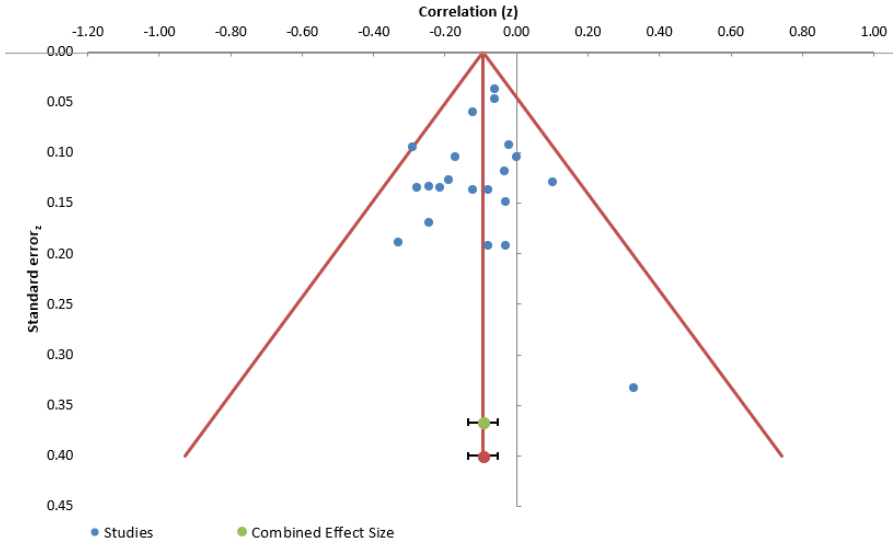

Figure 7. *Funnel Plot of Avoidant/Dismissive Attachment and Alliance Publication Bias.*

Fearful/Disorganised Attachment and Alliance

In the meta-analysis examining the relationship between fearful/disorganised attachment and therapeutic alliance, a small yet significant negative effect was observed in the pooled effect size (r = -.17, [-.37, .04], p < .05). This analysis included 6 studies (K = 6, N = 276), with heterogeneity considered to be low-medium

(I^2= 39.66%). Details of the individual studies' correlations, their CIs, and their contributions to the pooled effect are outlined in Table 6 and visually depicted in Figure 8.

Egger's regression, conducted to assess publication bias, showed no statistical significance (intercept = 5.55, p = .24), suggesting there is no evidence of publication bias. This finding is further supported by Figure 9, which shows all studies falling symmetrically within the funnel plot. The application of the trim-and-fill method indicated that no adjustments were necessary for the dataset.

Furthermore, none of the continuous moderator analyses were statistically significant for age (K = 5, β = 0.46, p = .364), gender (K = 6, β = -0.38, p = .394), or ethnicity (K = 4, β = 0.2, p = .781). These results indicate that the observed negative effect between fearful/disorganised attachment and therapeutic alliance was consistent across studies, regardless of variations in the demographic characteristics of the participants.

Table 6. *Fearful/Disorganised Attachment and Alliance Overview.*

Study name	Correlation	CI Lower limit	CI Upper limit	Weight
Lange et al., 2021	-.35	-.58	-.07	17.72%
Satterfield & Lyddon, 1998	-.20	-.43	.06	20.51%
Reis & Grenyer, 2004	-.09	-.35	.18	19.59%
Eames & Roth, 2000	-.03	-.40	.35	12.57%
Bucci et al., 2016	.17	-.22	.51	12.57%
Siefert & Hilsenroth, 2015	-.39	-.62	-.10	17.03%
POOLED EFFECT SIZE	**-.17**	**-.37**	**.04**	-

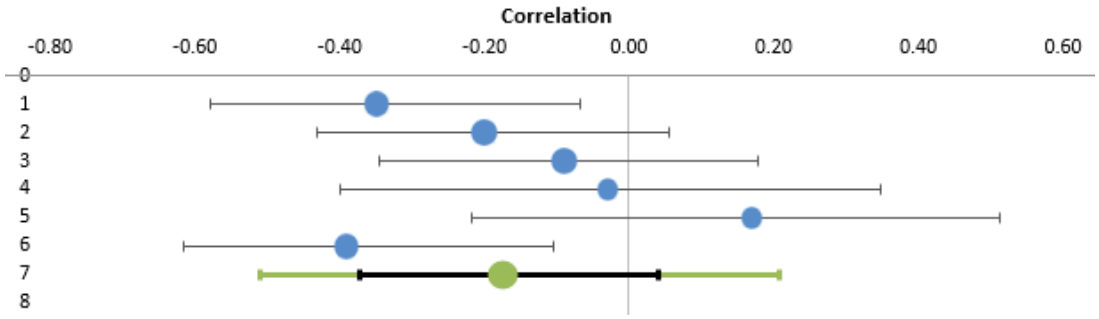

Figure 8. *Forest Plot of Fearful/Disorganised Attachment and Alliance.*

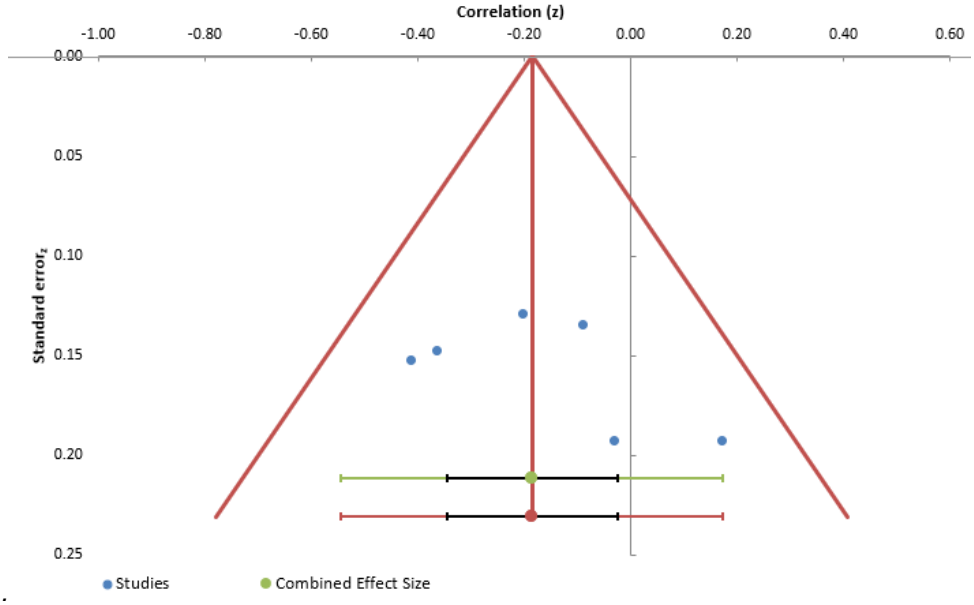

Figure 9. *Funnel Plot of Fearful/Disorganised Attachment and Alliance Publication Bias.*

Discussion

This study conducted a systematic review of the literature and performed four meta-analyses to explore the association between various attachment styles and patient-rated therapeutic alliance. While the inclusion criteria of this study aimed to explore studies including participants aged 12 and above, only studies involving adult populations were identified. A small yet significant positive correlation was

observed between secure attachment and alliance. Conversely, all three insecure attachment domains—anxious/preoccupied, avoidant/dismissive, and fearful/disorganised—demonstrated a small yet significant negative correlation with alliance. These findings lend support to the hypotheses and align with attachment theory's assertion that internal working models (IWMs) formed from early caregiver relationships exert a lasting influence on how individuals form and perceive relationships throughout their lifespan (Shaver, Collins, & Clark, 2014) within a clinical context. However, the relatively small magnitude of these correlations, similar to those reported in previous meta-analyses (Bernecker, Levy, & Ellison, 2013; Diner & Monroe, 2011), warrants a cautious interpretation.

It is crucial to consider other confounding factors that could influence the formation of a therapeutic alliance beyond merely attachment style. The analyses revealed no significant moderator effects when controlling for mean age, gender, or ethnicity across any attachment category, aligning with findings from previous meta-analyses (Diener & Monroe, 2011). Further investigation into potential variables that may influence these relationships will be discussed in subsequent sections of this paper. One possible explanation for the modest effect sizes observed could be the variation in the timing of when measures were reported within the included studies, which might have diluted the accuracy of the pooled effect. The alliance can fluctuate significantly over the course of therapy, with experiences of rupture and repair potentially altering the strength of the perceived alliance on a weekly basis.

Secure Attachment and Alliance

The significant positive correlation observed between secure attachment and therapeutic alliance in this study aligns with previous meta-analytic findings (Diener

& Monroe, 2011) and narrative reviews (Smith et al., 2010). This supports the theoretical understanding that the inherent trust in oneself and others, which characterizes secure attachment tendencies (Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2005), provides a foundation for individuals to forge a positive working alliance (Diener & Monroe, 2011; Smith et al., 2010). The tasks necessary for establishing a strong alliance, such as forming a bond and agreeing on shared tasks and goals, are likely more accessible for individuals who naturally possess trust in others. This trust may increase the ability of an individual to take in the teaching and learning of content, to feel understood and mentalized by the therapist, and to generalise this social learning across new contexts (Fonagy & Allison, 2014), increasing the extent to which the individual can benefit from the therapeutic alliance and ultimately leading to better outcomes.

In the current study, only five studies reporting on secure attachment were meta-analysed. This limited number may restrict the ability to accurately detect the true magnitude of the effect, though it is comparable in magnitude to that observed in a previous meta-analysis, which analysed a larger number of studies (r = .17, K =17; Diener & Monroe, 2011). Similar to Diener & Monroe, the current study faced challenges in fully assessing the moderating factors of this relationship due to the heterogeneity of variables measured in the included studies. To build upon these findings, future research should aim for more uniform reporting of demographic variables and consider theoretical moderators that may influence the relationship between secure attachment and positive alliance. Such moderators could include mentalizing and epistemic trust, which are both reported to be influenced by secure attachment and play significant roles in relationship formation (Fonagy & Allison, 2014; Fonagy & Campbell, 2017). By exploring these factors, further insights could

be gained into how secure attachment facilitates the development of a therapeutic alliance.

Insecure Attachment and Alliance

Individuals with insecure attachment styles often lack inherent trust in others due to an ingrained negative belief about relationships, posing significant challenges in forming relationships (Mikulincer & Shaver, 2016). This will likely create barriers when starting psychotherapy (Levy et al., 2018), limiting a person's ability to reap the benefits of developing a therapeutic alliance. Accessing the proposed three communication systems of psychotherapy may require a longer process than securely attached individuals to feel understood, establish epistemic trust with a therapist and begin to increase capacity for social learning (Fonagy & Allison, 2014). The results of the current study of early-therapy measures align with this theoretical understanding, as well as concurring with prior meta-analytic findings that attachment anxiety and avoidance are significantly negatively correlated with therapeutic alliance (Bernecker, Levy, & Ellison, 2013).

This study also contributes new insights by meta-analysing findings on fearful/dismissive attachment tendencies, revealing a significant negative correlation that has not been reported in prior meta-analyses. Although this study did not statistically compare the differences in pooled effect sizes between the different attachment groups, which is acknowledged as a limitation, the similarity in the magnitude of the negative correlations across the three insecure attachment domains with alliance merits attention due to the theoretical distinctions in how each attachment style manifests. Bernecker, Levy, & Ellison's 2013 review also noted similar magnitudes in the correlations between attachment anxiety and avoidance

with alliance, despite their different behavioural patterns and psychological mechanisms as delineated by Bartholomew & Horowitz (1991). While each insecure attachment style has distinct patterns and mechanisms, all forms of insecure attachment are considered risk factors for the development of major psychiatric conditions (Dagan, Facompre & Bernard, 2018; Hertsell et al., 2021). It is, therefore, crucial to consider other variables that may influence the relationship between attachment and alliance.

Greater emotional distress, poorer coping mechanisms, greater social adjustment difficulties, reduced ability to understand others' emotions, reduced trust in others, and heightened mental health symptomology could all play significant roles, given the theoretical relationships between all such factors and insecure attachment (Dagan, Facompre & Bernard, 2018; Fonagy & Allison, 2014; Hertsell et al., 2021; Pallini et al., 2018; Santoro et al., 2021). However, it is important to acknowledge that these issues could inhibit the development of a therapeutic relationship (e.g. Bourke, Barker & Fornells-Ambrojo, 2021; Cheng & Cho, 2018) irrespective of attachment style. This highlights the complexity of the therapeutic engagement and the need for tailored interventions that consider both attachment styles and the broader psychosocial context of the patient.

Attachment Anxiety

The observed negative correlation between attachment anxiety and therapeutic alliance aligns with previous findings (Bernecker, Levy, & Ellison, 2013), underscoring the theoretical perspective that attachment anxiety traits—characterized by a need for reassurance, fear of abandonment, and tendencies towards people-pleasing—may impede relationship development (Bartholomew &

Horowitz, 1991). When individuals with attachment anxiety engage in therapy, their efforts to please the therapist may equate to cooperating without genuine emotional engagement (Levy et al., 2018), potentially obstructing the establishment of shared goals and tasks which are crucial for a strong therapeutic alliance. Additionally, their propensity to misinterpret others' emotions and intentions as signs of withdrawal or disinterest (Levy et al., 2018) may further hinder the formation of a meaningful dyadic emotional bond.

The significant heterogeneity observed in this meta-analysis (I^2 = 72.72%) warrants careful consideration, particularly as the avoidant-alliance meta-analysis, which largely comprised the same studies, did not exhibit the same level of heterogeneity. One possible explanation for this variance is the nature of attachment anxiety itself, which may lead to inconsistent perceptions and reporting concerning the therapist or the therapeutic relationship. Individuals with anxious attachment often hold a positively skewed view of others but set high, sometimes unattainable, expectations (Siefert & Hilsenroth, 2014). This discrepancy can trigger intense feelings of rejection when expectations are not met (Levy et al., 2018), leading to fluctuating perceptions of the therapeutic alliance—strong when the relationship feels secure and supportive, and weak during periods of challenge or after a perceived rupture (Eames & Roth, 2000; Marmarosh, 2017; Levy et al., 2018). This highlights that the interplay between attachment styles and perceptions of relational bonds in therapy must be considered nuanced in terms of how attachment-driven behaviours can influence the therapeutic process and moderate alliance building.

Attachment Avoidance

The observed negative correlation between avoidant attachment tendencies and therapeutic alliance, though expected based on previous findings (Bernecker, Levy, & Ellison, 2013), revealed a notably small pooled effect size suggesting a weak or negligible relationship (r = -.09). This outcome, with 5 of the included studies reporting correlations smaller than .05, was the smallest observed effect size among the four categories. This is intriguing given that avoidant attachment is characterized by discomfort with emotional closeness, suppression of emotions, and a tendency to undervalue relationships—traits that theoretically pose significant barriers to forming the emotional bonds crucial for a strong therapeutic alliance (Mallinckrodt, Gantt & Coble, 1995). However, a previous literature review observed mixed results on the association between attachment avoidance and alliance in a psychosis population, with several included studies reporting no association (McGonagle et al., 2021).

One possible explanation for this could be the functional aspect of avoidant attachment, where individuals are highly self-reliant and tend to minimize their problems (Bartholomew & Horowitz, 1991). This trait may paradoxically support certain aspects of the therapeutic process. In therapy, the emphasis on establishing shared goals and tasks often requires clients to take ownership of their progress (Bordin, 1979). For those with avoidant attachment, the structured nature of therapy that focuses on practical and definable issues may resonate with their inclination to maintain control and self-reliance (Levy et al., 2018). This dynamic suggests that while the emotional aspects of the alliance may be compromised due to avoidant traits (Mukulincer, Shaver & Berant, 2013), the practical elements, such as agreeing on tasks and setting goals, could be more aligned with avoidant individual's approach to relationships. Therefore, therapies that provide a clear agenda and

allow these individuals to work on problems within their comfort zone might be experienced as containing and less threatening, potentially mitigating some of the negative impacts of avoidant attachment on the alliance. Further research that should consider differences between therapeutic modalities would be of benefit to explore this question further.

Fearful/Disorganised Attachment

The significant negative correlation observed between fearful/disorganised attachment and therapeutic alliance in this meta-analysis is both a novel and expected finding. The theoretical framework supporting this result suggests that fearful attachment, which typically develops from distressing caregiver interactions such as abuse or neglect (Bartholomew & Horowitz, 1991), instils a belief from infancy that others are unpredictable and unreliable. This worldview, when carried into adulthood, can complicate the formation of trustful relationships (Reis & Grenyer, 2004).

The similarity in the magnitude of this correlation to that observed in the anxious attachment-alliance correlation is of interest. Both attachment styles are derived from IWMs associated with experiences of rejection or disappointment, a pervasive need for reassurance, and a negative self-image (Reis & Grenyer, 2004). However, while attachment anxiety manifests in a relatively consistent manner, fearful attachment is characterized by greater unpredictability and includes avoidant tendencies as well (Main & Solomon, 1990). The meta-analysis for fearful/disorganised attachment included only four studies, potentially limiting the ability to fully capture the nuances that distinguish it from anxious attachment. Additionally, common measures of attachment anxiety and avoidance, such as the

ECR, may not adequately differentiate individuals who could be categorised as fearful in other assessments. This might lead to an overlap where traits of attachment anxiety and avoidance are measured without capturing the full spectrum of fearful attachment.

Moreover, the tools used to assess fearful attachment, such as the RQ and RSQ present further limitations. The RQ, as a single-item measure, may lack the sensitivity required to capture the complexity of the attachment construct fully. Although the RSQ includes more items, its construct and convergent validity have shown only modest results, which may impede its capacity to accurately reflect attachment categories. While these instruments have been validated against other measures (Bartholomew & Horowitz, 1991; Wongpakaran, Demaranville & Wongpakaran, 2021), the results from this current meta-analysis should be approached with caution due to these methodological considerations. The findings underscore the importance of using robust, multi-dimensional measures in future research to delineate the impact of different attachment styles on therapeutic alliance more precisely. Such an approach would not only enhance the specificity of results but also contribute to a deeper understanding of how various attachment patterns come to influence therapeutic outcomes.

Limitations

Due to practical constraints, this study was limited to three commonly used measures of attachment: ECR, RQ, and RSQ. This limitation restricts the applicability of the results, reduces the total number of studies included, and consequently diminishes the study's power and its ability to detect significant effects. Additionally, the reliance on these common measures and the restriction to studies

published in the English language might increase the risk of publication bias, potentially skewing the results.

Given the structure of this research, which conducted four separate analyses for each attachment category, it was not feasible to statistically compare the differences between each group. Due to utilising continuous measures of attachment traits derived from the same samples within each study, comparing these groups within a single meta-analysis would not have been statistically appropriate. However, discerning whether the small effect sizes are significantly different from one another could provide deeper clinical insights into how specific attachment patterns uniquely relate to therapeutic alliance.

The study's ability to address specific diagnoses or treatments was also limited due to the heterogeneous nature of concepts like attachment and alliance, which transcend specific therapeutic approaches and diagnostic categories. Many studies included in the meta-analysis did not provide detailed demographic information or specific treatments, precluding a nuanced exploration of effects across different diagnostic groups or treatment modalities. Moreover, the demographic data that was available indicated a lack of diversity, with most studies featuring predominantly white, female participants and adult age ranges spanning only an 18-year gap. To enhance the robustness and applicability of future research, it would be beneficial to employ a wider range of sampling techniques, including more explicit focus on adolescence and broader ethnic or cultural backgrounds. This would not only help in attracting a more representative group of participants but also allow for the examination of attachment and alliance across a broader spectrum of demographic and clinical contexts.

The current study's focus on client-rated therapeutic alliance and not on therapist reports is an important limitation to consider. Prior meta-analytic research has indicated that client and therapist ratings of alliance are only moderately correlated, with clients often rating the alliance more favourably than therapists (Shick Tryon, Blackwell, & Hammel, 2007). This discrepancy could potentially be influenced by client attachment styles, which might alter their perception of alliance quality, leading to either over or under-reporting based on their internal working models (IWMs) of relationship formation. Furthermore, emerging meta-analytic evidence suggests that therapist attachment styles also interact with client attachment, significantly influencing alliance and, ultimately, therapeutic outcomes (Degnan et al., 2016).

The therapeutic relationship is inherently dyadic, involving both the client's and the therapist's perspectives and psychological dynamics. Alliance formation may be partially dependent on therapist factors such as interpersonal style, in-session behaviour, and empathy (Nienhuis et al., 2018; Ryan, Berry & Hartley, 2021), which are commonly considered components in therapist training and reflective supervision to support therapists to adapt and best meet the client's needs. However, research has also shown that mismatches or oppositions in attachment styles between the therapist and the client can sometimes lead to more positive outcomes, suggesting a complex interplay that could be beneficial under certain conditions (Dozier et al., 1994;Marmarosh et al., 2014; Tyrrell et al., 1999). Furthermore, interactions between client-therapist attachment styles and the presenting problems within the therapy have been posed to influence alliance (Bucci et al., 2016). This highlights the clinical relevance of examining both client and therapist attachment styles in future meta-

analytic research, which could have significant implications for therapy delivery, reflective supervision, and outcome monitoring.

Clinical Implications

The relationship between attachment and alliance holds substantial clinical significance. Attachment traits determine how individuals seek comfort and care, which are critical factors in developing the emotional bonds essential for a robust therapeutic alliance. This study underscored the positive correlation between secure attachment and alliance, suggesting that individuals with secure attachment are likely to form therapeutic alliances more readily compared to those with insecure attachments. The observed negative effects between insecure attachment styles and alliance indicate that various barriers exist to alliance formation, with specific challenges differing among the insecure categories.

Recognizing a client’s attachment style can equip therapists with predictive insights into potential engagement barriers, such as reluctance to share emotions or harbouring unrealistic expectations of care. Knowledge of attachment-related traits like anxiety and avoidance can help therapists mentalize their clients' experiences more effectively and adapt their interventions to foster trust and security. Given the robust evidence supporting the role of therapeutic alliance in promoting positive therapeutic outcomes (Baier, Kline & Feeny, 2020), it is crucial to explore strategies to nurture and strengthen this alliance, aligning with the best interests of the client.

Conclusion

This meta-analysis has provided an updated synthesis of the relationship between various attachment styles and the therapeutic alliance within psychological settings. It identified significant correlations between all four domains of

attachment—secure, anxious, avoidant, and fearful/disorganised—and the therapeutic alliance, highlighting the pervasive influence of attachment on therapeutic relationships. However, the relatively small magnitude of these correlations underscores the complexity of the determinants of therapeutic alliance, suggesting that other psychological, interpersonal, and contextual factors also play critical roles in shaping alliance relationships. Further research is needed to explore these factors, including the potential impact of therapist characteristics, client and therapist interaction patterns, and the specific therapeutic interventions employed. Research on the relationship between attachment and therapeutic alliance reinforces the necessity for an integrated approach in psychological research and practice that accounts for the multifaceted nature of human relationships. Moreover, this meta-analysis points to the possibility of more fully integrating attachment theory into clinical practice, particularly in training and supervision contexts. By better understanding the nuances of how attachment styles influence therapeutic relationships, mental health professionals can tailor their approaches to better meet the needs of their clients, thereby enhancing therapeutic outcomes.

References

Aafjes-van Doorn, K., Békés, V., & Luo, X. (2021). COVID-19 related traumatic distress in psychotherapy patients during the pandemic: the role of attachment, working alliance, and therapeutic agency. Brain Sciences, 11(10), 1288.

Alexander, L. B., & Luborsky, L. (1986). The Penn Helping Alliance Scales. In the psychotherapeutic process. A research handbook. LS Greenberg and W. Pinsof. New York.

Anderson, T., & Perlman, M. R. (2020). Therapeutic interpersonal skills for facilitating the working alliance. Working alliance skills for mental health professionals, 43-68.

Baier, A. L., Kline, A. C., & Feeny, N. C. (2020). Therapeutic alliance as a mediator of change: A systematic review and evaluation of research. Clinical psychology review, 82, 101921.

Barreto, J. F., & Matos, P. M. (2022). Attachment mismatches and alliance: Through the pitfalls of mentalizing countertransference. Psychoanalytic Psychology, 39(3), 276.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: a test of a four-category model. Journal of personality and social psychology, 61(2), 226.

Bawor, M., Dennis, B. B., Bhalerao, A., Plater, C., Worster, A., Varenbut, M., ... & Samaan, Z. (2015). Sex differences in outcomes of methadone maintenance treatment for opioid use disorder: a systematic review and meta-analysis. Canadian Medical Association Open Access Journal, 3(3), E344-E351.

Békés, V., & Aafjes-Van Doorn, K. (2023). Patients' attachment avoidance and their perceived quality of the real relationship predict patients' attitudes towards telepsychotherapy. Counselling Psychology Quarterly, 36(2), 251-271.

Ben David-Sela, T., Dolev-Amit, T., Eubanks, C. F., & Zilcha-Mano, S. (2021). Achieving successful resolution of alliance ruptures: for whom and when?. Psychotherapy Research, 31(7), 870-881.

Bernecker, S. L., Levy, K. N., & Ellison, W. D. (2014). A meta-analysis of the relation between patient adult attachment style and the working alliance. Psychotherapy Research, 24(1), 12-24.

Berry, K., & Danquah, A. (2020). Attachment theory, the therapeutic Alliance, and treatment engagement. The Wiley Handbook of Healthcare Treatment Engagement: Theory, Research, and Clinical Practice, 159-171.

Bordin, E. S. (1994). Theory and research on the therapeutic working alliance: New directions.

Bourke, E., Barker, C., & Fornells-Ambrojo, M. (2021). Systematic review and meta-analysis of therapeutic alliance, engagement, and outcome in psychological therapies for psychosis. Psychology and Psychotherapy: Theory, Research and Practice, 94(3), 822-853.

Bowlby, J. (1979). The bowlby-ainsworth attachment theory. Behavioral and Brain Sciences, 2(4), 637-638.

Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. Attachment theory and close relationships, 46, 76.

Bucci, S., Seymour-Hyde, A., Harris, A., & Berry, K. (2016). Client and therapist attachment styles and working alliance. Clinical psychology & psychotherapy, 23(2), 155-165.

Carr, S. C., Hardy, A., & Fornells-Ambrojo, M. (2018). Relationship between attachment style and symptom severity across the psychosis spectrum: A meta-analysis. Clinical Psychology Review, 59, 145-158.

Cassidy, J., Jones, J. D., & Shaver, P. R. (2013). Contributions of attachment theory and research: A framework for future research, translation, and policy. Development and psychopathology, 25(4pt2), 1415-1434.

Cheng, T. C., & Lo, C. C. (2018). A longitudinal analysis of factors associated with therapeutic alliances. Community Mental Health Journal, 54, 782-792.

Clemence, A. J., Hilsenroth, M. J., Ackerman, S. J., Strassle, C. G., & Handler, L. (2005). Facets of the therapeutic alliance and perceived progress in psychotherapy: Relationship between patient and therapist perspectives. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 12(6), 443-454.

Colonnesi, C., Draijer, E. M., Jan JM Stams, G., Van der Bruggen, C. O., Bögels, S. M., & Noom, M. J. (2011). The relation between insecure attachment and child anxiety: A meta-analytic review. Journal of Clinical Child & Adolescent Psychology, 40(4), 630-645.

Coyne, A. E., Constantino, M. J., Ravitz, P., & McBride, C. (2018). The interactive effect of patient attachment and social support on early alliance quality in interpersonal psychotherapy. Journal of Psychotherapy Integration, 28(1), 46.

Dagan, O., Facompré, C. R., & Bernard, K. (2018). Adult attachment representations and depressive symptoms: A meta-analysis. Journal of affective disorders, 236, 274-290.

Degnan, A., Seymour-Hyde, A., Harris, A., & Berry, K. (2016). The role of therapist attachment in alliance and outcome: A systematic literature review. Clinical Psychology & Psychotherapy, 23(1), 47-65.

Diener, M. J., & Monroe, J. M. (2011). The relationship between adult attachment style and therapeutic alliance in individual psychotherapy: a meta-analytic review. Psychotherapy, 48(3), 237.

Duval, S., & Tweedie, R. (2000). Trim and fill: a simple funnel-plot–based method of testing and adjusting for publication bias in meta-analysis. Biometrics, 56(2), 455-463.

Eames, V., & Roth, A. (2000). Patient attachment orientation and the early working alliance-a study of patient and therapist reports of alliance quality and ruptures. Psychotherapy Research, 10(4), 421-434.

Escudero, V., Friedlander, M. L., Kivlighan Jr, D. M., Orlowski, E., & Abascal, A. (2022). Mapping the progress of the process: Codevelopment of the therapeutic alliance with maltreated adolescents. Journal of counseling psychology, 69(5), 656.

Fonagy, P., & Allison, E. (2014). The role of mentalizing and epistemic trust in the therapeutic relationship. Psychotherapy, 51(3), 372.

Fonagy, P., & Campbell, C. J. P. H. (2017). Mentalizing, attachment and epistemic trust: how psychotherapy can promote resilience. Psychiatria Hungarica, 32(3), 283-287.

Fonagy, P., Luyten, P., & Allison, E. (2015). Epistemic petrification and the restoration of epistemic trust: A new conceptualization of borderline personality disorder and its psychosocial treatment. Journal of personality disorders, 29(5), 575-609.

Fraley, R. C., Gillath, O., & Deboeck, P. R. (2021). Do life events lead to enduring changes in adult attachment styles? A naturalistic longitudinal investigation. Journal of Personality and Social Psychology, 120(6), 1567.

Freud, S. (1912). The dynamics of transference. Classics in psychoanalytic techniques, 12, 97-108.

Gaston, L., & Marmar, C. R. (1994). The California Psychotherapy Alliance Scales.

Gates, N. J., & March, E. G. (2016). A neuropsychologist's guide to undertaking a systematic review for publication: Making the most of PRISMA guidelines. Neuropsychology Review, 26, 109-120.

Greenson, R. R., & Wexler, M. (1969). The non-transference relationship in the psychoanalytic situation. The International Journal of Psycho-Analysis, 50, 27.

Igra, L., Lavidor, M., Atzil-Slonim, D., Arnon-Ribenfeld, N., de Jong, S., & Hasson-Ohayon, I. (2020). A meta-analysis of client-therapist perspectives on the therapeutic alliance: Examining the moderating role of type of measurement and diagnosis. European Psychiatry, 63(1), e67.

Hatcher, R. L., & Barends, A. W. (1996). Patients' view of the alliance in psychotherapy: Exploratory factor analysis of three alliance measures. Journal of consulting and clinical psychology, 64(6), 1326.

Hazan, C., & Shaver, P. R. (1994). Attachment as an organizational framework for research on close relationships. Psychological inquiry, 5(1), 1-22.

Hedges, L. V., Higgins, J. P. T., Rothstein, H. R., & Borenstein, M. (2009). Introduction to meta-analysis. Chichester, UK.

Herstell, S., Betz, L. T., Penzel, N., Chechelnizki, R., Filihagh, L., Antonucci, L., & Kambeitz, J. (2021). Insecure attachment as a transdiagnostic risk factor for major psychiatric conditions: A meta-analysis in bipolar disorder, depression and schizophrenia spectrum disorder. Journal of Psychiatric Research, 144, 190-201.

Hilsenroth, M. J., Peters, E. J., & Ackerman, S. J. (2004). The development of therapeutic alliance during psychological assessment: Patient and therapist perspectives across treatment. Journal of Personality Assessment, 83(3), 332-344.

Horvath, A. O. (2000). The therapeutic relationship: From transference to alliance. Journal of clinical psychology, 56(2), 163-173.

Horvath, A. O., & Greenberg, L. S. (1989). Development and validation of the Working Alliance Inventory. Journal of counseling psychology, 36(2), 223.

Lafrenaye-Dugas, A. J., Godbout, N., & Hébert, M. (2018). Cumulative childhood trauma and therapeutic alliance: The moderator role of attachment in adult patients consulting in sex therapy. Journal of Sex & Marital Therapy, 44(7), 667-678.

Lafrenaye-Dugas, A. J., Hébert, M., & Godbout, N. (2023). Sexual satisfaction improvement in patients seeking sex therapy: Evaluative study of the influence of traumas, attachment and therapeutic alliance. Sexual and Relationship Therapy, 38(3), 302-319.

Lange, J., Goerigk, S., Nowak, K., Rosner, R., & Erhardt, A. (2021). Attachment style change and working alliance in panic disorder patients treated with cognitive behavioral therapy. Psychotherapy, 58(2), 206.

Levin, L., Henderson, H. A., & Ehrenreich-May, J. (2012). Interpersonal predictors of early therapeutic alliance in a transdiagnostic cognitive-behavioral treatment for adolescents with anxiety and depression. Psychotherapy, 49(2), 218.

Levy, K. N., Kivity, Y., Johnson, B. N., & Gooch, C. V. (2018). Adult attachment as a predictor and moderator of psychotherapy outcome: A meta-analysis. Journal of clinical psychology, 74(11), 1996-2013.

Luchini, C., Stubbs, B., Solmi, M., & Veronese, N. (2017). Assessing the quality of studies in meta-analyses: Advantages and limitations of the Newcastle Ottawa Scale. World Journal of Meta-Analysis, 5(4), 80-84.

Luyten, P., Campbell, C., Allison, E., & Fonagy, P. (2020). The mentalizing approach to psychopathology: State of the art and future directions. Annual review of clinical psychology, 16, 297-325.

Luyten, P., Campbell, C., Moser, M., & Fonagy, P. (2024). The role of mentalizing in psychological interventions in adults: Systematic review and recommendations for future research. Clinical Psychology Review, 102380.

MacFarlane, P., Anderson, T., & McClintock, A. S. (2015). The early formation of the working alliance from the client's perspective: A qualitative study. Psychotherapy, 52(3), 363.

Mallinckrodt, B., Gantt, D. L., & Coble, H. M. (1995). Attachment patterns in the psychotherapy relationship: Development of the Client Attachment to Therapist Scale. Journal of Counseling Psychology, 42(3), 307.

Mallinckrodt, B., Porter, M. J., & Kivlighan Jr, D. M. (2005). Client attachment to therapist, depth of in-session exploration, and object relations in brief psychotherapy. Psychotherapy: Theory, Research, Practice, Training, 42(1), 85.

Marmarosh, C. L. (2017). Fostering engagement during termination: Applying attachment theory and research. Psychotherapy, 54(1), 4.

Marmarosh, C. L., Gelso, C. J., Markin, R. D., Majors, R., Mallery, C., & Choi, J. (2009). The real relationship in psychotherapy: Relationships to adult attachments, working alliance, transference, and therapy outcome. Journal of Counseling Psychology, 56(3), 337.

Marmarosh, C. L., Kivlighan Jr, D. M., Bieri, K., LaFauci Schutt, J. M., Barone, C., & Choi, J. (2014). The insecure psychotherapy base: Using client and therapist attachment styles to understand the early alliance. Psychotherapy, 51(3), 404.

Martinez-Calderon, J., Meeus, M., Struyf, F., Morales-Asencio, J. M., Gijon-Nogueron, G., & Luque-Suarez, A. (2018). The role of psychological factors in the perpetuation of pain intensity and disability in people with chronic shoulder pain: a systematic review. BMJ open, 8(4), e020703.

Mikulincer, M. (1998). Adult attachment style and affect regulation: strategic variations in self-appraisals. Journal of personality and social psychology, 75(2), 420.

Mikulincer, M., & Shaver, P. (2005). Mental representations and attachment security. Interpersonal cognition, 233-266.

Mikulincer, M., Shaver, P. R., & Berant, E. (2013). An attachment perspective on therapeutic processes and outcomes. Journal of personality, 81(6), 606-616.

Miller, R. B., Bills, S., Kubricht, B., Sandberg, J. G., Bean, R. A., & Ketring, S. A. (2015). Attachment as a predictor of the therapeutic alliance in couple therapy. The American Journal of Family Therapy, 43(3), 215-226.

Munder, T., Wilmers, F., Leonhart, R., Linster, H. W., & Barth, J. (2010). Working Alliance Inventory-Short Revised (WAI-SR): psychometric properties in outpatients and inpatients. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 17(3), 231-239.

Nienhuis, J. B., Owen, J., Valentine, J. C., Winkeljohn Black, S., Halford, T. C., Parazak, S. E., ... & Hilsenroth, M. (2018). Therapeutic alliance, empathy, and genuineness in individual adult psychotherapy: A meta-analytic review. Psychotherapy Research, 28(4), 593-605.

O'Connor, S., Kivlighan Jr, D. M., Hill, C. E., & Gelso, C. J. (2019). Therapist–client agreement about their working alliance: Associations with attachment styles. Journal of Counseling Psychology, 66(1), 83.

Pallini, S., Chirumbolo, A., Morelli, M., Baiocco, R., Laghi, F., & Eisenberg, N. (2018). The relation of attachment security status to effortful self-regulation: A meta-analysis. Psychological bulletin, 144(5), 501.

Paetzold, R. L., Rholes, W. S., & Kohn, J. L. (2015). Disorganized attachment in adulthood: Theory, measurement, and implications for romantic relationships. Review of General Psychology, 19(2), 146-156.

Peter, L. J., Schindler, S., Sander, C., Schmidt, S., Muehlan, H., McLaren, T., ... & Schomerus, G. (2021). Continuum beliefs and mental illness stigma: a systematic

review and meta-analysis of correlation and intervention studies. Psychological Medicine, 51(5), 716-726.

Peterson, R. A., & Brown, S. P. (2005). On the use of beta coefficients in meta-analysis. Journal of applied psychology, 90(1), 175.

Pinsof, W. M., & Catherall, D. R. (1986). The integrative psychotherapy alliance: Family, couple and individual therapy scales. Journal of Marital and Family therapy, 12(2), 137-151.

Pinsof, W. M., Zinbarg, R., & Knobloch-Fedders, L. M. (2008). Factorial and construct validity of the revised short form integrative psychotherapy alliance scales for family, couple, and individual therapy. Family process, 47(3), 281-301.

Porter, R., & Ketring, S. (2011). Contributing factors in the therapeutic alliance. Journal of Couple & Relationship Therapy, 10(3), 201-214.

Reis, S., & Grenyer, B. F. (2004). Fearful attachment, working alliance and treatment response for individuals with major depression. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 11(6), 414-424.

Reis, S., & Grenyer, B. F. (2004). Fearful attachment, working alliance and treatment response for individuals with major depression. Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 11(6), 414-424.

Riley, R. D., Higgins, J. P., & Deeks, J. J. (2011). Interpretation of random effects meta-analyses. Bmj, 342.

Romano, V., Fitzpatrick, M., & Janzen, J. (2008). The secure-base hypothesis: Global attachment, attachment to counselor, and session exploration in psychotherapy. Journal of Counseling Psychology, 55(4), 495.

Saikia, M., George, L. S., Unnikrishnan, B., Nayak, B. S., & Ravishankar, N. (2024). Thirty years of emotional intelligence: A scoping review of emotional intelligence training programme among nurses. International Journal of Mental Health Nursing, 33(1), 37-51.

Santoro, G., Midolo, L. R., Costanzo, A., & Schimmenti, A. (2021). The vulnerability of insecure minds: The mediating role of mentalization in the relationship between attachment styles and psychopathology. Bulletin of the Menninger Clinic, 85(4), 358-384.

Satterfield, W. A., & Lydodon, W. J. (1998). Client attachment and the working alliance. Counselling Psychology Quarterly, 11(4), 407-415.

Sauer, E. M., Anderson, M. Z., Gormley, B., Richmond, C. J., & Preacco, L. (2010). Client attachment orientations, working alliances, and responses to therapy: A psychology training clinic study. Psychotherapy Research, 20(6), 702-711.

Sauer, E. M., Lopez, F. G., & Gormley, B. (2003). Respective contributions of therapist and client adult attachment orientations to the development of the early working alliance: A preliminary growth modeling study. Psychotherapy Research, 13(3), 371-382.

Schiff, M., & Levit, S. (2010). Correlates of therapeutic alliance and treatment outcomes among Israeli female methadone patients. Research on Social Work Practice, 20(4), 380-390.

Shaver, P. R., Collins, N., & Clark, C. L. (2014). Attachment styles and internal working models of self and relationship partners. In Knowledge structures in close relationships (pp. 25-61). Psychology Press.

Shaver, P. R., Mikulincer, M., Sahdra, B., & Gross, J. (2016). Attachment security as a foundation for kindness toward self and others. The Oxford handbook of hypo-egoic phenomena, 10.

Shick Tryon, G., Collins Blackwell, S., & Felleman Hammel, E. (2007). A meta-analytic examination of client–therapist perspectives of the working alliance. Psychotherapy Research, 17(6), 629-642.

Siefert, C. J., & Hilsenroth, M. J. (2015). Client attachment status and changes in therapeutic alliance early in treatment. Clinical psychology & psychotherapy, 22(6), 677-686.

Siev, J., Huppert, J. D., & Chambless, D. L. (2009). The Dodo Bird, treatment technique, and disseminating empirically supported treatments. The Behavior Therapist.

Smith, A. E., Msetfi, R. M., & Golding, L. (2010). Client self rated adult attachment patterns and the therapeutic alliance: A systematic review. Clinical psychology review, 30(3), 326-337.

Spruit, A., Goos, L., Weenink, N., Rodenburg, R., Niemeyer, H., Stams, G. J., & Colonnesi, C. (2020). The relation between attachment and depression in children and adolescents: A multilevel meta-analysis. Clinical child and family psychology review, 23, 54-69.

Sroufe, L. A. (2005). Attachment and development: A prospective, longitudinal study from birth to adulthood. Attachment & human development, 7(4), 349-367.

Sullivan, J. M., Lawson, D. M., & Akay-Sullivan, S. (2020). Insecure attachment and therapeutic bond as mediators of social, relational, and social distress and

interpersonal problems in adult females with childhood sexual abuse history. Journal of child sexual abuse, 29(6), 659-676.

Suurmond, R., van Rhee, H., & Hak, T. (2017). Introduction, comparison, and validation of Meta-Essentials: a free and simple tool for meta-analysis. Research synthesis methods, 8(4), 537-553.

Taylor, P. J., Rietzschel, J., Danquah, A., & Berry, K. (2015). The role of attachment style, attachment to therapist, and working alliance in response to psychological therapy. Psychology and Psychotherapy: Theory, research and practice, 88(3), 240-253.

Taylor, P., Rietzschel, J., Danquah, A., & Berry, K. (2015). Changes in attachment representations during psychological therapy. Psychotherapy Research, 25(2), 222-238.

Tracey, T. J., & Kokotovic, A. M. (1989). Factor structure of the working alliance inventory. Psychological Assessment: A journal of consulting and clinical psychology, 1(3), 207.

Tufanaru, C., Munn, Z., Aromataris, E., Campbell, J., & Hopp, L. (2017). Systematic reviews of effectiveness. Joanna Briggs Institute reviewer's manual, 3.

Weck, F., Grikscheit, F., Jakob, M., Höfling, V., & Stangier, U. (2015). Treatment failure in cognitive-behavioural therapy: Therapeutic alliance as a precondition for an adherent and competent implementation of techniques. British Journal of Clinical Psychology, 54(1), 91-108.

Wei, M., Russell, D. W., Mallinckrodt, B., & Vogel, D. L. (2007). The Experiences in Close Relationship Scale (ECR)-short form: Reliability, validity, and factor structure. Journal of personality assessment, 88(2), 187-204.

Wells, G. A., Shea, B., & O'Connel, D. (2009). The Newcastle-Ottawa scale asses. Qual. non-randomised studies in meta-analyses.

Wongpakaran, N., DeMaranville, J., & Wongpakaran, T. (2021, September). Validation of the relationships questionnaire (RQ) against the experience of close relationship-revised questionnaire in a clinical psychiatric sample. In Healthcare (Vol. 9, No. 9, p. 1174). MDPI.

Chapter 2: Empirical Paper

Childhood Trauma Experiences, Epistemic Stance, And Social Relationships in Adolescents Receiving Therapy

Abstract

Adolescents navigate a complex web of social relationships that require substantial intrapersonal skills. Receiving social support self-perceived as good quality have been implicated in providing adolescents with protection following adverse experiences. Experiences of childhood trauma, impaired epistemic trust and ineffective mentalizing may exacerbate difficulties in the perception of relationships during adolescence. In this pilot study, 24 adolescents in psychological therapy completed a series of self-report questionnaires around their third session of intervention. The study examined how childhood trauma experiences, epistemic stance, and mentalizing, influenced adolescent reported quality of personal and professional relationships within their social network, as well as the effect of childhood trauma and epistemic mistrust on the number of relationships reported. Exploratory analyses were also conducted regarding the make-up of the social networks reported. Adolescents reported more personal than professional relationships, and no significant effects were found of childhood trauma or epistemic mistrust on the number of relationships reported in either category. Univariate analyses showed negative effects of epistemic mistrust and childhood trauma on the quality of personal relationships reported by adolescents, but only the effect of mistrust remained significant in a combined model with other variables. No significant univariate effects were observed for the questionnaire variables on the adolescent-reported quality of professional relationships, however, in a combined model, epistemic credulity emerged as a positive predictor. This research highlights the potential impact of epistemic stances on relationship quality perception, underscoring the importance of considering adolescents' social networks in psychological interventions. Limitations of the study, directions for future research and clinical implications are discussed.

Introduction

Adolescents have a complex web of social relationships that interact at varying levels, requiring nuanced skills to navigate. Neurobiologically, the brain undergoes significant remodelling in adolescence, a process believed to facilitate the development of intrapersonal social cognitive skills (Andrews, Ahmed & Blakemore, 2021; Choudhury, Blakemore & Charman, 2006), with reciprocal interactions between brain development and the social environment occurring (Lamblin et al., 2017). Interpersonal relationships are suggested to foster social and emotional growth (Newcomb & Bagwell, 1995) and both the quality and quantity of adolescent social relationships have been found to positively correlate with structural and functional aspects of social brain regions (Lamblin et al., 2017).

Primary caregiver interactions are proposed to play a key role in promoting skills needed to access social relationships, such as trust in the social world, coping, and self-identity, which are positively encouraged through sensitive and attuned care (Bowlby, 1979; Fonagy & Allison, 2014; Mikulincer, Shaver & Berant, 2013), and parenting that promotes compassion and responsibility are reported to encourage wider social trust (Wray-Lake & Flanagan, 2012). Applying social-emotional skills, having a strong self-identity, and being confident in navigating environmental influences are reportedly required for adolescents to access positive friendships (Mitic et al., 2021) and school-based support (Russel, Wentzel & Donlan, 2016; Van Den Berghe, Vandevelde & Pauw, 2022). While the benefits of social support are widely accepted (e.g.,Chu, Saucier & Hafner, 2010; Cohen & Willis, 1985; Harris & Orth, 2020; Samtani et al., 2022), how available these skills are to adolescents may vary depending on their early developmental experiences.

Traumatic experiences, including neglect and abuse, which can be one-off, repeated, or chronic (Kalmakis & Chandler, 2014), increase a child's stress and arousal levels, and chronic exposure to such stress is reported to potentially alter structural and functional neurobiological pathways during this vulnerable life stage (Cross et al., 2017). Research indicates numerous developmental impacts of trauma, including detrimental cognitive, emotional, and social outcomes across the lifespan (e.g., Cross et al., 2017; Lansford et al., 2002; Spalletta et al., 2020). Certain factors may protect against these risks in adolescence, such as intrapersonal capacities like coping skills, and interpersonal relationships, including close family ties, community, and school connectedness and support (Ozer et al., 2017; Racine et al., 2020; Schwerdtfeger Gallus et al., 2015). However, children exposed to greater adversity may have fewer protective factors available, including individual intrapersonal and interpersonal factors (Racine et al., 2020).

Interpersonal Relationships

Trust in interpersonal relationships is a skill that develops through adolescence as individuals are met with new social demands (Clark, Meredith & Rose, 2021; Sutter & Kocher, 2007; Van den Bos et al., 2012). Interpersonal trust is reported to influence adolescent wellbeing and help-seeking behaviours, though adolescents with mental health difficulties and trauma histories often mistrust others (Clarke, Meredith & Rose, 2021; Fett et al., 2016; Neil et al., 2022). A recent scoping review explored factors contributing to interpersonal trust in adolescents with mental health difficulties (Clarke, Meredith & Rose, 2021). They report on the importance of taking into account an adolescent’s backgrounds and past interpersonal experiences on their willingness to trust, and contributing factors of being heard, understood, and empathised. However, they also report that trust research in adolescent clinical

populations is scarce, heterogeneous, and limited (Clarke, Meredith & Rose, 2021). Furthermore, this study only considered adult helping relationships and did not include same-age peers, which may provide similar protective value (Hebert, Lavoie & Blais, 2014; Laible, 2007).

The emerging concept of “social thinning” argues that childhood trauma negatively impacts brain development, which in turn affects the ability to form and sustain social relationships, with an innate mistrusting stance potentially playing a role (Neil et al., 2022; Viding & McCrory, 2020). This reduced social support is posed to increase stress and the risk of victimisation, thereby diminishing opportunities to experience the stress-buffering quality of trusted relationships and increasing the likelihood of psychological difficulties (Goemans, Viding & McCrory, 2023; McCrory, Foulkes & Viding, 2022). This suggests that children who have experienced trauma, and therefore are at greater risk of psychological difficulties, may have reduced availability of the very factors that may protect them from these risks. Without the abilities to access good quality social environments, adolescents could be deprived of the opportunity to develop necessary social cognitive skills to protect them against future interpersonal distress and related psychological difficulties (Lamblin et al., 2017; Viding & McCrory, 2020), or to revise their negative perceptions about the world and learn to trust in interpersonal relationships (Allen et al., 2021; Muenzer, Ganser & Goldbeck, 2017).

Research has pointed to the importance of an adolescent’s perception of, rather than the actual availability of, social support as a key factor in mental health following trauma exposure (Davis & Siegel, 2000; Pine & Cohen, 2002; Pinto et al., 2017), with studies reporting greater perceived loss of social contact being associated with increased risk of trauma symptoms (Bi et al., 2018) and greater

perceived maternal and peer support reducing the risk of exhibiting symptoms of post-traumatic stress disorder (Hebert, Lavoie & Blais, 2014). A recent meta-analysis looking at the relationship between social support (from family, peers, and teachers) and trauma symptoms reported only a small negative effect size, suggesting that looking further into how post-trauma cognitions affect the ability to access social support (Allen et al., 2021). For instance, adolescents who have experienced trauma may have difficulty trusting others, due to fears or insecurities, which may create a barrier to them receiving the support they need (Bevington, Fuggle & Fonagy, 2015; Neil et al., 2022; Pinto et al., 2017; Radez et al., 2021).

Two related and emerging concepts of interest that may contribute to the ability to trust in and perceive positive social support are epistemic trust (ET) and mentalizing. Both intrapersonal capacities are posed to develop socially from infancy, and attuned and sensitive caregiving are considered to provide the optimum conditions for their development (Fonagy & Allison, 2014; Luyten & Fonagy, 2015). Impairments in both mentalizing and ET are theorised to develop in response to adverse developmental experiences, such as childhood trauma, consequently negatively affecting social functioning, which in turn may increase the risk of psychological distress (Fonagy & Allison, 2014). Despite theoretical conceptualisation that these capacities are interrelated (e.g., Fonagy & Allison, 2014), the relationship between ET and mentalizing has reported inconsistent results in recent studies, with some reporting strong positive correlations (e.g., Milesi et al., 2024) while others have failed to detect significance (e.g., Campbell et al., 2021; Liottie et al., 2023).

Epistemic Trust and Mentalizing

Mentalizing, also termed reflective functioning, is defined by Fonagy and colleagues as the ability to understand one's own and others' intentional mental states, including thoughts, feelings, desires, and intentions (Fonagy & Bateman, 2016). Extreme impairment in mentalizing is proposed to lead to hypermentalizing—assigning malicious and ill-intentioned assumptions to others' actions—a condition typically associated with borderline personality disorder, which is characterized by severe impairments in both general and social functioning (Hill et al., 2008). Even though “mentalizing” has become commonplace terminology in clinical environments, perhaps in part due to the development and expansion of specific therapies designed to target mentalizing (e.g., mentalization-based treatment (MBT)), there is still complexity and heterogeneity in how it is understood (Quesque et al., 2024).

Fonagy and colleagues propose, in response to neurobiological research, that mentalizing is a multifaceted dimensional capacity essential for the development of emotion regulation, empathy, and relating to others, stated to make it central to psychological functioning (Fonagy & Bateman, 2016; Luyten & Fonagy, 2015). However, many measures of mentalizing consider it as a binary or linear scale and calls for novel approaches to measuring the dimensionality of mentalizing have been noted (e.g., Guazzelli Williamson & Mills, 2023).

ET is defined by Fonagy and colleagues as the willingness to trust in the knowledge communicated by others as being trustworthy, relevant, and generalisable, and is proposed as a social-cognitive pathway to social learning and knowledge acquisition (Campbell et al., 2021; Fonagy & Allison, 2014; Fonagy,

Luyten & Allison, 2015). An impairment in ET is suggested to increase vulnerability to psychological difficulties by disrupting the positive health and well-being benefits that derive from social connections (Fonagy, Luyten & Allison, 2015). Recent theoretical developments suggest that impairment in ET, proposed to develop in an adaptive response to adverse childhood experiences, is not a linear or binary scale of trust-to-mistrust, but that impairments may also lead to an over-trusting stance (Campbell et al., 2021; Greiner et al., 2024; Liotti et al., 2023).

Campbell and colleagues propose this three-factor construct to further delineate the epistemic stances, including: ET itself—involving the ability to discern and confidently assess the reliability of information offered by others—, Epistemic Mistrust—which is the rejection or avoidance of all information communicated by others due to the belief that it is ill-intentioned or unreliable—and Epistemic Credulity, characterized by a lack of discrimination in social information and reduced vigilance to misinformation, thereby increasing social vulnerability to exploitation (Campbell et al., 2021). To measure this, they developed a new psychometric measure (The Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ)), with confirmatory factor analysis supporting this three-factor structure with a good fit to the data (CFI = 0.95, TFI = 0.94, SRMR = .05, RMSEA = 0.07) in a British adult community sample (Campbell et al., 2021), with further studies confirming the three-factor structure in differing samples (e.g., Liotti et al., 2023; Milesi et al., 2024). As the only validated measure of ET to the author's knowledge, it has been used in new research across clinical populations and age ranges (e.g., Benzi et al., 2024; Esposito et al., 2024; Greiner et al., 2024; Milesi et al., 2024; Tironi et al., 2024).

In this initial study, Epistemic Mistrust and Credulity were associated with greater global psychopathology and partially mediated the relationship between

childhood adversity and psychopathology, a finding concurred in further samples (e.g., Greiner et al., 2024). However, they considered whether ET itself represents a neutral “default mode” and posited that the mutual social benefits correlating with ET might promote the observed resilience in psychosocial function (Campbell et al., 2021), which warrants further exploration. While it is promising that research has started to emerge on the differences in epistemic stance development (e.g., Benzi et al., 2024), little evidence has been reported on the diverse mechanisms through which ET, mistrust and credulity may develop, highlighting the need for further empirical evidence to support this theoretical framework (Esposito et al., 2024; Tironi et al., 2024).

Research into epistemic stance within adolescence is limited, despite thinking that this developmental stage might be key for their development (Li et al., 2023). In fact, much of the research into both mentalizing and ET has emerged from studies into adults with symptoms consistent with personality disorder diagnoses and related psychopathologies, who experience significant interpersonal distress and social ruptures in response to complex childhood trauma experiences (e.g., Clifton, Pilkonis & McCarty, 2007; Lazarus & Cheavens, 2017). Furthermore, empirical research into both concepts is scarce and concentrated, with the theoretical underpinnings relying heavily on conceptual papers, clinical reviews and case vignettes (e.g., Bevington, Fuggle & Fonagy, 2015; Bo et al., 2017; Fonagy & Allison, 2014; Sharp & Fonagy, 2015), highlighting the need for further empirical investigation.

Epistemic Trust, Mentalizing, and Adolescent Relationships

Bo and colleagues proposed in a clinical practitioner review that decreased social functioning is observed in adolescents exhibiting impairments in mentalizing

and ET (Bo et al., 2017). Mentalizing is reported to play a key role in navigating social interactions, and its sophistication is thought to increase during adolescence to cope with the growing demands of social interactions (Guazzelli Williamson & Mills, 2023). Mentalizing may provide adolescents protection from the development of traits that may impede positive social relationships, such as aggression, dysregulation, and cognitive distortions (Beck et al., 2017; Clark, Meredith & Rose, 2020; Marszal & Janczak, 2018; Taubner et al., 2013). Furthermore, feeling accurately mentalized and understood by another has been posited as a route to encourage ET development (Fonagy et al., 2022; Li et al., 2022; Li et al., 2023).

Qualitative studies with teenagers scoring highly on an epistemic mistrust measure observed default negative expectations about life events (Li et al., 2023), posing the question of whether this would apply to perception of relationship quality. Mistrusting adolescents may hold fears of rejection from others or wariness about whether their needs will be met that drive them to distance themselves from close relationships (Li et al., 2022). While these cognitions may be helpful in adaptive response to adverse experiences, they may create difficulties in neutral social interactions if being perceived as threatening (Fonagy et al., 2022; Li et al., 2022). However, more benign relationships that carry less emotional expectation have been proposed to relax vigilant mistrusting stances, allowing individuals to feel more comfortable and make use of the social interaction, which is an experience most noted in clinical practitioner reviews of therapeutic relationships (e.g., Fonagy & Allison, 2014). Furthermore, repeated exposure to competence and helpfulness has supported epistemically mistrusting teenagers to relax their vigilance and build positive professional relationships, that have in some cases extended to the wider social network (Li et al., 2022). While this qualitative research has provided useful

understanding from the adolescents' points of view, further empirical research is required to establish an evidence base of such connections between these concepts and social relationships.

In attempt to begin these necessary investigations, a recent pilot study (Aisbitt, 2020) provided preliminary evidence that ET is positively correlated with adolescents reporting feeling understood and emotionally supported by professionals in their lives. Conversely, hypermentalizing was positively correlated with the number of people adolescents reported in their professional network but negatively correlated with their perceptions of emotional and practical support, frequency of contact, and perceived frustration with personal relationships. This study also noted important differences in perceptions of personal and professional relationships, perhaps reflecting different conditions for allowing relationships to develop. For example, more practical factors of relationship quality were favoured in professional relationships, such as their ability to provide informational support, while personal relationships consisted more of emotional expectations, such as understanding and reliability. However, this pilot study was conducted as part of a DClinPsy thesis that faced many barriers to recruitment due to the COVID-19 pandemic. Therefore, there was only a small sample leaving the study underpowered, in turn reducing the generalisability of the results. Furthermore, this study was conducted prior to the conceptualisation of the new three-factor structure of epistemic stance, preventing exploration of the potential contributions of epistemic credulity.

Research into epistemic credulity is even more limited, though a significant risk of social vulnerability is noted in the available literature (Brauner et al., 2023; Campbell et al., 2021; Greiner et al., 2024). Individuals with high levels of credulity have been reported to have a low level of self-efficacy, perhaps reflecting a

preference of favouring others' judgement over their own (Campbell et al., 2021). Epistemic credulity is posed to potentially be sustained by impaired mentalizing abilities, making it difficult for an individual to read social cues, and understand other's intentions (Campbell et al., 2021; Griener et al., 2024). Therefore, it may be questioned whether adolescents may perceive their relationships as helpful and supportive, even in the absence of social cues that would suggest this to those more attuned. However, more evidence is required to understand how credulity may impact perception of social relationships.

It is acknowledged that the evidence base for these areas is new and emerging and should be considered with a critical lens. Nonetheless, understanding more about the make-up of social networks of adolescents who have experienced trauma and are exhibiting psychological difficulties, as well as the intrapersonal processes through which they can access help and support from others, could provide mental health services with clearer direction when supporting adolescents. The concepts of social thinning, mentalizing, and epistemic stance provide a promising theoretical background to advancing knowledge in this field. Being able to further explore this would not only aim to extend the limited evidence base for ET and mentalizing in adolescents, but potentially provide a unique insight into the mechanisms through which adolescents may perceive their supportive relationships, that are proposed to offer vital protective factors against psychological distress. Ultimately, this could enable more young people to benefit from interventions and improve their social functioning during this vulnerable life stage.

The Current Study

The current study utilised adolescent self-report measures of social networks, childhood trauma, mentalizing, and epistemic stance. The original plan was to

examine whether the three latter factors also predicted change in social connections over the course of a therapeutic intervention, by collecting early therapy and end of therapy measures. However, difficulties in the study set-up prevented the collection of follow-up data within the time frame of the thesis, and so only cross-sectional early therapy measures are considered.

Firstly, an exploration of the make-up of reported social networks will be conducted, to better understand who is being reported within adolescent personal and professional social networks, and any differences in how they perceive the quality of these relationships, such as relationship type (e.g., mother, friend, teacher, therapist) and the order they report their relationships in. Following this, exploratory analyses will investigate whether these proposed intrapersonal capacities are related to both the quantity and perceived quality of social connections, both personally and professionally. Due to the potential different expectations and perceptions of these relationship categories, they will be explored separately. However, similarities are expected in the nature of their effects between categories due to the global impact that the theory proposes. Taking into account the literature presented above, the hypotheses are laid out below.

Hypotheses:

1. **Relationship Count**

In line with the emerging concept of social thinning, this study aims to explore social networks of adolescents who are experiencing mental health difficulties, and whether childhood trauma and mistrust have a role to play in reducing the size of social networks. Only the mistrust subscale from the ETMCQ will be used in this

hypothesis as the literature considers whether an innate mistrusting stance may contribute to the phenomenon of social thinning. Given that the social thinning and epistemic mistrust literature considers a global negative impact on experiencing positive relationships, these factors are expected to have a negative relationship with both personal and professional relationships.

a. The **number** of relationships reported in **personal** social networks, including family, peer, and wider community relationships will:
    i. Negatively correlate with childhood trauma scores
    ii. Negatively correlate with epistemic mistrust scores
b. The **number** of relationships reported in **professional** social networks, including teachers, youth group workers, and mental health workers will:
    i. Negatively correlate with childhood trauma scores
    ii. Negatively correlate with epistemic mistrust scores

2. Adolescent-Reported Relationship Quality:

Given the emerging evidence presented above, this study will explore the impact of childhood trauma, mentalizing and epistemic stance on perceived quality of personal and professional relationships. The recently published ETMCQ considers whether ET, mistrust, and credulity have distinct impacts on social function and so all three subscales of the ETMCQ will be used. Stronger effects are expected in personal relationship categories due to the potential increased emotional expectations perhaps leading to increased barriers in trust and positive perception, while professional relationships may provide slightly more benign conditions. As less

is known about epistemic credulity, the hypotheses between categories are conservatively posed to have similar effects.

a. The **perceived quality of relationships** reported in **personal** social networks, including family, peer, and wider community relationships will:
    i. Strongly negatively correlate with childhood trauma
    ii. Strongly negatively correlate with epistemic mistrust
    iii. Positively correlate with epistemic credulity
    iv. Strongly positively correlate with epistemic trust
    v. Strongly positively correlate with mentalizing
b. The **perceived quality of relationships** reported in **professional** social networks, including teachers, youth group workers, and mental health workers will:
    i. Moderately negatively correlate with childhood trauma
    ii. Moderately negatively correlate with epistemic mistrust
    iii. Positively correlate with epistemic credulity
    iv. Moderately positively correlate with epistemic trust
    v. Moderately positively correlate with mentalizing

Methods

Participants

Data was collected as part of a joint project with two other trainees. The contribution of each trainee is outlined in Appendix A. This study recruited adolescents aged between 12 and 18 from three outpatient NHS Children and

Adolescent Mental Health Services (CAMHS) in England. The sites included a mental health support team, a community CAMHS service, and a specialist tertiary service for substance-use related difficulties.

Additional inclusion criteria required participants to be receiving any form of individual psychological intervention for a minimum of three sessions, to be able to communicate and complete questionnaires in English, and to have the capacity to consent to involvement.

A priori power analysis was conducted using G*Power version 3.1.9.7 (Faul et al., 2007) to determine the minimum sample size required to test the hypotheses (power = 0.8, alpha = 0.05). The calculated sample size was 32 participants. The actual sample size was 24 participants leaving the study underpowered.

Study Design

This study followed a cross-sectional between-subjects correlational design to investigate the impact of adolescents' epistemic stance, mentalizing, and childhood trauma experiences on their social network patterns. Adolescents completed a self-report battery of questionnaires at a single time point near the beginning of their therapy (around session three). Their referring clinician completed a questionnaire about the quality of relationships in an adolescent's identified social network from their perspective.

Procedure

All clinicians in the CAMHS services were introduced to the study by the researchers during team meetings and provided with information sheets (Appendix H). Clinicians then introduced the study to adolescents they were starting therapy with, preparing for their third session, at which point they became eligible for

participation. If an adolescent expressed interest, their contact details were shared with the researchers with consent. Researchers then shared information sheets with the adolescent and their parent/carer(s) (Appendix I). Adolescents and carers were offered the opportunity to ask any questions over email or phone call. After reasonable time, the adolescents, and their parents/caregivers (if under 16) were then asked to indicate informed consent on a consent form (Appendix J).

Data collection took place over online video call with the researcher and adolescent. The researcher introduced themselves and checked whether the participant had any questions about the study. A reminder was given about confidentiality and its limitations. Participants were made aware that responses indicating they could be at risk of harm would be shared with their referring clinician. The researcher then shared a Qualtrics link for the adolescent to complete a battery of questionnaires independently. The researcher and participant remained on the online call while the questionnaires were completed so that any questions or concerns could be addressed. Participants were provided with debrief information and received a £15 voucher as reimbursement on the same day. The researcher reviewed responses and raised any risk concerns to the project supervisor within 24 hours.

Measures

Demographic information was collected regarding participants' age, gender, and ethnicity. Information was also gathered about the number of therapy sessions completed at the time of conducting measures.

All participants completed the following self-report questionnaires:

Childhood Trauma Questionnaire-Short Form (CTQ-SF; Appendix K; Bernstein et al., 2003). The CTQ-SF is a 28-item measure comprising five subdomains of childhood trauma experiences: emotional abuse, emotional neglect, sexual abuse, physical abuse, and physical neglect. Items are scored on a 5-point Likert scale ranging from “never true” (1 point) to “very often true” (5 points). Subdomain scores can be totalled to receive a total score, with higher scores indicating greater levels of childhood trauma. Additionally, a minimization/denial scale is rated across three items to identify potential underreporting, scored with 1 point only if the respondent answers “very often true,” yielding a total scale score of 3. The CTQ-SF has strong psychometric properties across its five subscales: α for emotional abuse = .89; α for physical abuse = .86; α for sexual abuse = .95; α for emotional neglect = .89; and α for physical neglect = .78 (Bernstein et al., 2003). A recent systematic review highlighted the need for further psychometric research, despite the CTQ-SF being one of the most well-established tools for measuring child maltreatment (Georgieva, Tomas & Navarro-Perez, 2021). In the current study, only the total CTQ score was used. Cronbach’s alpha for the current sample was .908.

Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ; Appendix L; Campbell et al., 2021). The ETMCQ is a 15-item self-report measure with three subscales: Epistemic Trust, Mistrust, and Credulity. Items are scored on a 7-point Likert scale ranging from “strongly disagree” (1 point) to “strongly agree” (7 points). As the only validated measure of ET to the author’s knowledge, the ETMCQ was developed by Campbell and colleagues and first validated within an adult British sample, reporting satisfactory test-retest reliability, internal consistency, confirmatory factor analysis, and interrelations with relevant developmental risk factors such as attachment and childhood trauma (Brauner et al., 2023; Campbell et al., 2021;

Hauschild et al., 2023). Since its publication, similar results have been reported in further adult and adolescent samples (Asgarizadeh & Ghanbari, 2024; Greiner et al., 2024; Liotti et al., 2023; Milesi et al., 2024). Satisfactory, though in some cases quite low, internal consistency ranging from α=.65 to α=.81 have been reported across the subscales in previous studies (Brauner et al., 2023; Campbell et al., 2021; Hauschild et al., 2023; Liotti et al., 2023; Milesi et al., 2024). Cronbach's alpha for the current sample was .73.

Reflective Function Questionnaire for Youths (RFQY; Appendix M; Sharp et al., 2009). The RFQY is a 46-item measure comprising two subscales: Scale A and Scale B. Items are scored on a six-point Likert scale, ranging from "strongly disagree" (1 point) to "strongly agree" (6 points). Scale A is scored on a median scale, with higher reflective function towards the midpoint and extreme scores reflecting low reflective function. An average of transformed scores provides the final Scale A score. Scale B is scored by calculating a straightforward average of all scores. The total RFQY score is the sum of Scale A and B, with higher scores indicating increased reflective functioning (mentalizing). Items between the scales are not substantially different in content, so the total RFQY score is used in this study. Although recent publications suggest further refinement (Sharp et al., 2022), the RFQY is reported to be a valid and reliable tool for adolescent populations, with good internal consistency (Cronbach's alpha = .88; Ha et al., 2013). Cronbach's alpha for the current sample was .85.

Social Network Questionnaire (Appendix N). The Social Network Questionnaire was designed for use in the pilot study of this research (Aisbitt, 2020) and is yet to undergo full psychometric evaluation. Participants were asked to identify up to 5 personal and up to 5 professional relationships they consider

supportive and helpful. Adolescents were asked to report their relationships in order of importance to them.

Respondents answered 9 questions about each relationship, rated on a 5-point Likert scale ranging from “Never/Not at all” (1 point) to “Always” (5 points). The questions explored 9 dimensions of the respondents’ perceptions of their identified helping relationships: Frequency of Contact, Approachability, Understanding, Emotional Support, Practical Support, Informational Support, Reliability, Frustration, and Trust.

The frustration item was reverse coded, while all other items were forward coded. The sum of these scores were calculated to reflect individual relationship quality. A greater total score reflects a relationship of higher perceived quality. For person-level analyses, an average score of each item across personal and professional relationships, respectively, was calculated and added to create a sum of averages. The number (count) of relationships an adolescent reported was also considered within this study. Cronbach’s alpha for the current sample was .759 for participant-reported personal relationships and .87 for participant-reported professional relationships.

Data Analysis

Data analysis was conducted using JASP Version 0.17.2. Analyses were performed at two levels. First, at the person level, where the independent variables were compared with the total count and the average score across participant relationships of the Social Network Questionnaire for personal and professional relationships separately. Second, at the individual relationship level, where each respondent reported on up to five personal and up to five professional relationships,

which were treated as multilevel dependent variables and analysed alongside time-invariant independent variables.

Throughout the thesis, “questionnaire variables” refers to the included questionnaires: ETMCQ (trust, mistrust, and credulity subscales), RFQY, and CTQ.

Initial Exploratory Analysis

In the person-level analyses, study variables (questionnaire variables, count of reported relationships, and average social network scores) were analysed using descriptive statistics and correlation analysis. Shapiro-Wilk tests for normality were conducted, and non-parametric tests were used when appropriate. One-way ANOVA analyses were performed to assess questionnaire variables between participant sites, given the differences in population, to determine if the test site needed to be considered as a covariate.

A series of paired samples t-tests were conducted to investigate the difference between adolescent-reported personal and professional relationship count, means of total quality scores and means of matched item scores on the Social Network Questionnaire.

At the level of individual reported relationships, the order of reported relationships and the type of relationship (e.g., mother, friend, teacher, therapist) were coded as categorical variables. Univariate analyses were conducted to explore the effects of the independent variables of relationship type and order independently on total adolescent-reported relationship quality, both personal and professional, as separate dependent variables. Given the categorical data, the first category was used as the reference category. For personal relationship type, the reference was “Mother,” and for professional relationship type, the reference was “Teacher or other

education staff.” For relationship order, the first reported relationship was the reference for both personal and professional relationships.

The original data plan entailed the use of multi-level modelling for both analyses to account for the non-independence of the data. However, the small number within the relationship type categories prevented the use of this method. Instead, multiple linear regressions were conducted, and each individual reported relationship was considered as an independent data entry. This analysis should be interpreted with caution due to the potential violation of the assumptions of multiple regression.

When exploring the effect of the order of reported relationships, data analysis was conducted as planned. Two univariate linear mixed model analyses were conducted with relationship order as an independent factor variable and total adolescent-reported personal, and then professional, relationship quality as the dependent variables respectively. To account for the clustering of the data, models were constructed with participant ID included as a random effect, and fixed effects of relationship order were estimated.

Hypothesis 1

To investigate the effect of the independent questionnaire variables on the **count** of relationships on the Social Network Questionnaire, both personal and professional, univariate analyses of each questionnaire variable independently were firstly conducted. Following this, a series of multiple regression analyses were conducted. These analyses also considered demographic variables (age, gender, and ethnicity) as covariates. Four models were built for each dependent variable:

- Model 1: Age, gender, ethnicity, and CTQ

- Model 2: As in Model 1, with the addition of Mistrust

Hypothesis 2

Multi-level analysis was then used to consider each reported relationship alongside the questionnaire variables. The participant ID was input as a random effect grouping factor (n = 24), and fixed effects of questionnaire variables were estimated.

Firstly, a series of univariate regression analyses were conducted to explore the effects of the independent questionnaire variables on total adolescent-reported relationship quality, both personal and professional, as dependent variables. Following this, a series of linear mixed model regression analyses were conducted to investigate the effects of the independent variables on total relationship quality scores for personal and professional relationships, respectively. These analyses also considered demographic variables (age, gender, and ethnicity) as covariates. Four models were built for each dependent variable. The exact steps of the model were determined based on the univariate analyses (i.e., the strongest univariate predictor was entered first) and are described in the results, but an example is provided here:

- Model 1: Age, gender, ethnicity, CTQ, and RFQY
- Model 2: As in Model 1, with the addition of ET
- Model 3: As in Model 2, with the addition of Mistrust
- Model 4: As in Model 3, with the addition of Credulity

Missing Data

Three respondents failed to report on one item of the individual social network relationships, and two failed to report on one item on the Childhood Trauma

Questionnaire. To address this missing data, a conservative estimated value was assigned based on the respondents' other similar item responses.

Ethical Considerations

This study was reviewed by the North of Scotland Research Ethics Committee and given a favourable opinion (IRAS project ID: 327053; Appendix P).

Results

Sample

The final sample size was 24 participants, indicating that the analysis may be underpowered, increasing the risk of Type II error and limiting the ability to detect true effects. The sample comprised 17 female, 5 male, and 2 non-binary participants, with an age range of 12-18 years (mean = 15.67 years, S.D. = 1.95). 12 participants were of white ethnicity, 5 of Black ethnicity, 4 of Asian ethnicity, and 3 of mixed ethnicity. Participants had completed between 3 and 5 sessions with their referring clinician (M = 3.63, S.D. = 0.77)). Seven participants were recruited from test site 1, twelve from site 2, and five from site 3.

Descriptive Statistics

Descriptive statistics for all variables are displayed in Table 1. Shapiro-Wilk tests of normality were non-significant for all subscales of the ETMCQ and average scores of personal social networks, indicating a normal distribution of these data. However, Shapiro-Wilk tests for the other variables (RFQY, CTQ, personal and professional relationship counts, and average scores of professional relationships) showed significant deviations from normal distribution. Full statistics are reported in

Appendix Q. Due to these deviations from normal distribution, non-parametric tests were employed as necessary throughout the analysis.

Table 1. *Descriptive Statistics of Questionnaire Variables.*

Variable	M	SD
Epistemic Trust	24.5	4.12
Epistemic Mistrust	24.83	3.25
Epistemic Credulity	19.92	5.74
RFQY	8.77	0.98
CTQ*	45.42	19.55
Personal social network - total count of adolescent identified relationships	4.42	0.83
Professional social network - total count of adolescent identified relationships	3.63	1.21
Personal social network quality of relationships (average; adolescent report)	33.9	3.85
Professional social network quality of relationships (average; adolescent report)	32.88	5.64

*NOTE: *On the CTQ measure, n = 15 participants exceeded cut off for "moderate to extreme" exposure to childhood trauma*

A series of one-way ANOVA analyses were conducted to explore the differences between the test sites on all questionnaire variables. No significant differences were observed (Appendix R), suggesting homogeneity across the test sites. Therefore, the test site was not considered a covariate in subsequent analyses.

Correlation between Questionnaire Variables

Spearman's correlation analysis was conducted to investigate the relationships between all person-level variables. As displayed in Table 2, CTQ scores and ET were not significantly correlated with any other variables. Mistrust correlated strongly and positively with Credulity ($r = .61$ [.28, .82], $p < .05$), as might be expected. Additionally, Mistrust was negatively and strongly correlated with the average scores of personal relationships ($r = -.63$ [-.83, -.31], $p < .001$), suggesting a potential relationship between mistrust and adolescent relationship quality that

warrants further exploration. Credulity was strongly and negatively correlated with the RFQY (r = -.55 [-.779, -.186], p < .05). The average scores of personal relationships were moderately positively correlated with the RFQY (r = .48 [.1, .74], p < .05) and with Mistrust, as reported above. The count of personal relationships was not significantly related to any other variables. Neither the average score nor the count of professional relationships was significantly related to any other variables.

Table 2. *Correlation Matrix of Questionnaire Variables, Relationship Count, and Average Relationship Scores.*

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1.CTQ	-	-	-	-	-	-	-	-
2. Epistemic Trust	.08	-	-	-	-	-	-	-
3. Epistemic Mistrust	.24	.22	-	-	-	-	-	-
4. Epistemic Credulity	.13	.18	**.61***	-	-	-	-	-
5.RFQY	-.35	-.08	-.38	**-.55***	-	-	-	-
6.Personal Average Score	-.28	-.1	**-.63***	-.33	**.48***	-	-	-
7.Professional Average Score	.22	-.02	-.08	-.09	.01	.22	-	-
8.Personal Count	-.1	-.31	-.02	.14	-.12	-.02	-.17	-
9.Professional Count	-.03	-.1	-.07	.14	-.08	-.09	-.29	.28

NOTE: *** = significant result** ; Personal Average score refers to the average of each participants reported personal relationships on the social network questionnaire; Professional Average score refers to the average of each participants reported professional relationships on the social network questionnaire; Personal Count refers to the number of personal relationships reported on the social network questionnaire; Professional Count refers to the number of professional relationships reported on the social network questionnaire

There is an increased risk of Type II error due to the small sample size (n = 24), which could result in false negative results. Additionally, the average scores of relationship quality may not best reflect individual relationship quality, so they will not

be further considered in the person-level analyses. Instead, individual relationships will be examined using multilevel analyses.

Differences Between Relationship Quality Scores – Personal vs Professional

A series of paired sample t-tests were conducted to compare the means of adolescent-reported relationship quality scores and matched item scores between personal and professional reports. Significant Shapiro-Wilk tests (all $p < .003$) indicated significant deviations from normality, prompting the use of non-parametric Wilcoxon signed-rank tests. As reported in Table 5, seven items were significantly different between personal and professional relationships, with the exceptions of emotional support and informational support. The results suggest that adolescents have more frequent contact with personal relationships, viewing them as more approachable, understanding, reliable, and trustworthy. However, they receive more practical support from professionals and express more frustration about their professional relationships.

Table 3. *Paired Sample t-tests of Social Network Questionnaire Items: Personal vs Professional Relationships. Wilcoxon signed-rank t-tests.*

Social Network Questionnaire item	Personal Mean (SD)	Professional Mean (SD)	W	z	p-value
Frequency of contact	**4.26 (0.88)**	**3.46 (0.99)**	**1931.5**	**5.28**	**<.001***
Approachability	**3.66 (1.07)**	**3.45 (1.06)**	**1122.5**	**2.07**	**.033***
Understanding	**3.78 (0.98)**	**3.33 (1.06)**	**1132.5**	**3.04**	**.002***
Emotional support	3.91 (0.88)	3.79 (1.13)	597	1.19	.224
Practical support	**2.89(1.32)**	**3.57 (1.3)**	**418.5**	**-3.1**	**.002***
Informational support	3.92 (1.02)	3.95 (1.09)	699.5	.096	.924
Reliability	**4.17 (0.91)**	**3.87 (1.01)**	**643.5**	**2.4**	**.013***
Frustration	**3.07 (1.43)**	**4.07 (1.22)**	**350**	**-4.72**	**<.001***
Trust	**4.32 (0.88)**	**3.65 (0.98)**	**1608.5**	**4.76**	**<.001***

NOTE: **** = significant result.***

Exploratory Analysis of Individual Relationships

A paired samples t-test of personal versus professional relationship counts revealed that participants identified more personal than professional relationships in their support network on the Social Network Questionnaire ($t(23) = 3.02$, $p < .05$).

There were 104 personal relationships reported in total across eight categories. The number of reports per category, number of first reports per category, and mean total relationship quality are displayed in Table 3 and Figure 1.

There were 85 professional relationships reported in total across five categories. The number of reports per category, number of first reports per category, and mean total relationship quality are displayed in Table 3 and Figure 2.

Table 4. *Relationship Category Information.*

Relationship Type	**N**	**Number of first reported relationship**	**Mean adolescent-report relationship quality (S.D.)**
Personal Relationships			
Total	**104**	**-**	**33.33 (5.7)**
Mother	19	14	36.32 (3.61)
Father	10	1	32.4 (4.06)
Sibling	12	1	34.35 (6.24)
Other family member	8	1	36.8 (7.78)
Friend	46	5	31.26 (5.36)
Wider community	2	0	26 (2.82)
Current or previous romantic partner	4	1	37 (1.83)
Other	4	1	34.5 (9.19)
Professional relationships			
Total	**85**	**-**	**31.05 (6.83)**
Teacher or other school staff	43	12	30.93 (6.57)
Mental health support worker, including therapist	30	11	32.1 (6.78)
Social worker	3	0	31.67 (13.5)
Community group worker	4	0	28.8 (5.5)
Unknown	5	1	27.2 (6.76)

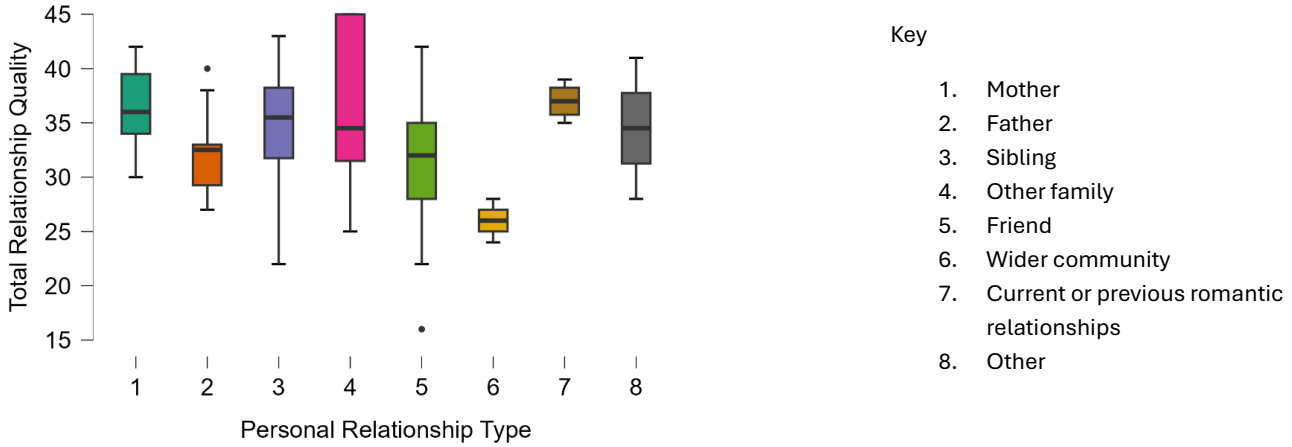

Figure 1. *Total Relationship Quality between Personal Relationship Type.*

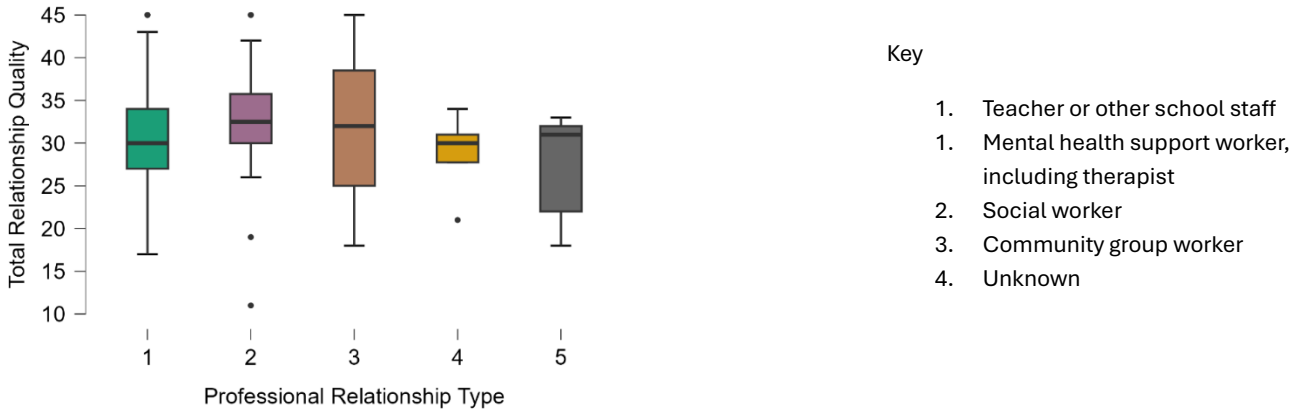

Figure 2. *Total Relationship Quality between Professional Relationship Type.*

Differences Between Relationship Type

Limitations in the dataset prevented the use of multilevel modelling for this exploration, and so separate reported relationships by the same participant were considered independent. The results should therefore be interpreted with caution due to the potential violation of the assumptions of multiple regression. Analyses between personal and professional relationships were conducted independently.

Firstly, a univariate regression was conducted with personal relationship type as the independent variable and the total adolescent-reported personal relationship quality score as the dependent variable. This model yielded a significant effect, $F(7,95) = 3.21$, $p < .05$, and explained 13.2% of the variance ($R^2 = .132$). "Mother" was used as the reference category for other relationships reported. Scores for "Friend" were lower compared to "Mother" (Unstandardized $\beta = -5.06$, S.E. = 1.44, $p < .001$), as were scores for "Wider Community" (Unstandardized $\beta = -10.32$, S.E. = 3.91, $p < .05$). These results suggest that adolescents rate their relationship quality with their mother higher than they do with friendships and wider community relationships.

Secondly, a univariate regression was conducted with professional relationship type as a factor independent variable and the total adolescent-reported professional relationship quality score as the dependent variable. "Teacher" was used as the reference category for other relationships reported. The model was insignificant, and no significant effects were detected, $F(5, 79) = .56$, $p = .727$.

Differences Between Reported Relationship Order

Adolescents were asked to report their relationships in each category in order of importance. The number of relationships each participant reported is outlined in Appendix U. The mean and standard deviation of adolescent-report relationship quality per each ordered report, as well as the number of reports per each order is reported in Table 4. In both categories, mean adolescent-reported relationship quality was visibly greatest in the first reported relationship, though further analysis is required to detect statistical difference.

The difference between reported order of personal and professional relationships was explored independently. Two univariate linear mixed model analyses were conducted with relationship order as an independent factor variable and total adolescent-reported personal, and then professional, relationship quality as the dependent variables respectively. To account for the clustering of the data, models were constructed with participant ID included as a random effect, and relationship order was added independently as a fixed effect. Relationship order was inputted as a categorical variable, with the first reported relationship as the reference category.

Table 5. *Mean Adolescent-Reported Relationship Quality Split by Order of Reported Relationships.*

Relationship Order	Personal Relationships		Professional Relationships	
	n	Mean adolescent-report relationship quality (S.D.)	n	Mean adolescent-report relationship quality (S.D.)
1	24	36.83 (4.29)	24	33.17 (5.56)
2	24	33.17 (5.61)	23	30.18 (6.44)
3	23	32.13 (5.38)	21	29.51 (7.02)
4	18	32.33 (6.41)	9	30.56 (10.6)
5	15	31 (5.59)	8	30.75 (5.99)

Within personal relationships, the model detected a significant effect, $F(4, 77.68) = 6.13$, $p < .001$, suggesting that there were significant differences on adolescent-reported personal relationship quality depending on the order of reported relationships. With the first reported relationship as the reference category, only the fifth reported relationship emerged as a significant fixed effect (estimate = -2.33, S.E.

= .99, p < .05), suggesting only the fifth personal relationship was significantly different from the first.

Within professional relationships, the model detected a significant effect, F(4, 59.92) = 2.84, p < .05, suggesting that there were also significant differences on adolescent-reported professional relationship quality depending on the order of reported relationships. However, no significant fixed effects estimates emerged as different from the first reported relationship as the reference category.

Hypothesis 1: Relationship Counts.

Personal Relationships

2a. The **number** of relationships reported in **personal** social networks, including family, peer, and wider community relationships will:

i. Negatively correlate with childhood trauma scores

ii. Negatively correlate with epistemic mistrust scores

Univariate linear regressions were conducted with childhood trauma and epistemic mistrust on the total count of personal relationships as the dependent variable. As reported in Appendix S, results showed no significant effects. A series of multiple linear regressions were then conducted to explore the combined effect of the independent variables on the dependent variable of total count of personal relationships reported. The full statistical analysis is reported in Appendix S. No variables emerged with significant independent effects and, therefore, no support for the hypothesis was detected.

Professional Relationships

1b. The **number** of relationships reported in **professional** social networks, including teachers, youth group workers, and mental health workers will:

i. Negatively correlate with childhood trauma scores

ii. Negatively correlate with epistemic mistrust scores

Univariate linear regressions were conducted with childhood trauma and epistemic mistrust on the total count of professional relationships as the dependent variable. As reported in Appendix T, results showed no significant effects. A series of multiple linear regressions were then conducted to explore the combined effect of the independent variables on the total count of professional relationships reported. The full statistical analysis is reported in Appendix T. No variables emerged with significant independent effects and, therefore, no support for the hypothesis was detected.

Hypothesis 2: Adolescent Perception of Relationship Quality.

Personal Relationships.

a. The **perceived quality of relationships** reported in **personal** social networks, including family, peer, and wider community relationships will:

   i. Strongly negatively correlate with childhood trauma

   ii. Strongly negatively correlate with epistemic mistrust

   iii. Positively correlate with epistemic credulity

   iv. Strongly positively correlate with epistemic trust

   v. Strongly positively correlate with mentalizing

Univariate linear mixed models were conducted with each variable on the total adolescent-reported quality of each personal relationship as the dependent variable. To account for the clustering of the data, given that 105 personal relationship quality ratings were provided by n=24 participants, linear mixed models were constructed with participant ID included as a random effect. Each independent variable was added independently as a fixed effect. Results, displayed in Table 6, suggest that epistemic mistrust was the most significant variable in negatively predicting personal relationship quality, followed by CTQ, providing initial support for hypotheses 2a i and ii. However, further analysis is required to investigate the effect alongside other variables.

Table 6. *Univariate Linear Mixed Model Analyses with Adolescent Reported Personal Relationship Quality as Dependent Variable and Participant as the Grouping Variable.*

Variable	Estimate	Standard error	t-statistic	p-value
CTQ	**-0.09**	**0.04**	**-2.17**	**.04***
Epistemic Trust	-0.15	0.19	-0.79	.437
Epistemic Mistrust	**-0.08**	**0.19**	**-4.25**	**<.001***
Epistemic Credulity	-0.22	0.14	-1.63	.117
RFQY	1.36	0.91	1.49	.158

*NOTE: *** = significant result.***

Further linear mixed model analyses were conducted to explore the relative contributions of the variables in predicting adolescent-reported quality of personal relationships. Linear mixed modelling was used to consider the participant ID as a random effect grouping factor (n=24), and fixed effects were estimated. A four-stage regression was conducted with the total relationship quality score as the dependent variable. Models were sequentially built, starting with mistrust and CTQ as the strongest univariate predictors, before adding credulity, RFQY, and then ET.

Demographic variables were entered into each stage of the model, with age as a continuous covariate and gender and ethnicity as nominal factors.

Results are displayed in Table 7. The increasing Akaike Information Criterion (AIC) and Schwarz's Bayesian Criterion (BIC) from model 1 to 4 suggest that model 1 has a better balance between fit and complexity, though the differences are small, so the final model is included. Epistemic mistrust detected the only significant independent effect in all stages of the regression, with increasing mistrust scores predicting decreasing personal relationship quality (final model estimate = -0.89, S.E. = .32, $p < .05$). Therefore, these results only support hypothesis 2a ii.

For comparison, a series of multiple linear regressions were conducted that did not consider the multilevel structure of this data (Appendix V), which also detected epistemic mistrust as a significant predictor of total personal relationship quality.

Table 7. *Linear Mixed Model Analyses with Adolescent Reported Personal Relationship Quality as Dependent Variable and Participant as the Grouping Variable.*

		Fixed Effects Estimates			
Model	*Independent Variable*	*Estimate*	*Standard Error*	*t*	*p*
1	*Age*	0.28	0.43	0.65	.528
	Male Gender	-0.45	1.31	-0.35	.735
	Non-binary Gender	0.77	1.44	0.54	.600
	Mixed Ethnicity	0.01	1.13	0.01	.993
AIC = 645.45	*Asian Ethnicity*	1.64	1.87	0.88	.396
BIC = 674.53	*Black Ethnicity*	-1.52	1.61	-0.95	.360
	CTQ	-0.05	0.05	-1.04	.314
	Epistemic Mistrust	**-0.82**	**0.29**	**-2.86**	**.012***
2	*Age*	0.42	0.46	0.91	.378
	Male Gender	-0.46	1.32	-0.35	.731
	Non-binary Gender	1.26	1.56	0.81	.432
AIC = 648.47	*Mixed Ethnicity*	0.01	1.13	0.01	.991

BIC = 680.21	*Asian Ethnicity*	1.45	1.89	0.77	.456
	Black Ethnicity	-1.37	1.62	-0.84	.414
	CTQ	-0.06	0.05	-1.19	.254
	Epistemic Mistrust	**-0.94**	**0.32**	**-2.94**	**.011***
	Epistemic Credulity	0.14	0.17	0.86	.406
3 **AIC = 651.57** **BIC = 691.23**	*Age*	0.03	0.49	0.07	.948
	Male Gender	-0.76	1.43	-0.53	.603
	Non-binary Gender	1.39	1.63	0.86	.409
	Mixed Ethnicity	0.41	1.1	0.37	.719
	Asian Ethnicity	1.29	1.81	0.71	.493
	Black Ethnicity	-1.64	1.55	-1.06	.318
	CTQ	-0.02	0.05	-0.44	.669
	Epistemic Mistrust	**-0.88**	**0.31**	**-2.86**	**.016***
	Epistemic Credulity	0.1	0.18	0.56	.590
	RFQY	0.94	1.06	0.88	.401
4 **AIC = 654.62** **BIC = 696.93**	*Age*	0.09	0.52	0.18	.859
	Male Gender	-0.91	1.51	-0.6	.556
	Non-binary Gender	1.24	1.72	0.72	.485
	Mixed Ethnicity	0.33	1.15	0.29	.780
	Asian Ethnicity	1.37	1.88	0.73	.484
	Black Ethnicity	-1.89	1.71	-1.11	.299
	CTQ	-0.02	0.05	-0.4	.698
	Epistemic Mistrust	**-0.89**	**0.32**	**-2.79**	**.019***
	Epistemic Credulity	0.11	0.19	0.59	.567
	RFQY	1.04	1.11	0.93	.368
	Epistemic Trust	-0.09	0.22	-0.4	.697

NOTE: **** = significant result;*** AIC refers to Akaike Information Criterion; BIC refers to Schwarz's Bayesian Criterion

Professional Relationships

b. The **perceived quality of relationships** reported in **professional** social networks, including teachers, youth group workers, and mental health workers will:

   i. Moderately negatively correlate with childhood trauma

   ii. Moderately negatively correlate with epistemic mistrust

   iii. Positively correlate with epistemic credulity

iv. Moderately positively correlate with epistemic trust

v. Moderately positively correlate with mentalizing

Univariate linear mixed model analyses were conducted with each variable on the total adolescent-reported quality of each professional relationship as the dependent variable. To account for the clustering of the data, given that 85 professional relationship quality ratings were provided by n=24 participants, linear mixed models were constructed with participant ID included as a random effect. Each independent variable was added independently as a fixed effect. Results, displayed in Table 8, showed no significant effects and so no support for hypothesis 2b was found at this stage.

Table 8. *Univariate Linear Mixed Model Analyses with Total Adolescent Reported Professional Relationship Quality as Dependent Variable and Participant as the Grouping Variable.*

Variable	Estimate	Standard error	t-statistic	p-value
CTQ	0.1	0.06	1.77	.09
Epistemic Trust	0.14	0.29	0.49	.629
Epistemic Mistrust	0.09	0.37	0.25	.804
Epistemic Credulity	0.25	0.2	1.26	.219
RFQY	-0.5	1.19	-0.42	.677

NOTE: **** = significant result.***

Further linear mixed model analyses were conducted to explore the relative contributions of the variables in predicting the adolescent-reported quality of professional relationships. Linear mixed modelling was used to consider the participant ID as a random effect grouping factor (n=24), and fixed effects were estimated. A four-stage regression was conducted with the total relationship quality score as the dependent variable. Variables were added in a stepped manner, beginning with the CTQ and RFQY, before adding trust, mistrust, and then credulity.

Demographic variables were entered into each stage of the model, with age as a continuous covariate and gender and ethnicity as nominal factors.

Results are displayed in Table 9. The AIC values between models suggest that model 1 has the best model fit, but the decreased AIC from model 3 to 4 suggests that the final model better explains the data fit compared to model 3. The final model's BIC suggests more complexity compared to model 1, though the differences are small, so the final model is included. No significant effects were observed until the final stage of the analysis, which detected Epistemic Credulity as a significant positive predictor of total professional relationship quality. Therefore, these results only support Hypothesis 2b iii, while finding no support for the others.

For comparison, a series of multiple linear regressions were conducted that did not consider the multilevel structure of this data. The results of these analyses also detected Epistemic Credulity as a significant predictor of professional relationship quality (Appendix W).

Table 9. *Linear Mixed Model Analyses with Total Adolescent Reported Professional Relationship Quality as Dependent Variable and Participant as the Grouping Variable.*

		Coefficients			
Model	*Independent Variable*	*Estimate*	*Standard Error*	*t*	*p*
1 **AIC = 515.71** **BIC = 547.57**	*Age*	0.34	0.63	0.54	.594
	Male Gender	0.61	1.75	0.35	.732
	Non-binary Gender	3.25	2.12	1.53	.144
	Mixed Ethnicity	-0.82	1.24	-0.66	.520
	Asian Ethnicity	-2.69	1.89	-1.42	.179
	Black Ethnicity	0.44	1.73	0.25	.805
	CTQ	0.06	0.06	1.08	.302
	RFQY	-0.17	1.35	-0.13	.900

2 **AIC = 517.85** **BIC = 522.05**	*Age*	0.46	0.66	0.7	.493
	Male Gender	0.7	1.73	0.41	.691
	Non-binary Gender	3	2.13	1.41	.180
	Mixed Ethnicity	-0.93	1.23	-0.75	.468
	Asian Ethnicity	-2.56	1.83	-1.4	.197
	Black Ethnicity	0.1	1.73	0.06	.957
	CTQ	0.06	0.06	0.99	.345
	RFQY	-0.41	1.46	-0.28	.787
	Epistemic Trust	-0.25	0.26	-0.98	.348
3 **AIC = 519.99** **BIC = 556.64**	*Age*	0.49	0.68	0.71	.489
	Male Gender	0.58	1.82	0.32	.755
	Non-binary Gender	3	2.28	1.32	.209
	Mixed Ethnicity	-1	1.41	-0.71	.494
	Asian Ethnicity	-2.5	2.41	-1.04	.327
	Black Ethnicity	0.02	1.95	0.01	.990
	CTQ	0.06	0.06	0.92	.381
	RFQY	-0.28	1.44	-0.19	.850
	Epistemic Trust	-0.22	0.27	-0.8	.437
	Epistemic Mistrust	-0.02	0.38	-0.04	.969
4 **AIC = 518.91** **BIC = 557.99**	*Age*	0.97	0.67	1.44	.172
	Male Gender	0.62	1.74	0.36	.726
	Non-binary Gender	4.29	2.22	1.93	.072
	Mixed Ethnicity	-0.62	1.38	-0.45	.661
	Asian Ethnicity	-3.87	2.41	-1.61	.133
	Black Ethnicity	0.25	1.99	0.13	.902
	CTQ	0.05	0.06	0.81	.435
	RFQY	0.92	1.37	0.67	.513
	Epistemic Trust	-0.18	0.26	-0.71	.493
	Epistemic Mistrust	-0.25	0.39	-0.64	.536
	Epistemic Credulity	**0.54**	**0.25**	**2.15**	**.049***

NOTE: **** = significant result;*** AIC refers to Akaike Information Criterion; BIC refers to Schwarz's Bayesian Criterion

Discussion

This study aimed to explore social networks of adolescents who are experiencing mental health difficulties, and investigate whether childhood trauma,

epistemic stance, and mentalizing have a role to play in reducing the size and perceived quality of social networks.

Within the exploratory analysis, adolescents rated personal relationships higher than those with professionals. Adolescents rated their relationship quality in most areas, including trust, approachability, and reliability, higher in personal relationships, although practical support was rated greater in professional relationships, as was levels of frustration. Personal relationship quality was significantly lower for "friend" and "wider community" than for "mother", though differences were noted between professional relationship types. The order of reported relationships significantly affected total relationship quality in both personal and professional relationships, but only the fifth reported personal relationship effect on relationship quality was significantly less than the first.

Exploration of hypothesis 1 detected no observed effects of childhood trauma or epistemic mistrust on the total count of reported relationships, both personally and professionally, though limitations to the study design that may have prevented full exploration of this hypothesis are discussed below.

Regarding the second set of hypotheses investigating individual adolescent-reported relationship quality, several noteworthy findings emerged. Univariate analyses revealed negative effects of epistemic mistrust and childhood trauma on adolescent-reported personal relationship quality. However, only the effect of epistemic mistrust remained significant in a combined model alongside other questionnaire and demographic variables. No significant univariate effects of the questionnaire variables were observed on adolescent-reported professional

relationship quality, but in a combined model, epistemic credulity emerged as a strong positive effect.

Childhood Trauma

Despite the established role of childhood trauma in each of the psychological functions explored in this study (e.g., Bo et al., 2017; Luyten & Fonagy, 2015), childhood trauma was not significantly correlated with any such variables. This is contradictory to the emerging studies regarding epistemic stance, which have reported childhood trauma experiences to be positively correlated with epistemic mistrust, credulity and impaired mentalizing (Benzi et al., 2023; Campbell et al., 2021; Griener et al., 2024). However, these existing studies were conducted in community samples, whereas the present study involves a clinical sample. 37.5% of the current sample exceeded the commonly used cut-off score of >35 for “moderate to extreme” levels of exposure on the CTQ (Sar et al., 2012; Vahapoglu et al., 2018), and the mean score also exceeded this cut-off. While ceiling effects were not observed, the inclusion of a solely clinical and potentially high-risk sample may prevent exploration of the effects of trauma that may be possible if a control group without such trauma exposure were included.

With regards to social network quantity and quality, the emerging literature of social thinning (Viding & McCrory, 2020) proposes that adverse childhood experiences impact the ability to form trusting relationships. While there was a positive univariate effect observed on adolescent-reported relationship quality, this did not remain when considered alongside other variables and therefore support for this theory cannot be concluded from the current sample. Similarly, Allen and colleagues reported only a small negative effect size between childhood trauma and

social support in a recent meta-analysis, questioning whether post-trauma cognitions may be a mediating factor in this relationship (Allen et al., 2021). Additionally, previous literature suggests that while childhood trauma is a significant risk factor for poorer social functioning (e.g., Goemans, Viding & McCrory, 2023; McCrory, Foulkes & Viding, 2022), protective factors may provide resilience against this risk (e.g., Ozer et al., 2017; Racine et al., 2020; Schwerdtfeger Gallus et al., 2015). Therefore, it could be hypothesised that disrupted intrapersonal capacities implicated in this study may mediate the association between childhood trauma and perceived relationship quality, as has been observed of both epistemic mistrust and credulity partially mediating the relationship between early adversity and psychopathology (Campbell et al., 2021; Greiner et al., 2024). However, the reduced sample size and multi-level structure of the data prevented further exploration of such questions. Future research should aim to explore these potential mediating factors to expand the knowledge base regarding childhood trauma and perception of social network quality.

Epistemic Stance

The differing effects of psychological constructs between personal and professional relationships in the current study are notable, suggesting epistemic stance may differently influence the perception of these relationships.

Epistemic Mistrust

The findings align with existing literature and theoretical conceptions to some degree, highlighting that a mistrusting stance may limit adolescents' ability to form and maintain personal relationships (Bo et al., 2017; Neil et al., 2017). Epistemic

mistrust is posed to develop as a maladaptive coping response to threatening environments, but an entrenched mistrusting stance can create vulnerabilities in social situations that do not pose such threats (Fonagy et al., 2022; Li et al. 2022). It may be that the reciprocal emotional expectations of adolescent personal relationships, such as emotional support, trust, and intimacy (McNeely & Barber, 2010; Roach, 2019), activate mistrusting stances, leading to a fear of being hurt, rejected or misunderstood, and therefore distancing themselves from close relationships, or a low confidence that the other can manage their needs (Li et al., 2022).

However, as epistemic mistrust may relate to default negative expectations (Li et al., 2023), a global negative perception of relationship quality was expected in individuals where epistemic mistrust is present. It is interesting, therefore, that this pattern of mistrust was not echoed in professional relationships. Adolescents in the current sample rated professional relationship quality as generally lower than personal, but practical support was highlighted as significantly higher in professional than personal relationships. The reduced emotional emphasis of expectations from professionals may lead to interactions being viewed as more benign, a condition that allows for the relaxation of epistemic vigilance (Fonagy & Allison, 2014), perhaps resulting in adolescent-professional relationships developing with less interpersonal threat. Furthermore, adolescents value professionals demonstrating understanding of their world and may find comfort in knowing professionals have supported similar children (Clarke, Meredith & Rose, 2021).

Feeling understood and accurately mentalized has been theorised to open trusting pathways to social learning even when experiences of trauma have

disrupted the propensity to trust in others (Fonagy et al., 2022; Li et al., 2022; Li et al., 2023). While feeling understood by professionals was scored significantly lower compared to personal relationships in the current study, previous research has reported a positive moderate correlation between ET and adolescents feeling understood by professional, but not personal, relationships (Aisbitt, 2020). Adolescents with high levels of epistemic mistrust have been observed to build trust within therapeutic relationships when there are repeated experiences of perceived professional competence in helping the adolescent, resulting in decreasing epistemic vigilance and increasing beneficial social interactions beyond the therapeutic relationship (Li et al., 2022). The current sample of professional relationships did not just include therapists but also other professions, such as teachers. Given that there were no observed relationship quality differences between the professional groups, it could be hypothesised that these effects could translate between helping professions. This merits further exploration to consider specific routes of social learning benefits between contexts, potentially identifying intervention mechanisms for epistemically mistrusting adolescents to improve their social functioning and experience the associated benefits.

Epistemic Credulity

Emerging psychological literature poses that early adversity can in some cases lead to an overly accepting stance of socially transmitted information, termed epistemic credulity, that may be sustained by inefficient mentalizing (Campbell et a., 2021; Greiner et al., 2024). The negative correlation observed between credulity and reflective functioning in the current study is consistent with previous findings suggesting that difficulties with interpersonal understanding may reduce necessary

vigilance and discrimination of social signals, which is posed as a risk factor for social vulnerability (Campbell et al., 2021; Liotti et al., 2023). However, no significant effects were observed between credulity and personal relationships in the current study. This may be partially explained by the fact that adolescents were only asked to identify relationships they perceive as helpful and supportive, preventing exploration of more negative relationships where more of the difficulties may life.

Meanwhile, the positive moderate predictive effect observed of credulity on perceived professional relationship quality suggests that this proposed vulnerability may actually be beneficial within adolescent-professional relationships. Individuals with a credulous stance may have a propensity to relinquish their responsibility in favour of another's judgement (Campbell et al., 2021), perhaps leading credulous adolescents to be more open and receptive to professional guidance. Given the correlations noted between mistrust and credulity in the current sample and previous literature (e.g. Brauner et al., 2023), the natural authority of professionals may confer more certainty and safety for credulous adolescents in a similar manner noted in mistrusting adolescents who valued knowledge and competence in their therapists (Li et al., 2023). However, as the current effect of credulity was only observed in a complex model alongside additional covariates, it must be interpreted with caution as it could represent relationships between other variables.

Nonetheless, these preliminary yet novel findings suggest a potential new clinical understanding of how to protect young people from the social risks of credulity. Fonagy & Allison (2014) propose that the successful process of psychotherapy allows for social learning to extend to wider contexts. Therefore, forming good quality professional relationships could be a protective strength to be

harboured in targeted interventions for adolescents with elevated levels of epistemic credulity, such as direct opportunities to begin discerning applicability of socially transmitted information that could be translated into wider social situations with support. Future research should aim to establish the role of credulity in social relationships, as the theoretical basis for this concept provides a promising understanding to supporting socially vulnerable adolescents.

Epistemic Trust

ET was not correlated with any other variable within this study, contradicting previous research linking increased ET with, for example, improved mentalizing (Milesi et al., 2024) and increased experiences of childhood trauma (Liotti et al., 2023). However, results have been varied regarding ET's significance within these factors (Campbell et al., 2021; Liotti et al., 2023; Griener et al., 2024; Milesi et al., 2024). Furthermore, as epistemic mistrust and credulity are considered impairments in epistemic trust (Campbell et al., 2021; Fonagy & Allison, 2014), it is intriguing that ET itself was not observed to affect adolescent-reported relationship quality. Campbell et al. (2021) proposed that ET may be a "neutral" default mode in social functioning, leading to mutual social benefits that promote well-being rather than being a unitary resilience factor against psychopathology. However, the current study failed to detect interpersonal relationship benefits associated with increased ET.

Given the clinical sample of the current study, there may have been a general reduction in ET due to its inverse relationship with psychopathology (Campbell et al., 2021; Fonagy, Luyten & Allison, 2015), thereby perhaps limiting exploration of the positive associations of ET that may be more apparent in the general population.

Although no floor effects of ET were observed, further research with a non-clinical sample comparison would perhaps better support understanding of the social benefits of ET across a wider spectrum of social and psychological functioning. However, while much of the theoretical basis for ET has been derived from clinical conceptualisation (e.g., Bo et al., 2017; Fonagy & Allison, 2014), the empirical studies emerging consider solely community samples (e.g., Benzi et al., 2023; Campbell et al., 2021). Future research should aim to adopt robust empirical research designs with comparative community and clinical samples to better establish ET's relationship with theorised interrelated concepts, as well as its potential role in the risk of, or protection from, psychological and social difficulties.

Mentalizing

A positive correlation was observed between reflective functioning and average personal relationship quality, which is consistent with previous literature proposing theoretical conceptualisations and associations between impaired mentalizing and reduced social functioning (e.g., Bo et al., 2017; Fonagy & Bateman, 2016; Guazzelli Williamson & Mills, 2023). However, such an effect was not observed in multi-level analysis of adolescent personal and professional relationship quality. This is somewhat surprising given previous literature reporting feeling heard and understood, which is arguably more available to an individual with improved with increased mentalizing skills, as a key route to building interpersonal trust in relationships (Clarke, Meredith & Rose, 2021). Additionally, the proposed benefits of improved mentalizing skills, such as better emotional regulation skills and reduced cognitive distortions about others (Beck et al., 2017; Clark, Meredith & Rose, 2020;

Marszal & Janczak, 2018; Taubner et al., 2013), would be considered as advantageous to forming positive relationships.

However, the current study utilised a measure that rates mentalizing skills on a more linear scale (Sharp et al., 2009), but recent research has called for more nuanced approaches to the measurement of mentalizing that consider the multifaceted nature (Guazzelli Williamson & Mills, 2023). Future research should aim to find methods that may capture the proposed dimensionality of mentalizing (Fonagy & Bateman, 2016) rather than using a unitary measure. This may allow for a more direct understanding of the dimensions of mentalizing that are acting to support adolescents in their relationship quality perception. Additionally, future research may want to consider gathering a trusted third-party perspective of the relationship quality who could act as a neutral observer assessing social cues that may more objectively quantify help and support. This may allow a deeper assessment of the difference that mentalizing may make on the ability to perceive good quality relationships.

Limitations

The risk of Type II error, which is detecting a false negative result, is increased due to the small sample size, leading to analyses being underpowered. Conversely, the risk of Type I error, which is detecting a false positive result, is elevated due to the number of tests run within each hypothesis. The analyses in Hypothesis 2a regarding relationship ‘type’ carry considerable risks of Type I error as they do not account for the same participant reporting on multiple relationships and could violate the assumptions of regression analyses.

Additionally, the risk of sampling bias is acknowledged due to participants being recruited by clinicians and thus indicative of a self-selected sub-population.

While efforts were made to stress the importance of inviting all adolescents to participate, recruitment occurred at an early point in the therapeutic alliance formation, and some clinicians may have had understandable reservations about introducing the study, especially when prioritising psychological presenting difficulties.

The nature of using self-report measures as the core data source introduces limitations regarding the accuracy of the information provided. Given the concepts being explored, if adolescents have a reduced mentalizing ability, it raises questions about their capacity to accurately report internal beliefs, emotions, and thoughts, as questionnaires require. Additionally, while considered a necessary safeguarding step given the vulnerabilities of the participant group, the knowledge that answers might be reported to clinicians may have prevented accurate reporting of some information or introduced a performance bias, where adolescents reported what they thought the researcher, or their clinician wanted to see.

This study only considered the total childhood trauma score. Further research may benefit from using the subscales of the CTQ, such as sexual abuse, emotional neglect, and physical abuse, to understand if there are differential effects of different types of traumas on relationship quality and to statistically model trauma type in order to identify whether there is a general or specific trauma factor associated with epistemic disruption and relationship perception.

The key dependent variable in this study, the Social Network Questionnaire, is not a validated tool with established psychometric properties. This limitation affects the degree to which these results can be considered as truly capturing the quality of relationships as intended. While internal consistency in the current sample was

observed as good, the multilevel structure of the data might have merited alternative methods of exploring internal consistency. Alpha coefficients provide single coefficients for the entire model and do not account for potential differences across data levels, i.e., the different relationships reported by the same participant. Future research would benefit from developing a validated tool to measure the quality of individual relationships.

Additionally, adolescents were restricted in the number of relationships they could report, being asked to provide three to five important personal and professional relationships. This limitation affects the ability to deduce an accurate understanding of the extent of social network size and the relationship of predictive psychological constructs. For instance, some participants were easily able to identify the full quota of five personal and five professional relationships, while others struggled to name two or three in either category. If adolescents had been able to list an unlimited number of people within their networks, there may have been more of significant difference noted.

Furthermore, given the significant differences observed between some relationship types, grouping all personal relationships into one category, and all professionals into another, did not allow for a nuanced understanding of variable effects on differing relationships within the categories. Future research could benefit from a more detailed examination of these distinct relationship types to further elucidate the specific dynamics at play. It might be more useful to apply a tool such as social network analysis to gain a deeper understanding of the complex web of relationships an adolescent may have and how these relationships reciprocally interact.

Implications

Understanding the factors that contribute to adolescents creating good quality interpersonal relationships is of great clinical importance. Social relationships provide adolescents with opportunities for support, connection, and protection against psychological difficulties. This study has contributed to understanding the complex web of adolescent social networks, highlighting differences in personal and professional relationships. Furthermore, this study has added to the limited evidence base of epistemic stance research in adolescent samples pointing to future directions for research and interventions. The results of this study additionally provide support for the newly developed three-factor model of ET using the ETMCQ (Campbell et al., 2021), by detecting differences in the roles of epistemic mistrust and credulity in social functioning.

Given that adolescence has been posed as a key time for ET to develop (Li et al., 2023), these preliminary results could point to routes for targeted intervention that could impact adolescent trajectory (Sharp & Fonagy, 2015). The aim of psychological interventions is to support individuals in reducing their distress and promoting overall well-being. This research underscores the importance of such interventions considering how epistemic stances may inhibit or promote the development of good quality relationships, allowing adolescents to improve their feelings of connectedness and support within their wider social networks. This would provide numerous benefits and protective factors, ensuring that the success of any psychological intervention can be sustained long after the time spent with a therapist. Furthermore, involving important personal relationships and other professionals,

such as school and education staff, in interventions could allow for targeted support in improving relationship quality for adolescents.

By having an improved understanding of the psychological factors implicated in perceiving good quality relationships, clinicians and policymakers can develop better strategies to support adolescents' social and emotional well-being.

Conclusions

This study has explored how childhood trauma, epistemic stance and mentalizing impact adolescents’ social connections, both personal and professional. It identified significant negative effects of epistemic mistrust on the perception of personal relationships, while a positive effect of epistemic credulity on professional relationships was noted. However, the limited sample size of this study restricted the ability to explore the full extent of other potentially important variables, such as mentalizing and epistemic trust.

This research emphasises how epistemic stances may prevent or promote the perception of good quality relationships, highlighting the importance of considering adolescents' social networks within psychological interventions. Additionally, this study identified differences in relationship quality between various personal relationships, such as parents and friends, but not in professional relationships. Future, larger scale research should further explore the interconnections of social networks and how they might better support the development of adolescents.

References

Aisbitt, G. (2020). Epistemic Trust and Mentalizing in Adolescent Therapeutic Alliances. UCL DClinPsy thesis repository.

Allen, L., Jones, C., Fox, A., Copello, A., Jones, N., & Meiser-Stedman, R. (2021). The correlation between social support and post-traumatic stress disorder in children and adolescents: A meta-analysis. Journal of affective disorders, 294, 543-557.

Andrews, J. L., Ahmed, S. P., & Blakemore, S. J. (2021). Navigating the social environment in adolescence: The role of social brain development. *Biological Psychiatry*, *89*(2), 109-118.

Asgarizadeh, A., & Ghanbari, S. (2024). Iranian adaptation of the Epistemic Trust, Mistrust, and Credulity Questionnaire (ETMCQ): Validity, reliability, discriminant ability, and sex invariance. Brain and Behavior, 14(3), e3455.

Baldwin, J. R., Wang, B., Karwatowska, L., Schoeler, T., Tsaligopoulou, A., Munafò, M. R., & Pingault, J. B. (2023). Childhood maltreatment and mental health problems: A systematic review and meta-analysis of quasi-experimental studies. *American journal of psychiatry*, *180*(2), 117-126.

Beck, E., Sharp, C., Poulsen, S., Bo, S., Pedersen, J., & Simonsen, E. (2017). The mediating role of mentalizing capacity between parents and peer attachment and adolescent borderline personality disorder. Borderline Personality Disorder and Emotion Dysregulation, 4, 1-4.

Benzi, I. M. A., Carone, N., Parolin, L., Martin-Gagnon, G., Ensink, K., & Fontana, A. (2023). Different epistemic stances for different traumatic experiences: implications for mentalization. Research in Psychotherapy: Psychopathology, Process, and Outcome, 26(3).

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., ... & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child abuse & neglect*, *27*(2), 169-190.

Bevington, D., Fuggle, P., & Fonagy, P. (2015). Applying attachment theory to effective practice with hard-to-reach youth: the AMBIT approach. *Attachment & human development*, *17*(2), 157-174.

Bi, S., Rancher, C., Johnson, E., Cook, K., McDonald, R., & Jouriles, E. N. (2019). Perceived loss of social contact and trauma symptoms among adolescents who have experienced sexual abuse. Journal of child sexual abuse, 28(3), 333-344.

Bo, S., Sharp, C., Fonagy, P., & Kongerslev, M. (2017). Hypermentalizing, attachment, and epistemic trust in adolescent BPD: Clinical illustrations. *Personality Disorders: Theory, Research, and Treatment*, *8*(2), 172.

Brauner, F., Fonagy, P., Campbell, C., Griem, J., Storck, T., & Nolte, T. (2023). “Trust me, do not trust anyone”: how epistemic mistrust and credulity are associated with conspiracy mentality. Research in Psychotherapy: Psychopathology, Process, and Outcome, 26(3).

Bowlby, J. (1979). The bowlby-ainsworth attachment theory. *Behavioral and Brain Sciences*, *2*(4), 637-638.

Bucci, S., Berry, N., Morris, R., Berry, K., Haddock, G., Lewis, S., & Edge, D. (2019). “They are not hard-to-reach clients. We have just got hard-to-reach services.” Staff views of digital health tools in specialist mental health services. *Frontiers in Psychiatry*, *10*, 344.

Camara, M., Bacigalupe, G., & Padilla, P. (2017). The role of social support in adolescents: are you helping me or stressing me out?. *International Journal of Adolescence and Youth*, *22*(2), 123-136.

Campbell, C., Tanzer, M., Saunders, R., Booker, T., Allison, E., Li, E., ... & Fonagy, P. (2021). Development and validation of a self-report measure of epistemic trust. *PloS one*, *16*(4), e0250264.

Choudhury, S., Blakemore, S. J., & Charman, T. (2006). Social cognitive development during adolescence. *Social cognitive and affective neuroscience*, *1*(3), 165.

Chu, P. S., Saucier, D. A., & Hafner, E. (2010). Meta-analysis of the relationships between social support and well-being in children and adolescents. *Journal of social and clinical psychology*, *29*(6), 624-645.

Clarke, A., Meredith, P. J., & Rose, T. A. (2020). Exploring mentalization, trust, communication quality, and alienation in adolescents. Plos one, 15(6), e0234662.

Clarke, A., Meredith, P. J., & Rose, T. A. (2021). Interpersonal trust reported by adolescents living with mental illness: a scoping review. Adolescent Research Review, 6(2), 165-198.

Clifton, A., Pilkonis, P. A., & McCarty, C. (2007). Social networks in borderline personality disorder. *Journal of personality disorders*, *21*(4), 434-441.

Cohen, S. (2004). Social relationships and health. *American psychologist*, *59*(8), 676.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin*, *98*(2), 310.

Cross, D., Fani, N., Powers, A., & Bradley, B. (2017). Neurobiological development in the context of childhood trauma. Clinical psychology: science and practice, 24(2), 111.

Davis, L., & Siegel, L. J. (2000). Posttraumatic stress disorder in children and adolescents: A review and analysis. Clinical child and family psychology review, 3, 135-154.

Esposito, G., Totaro, S., Di Maro, A., & Passeggia, R. (2024). The role of epistemic trust in the relationship between attachment and mentalization: a systematic review. Mediterranean Journal of Clinical Psychology, 12(1).

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.

Fett, A. K., Shergill, S. S., Korver-Nieberg, N., Yakub, F., Gromann, P. M., & Krabbendam, L. (2016). Learning to trust: trust and attachment in early psychosis. Psychological medicine, 46(7), 1437-1447.

Fisher, S., Fonagy, P., Wiseman, H., & Zilcha-Mano, S. (2023). I see you as recognizing me; therefore, I trust you: Operationalizing epistemic trust in psychotherapy. *Psychotherapy*.

Fonagy, P., & Allison, E. (2014). The role of mentalizing and epistemic trust in the therapeutic relationship. *Psychotherapy*, *51*(3), 372.

Fonagy, P., & Bateman, A. W. (2016). Adversity, attachment, and mentalizing. *Comprehensive psychiatry*, *64*, 59-66.

Fonagy, P., Campbell, C., Constantinou, M., Higgitt, A., Allison, E., & Luyten, P. (2022). Culture and psychopathology: An attempt at reconsidering the role of social learning. Development and Psychopathology, 34(4), 1205-1220.

Fonagy, P., Luyten, P., & Allison, E. (2015). Epistemic petrification and the restoration of epistemic trust: A new conceptualization of borderline personality disorder and its psychosocial treatment. *Journal of personality disorders*, *29*(5), 575-609.

García-Moya, I., Brooks, F., & Moreno, C. (2020). Humanizing and conducive to learning: an adolescent students' perspective on the central attributes of positive relationships with teachers. *European Journal of Psychology of Education*, *35*(1), 1-20.

Georgieva, S., Tomas, J. M., & Navarro-Pérez, J. J. (2021). Systematic review and critical appraisal of childhood trauma questionnaire—short form (CTQ-SF). *Child abuse & neglect*, *120*, 105223.

Goemans, A., Viding, E., & McCrory, E. (2023). Child maltreatment, peer victimization, and mental health: Neurocognitive perspectives on the cycle of victimization. *Trauma, Violence, & Abuse*, *24*(2), 530-548.

Greiner, C., Besch, V., Bouchard-Boivin, M., Le Hénaff, C., Von Rohr-De Pree, C., Perroud, N., ... & Debbané, M. (2024). Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ) validation in French language: Investigating association with loneliness. medRxiv, 2024-05.

Guazzelli Williamson, V., & Mills, K. L. (2023). Mentalizing strategies for navigating the social world in adolescence. *Infant and Child Development*, *32*(1), e2374.

Harris, M. A., & Orth, U. (2020). The link between self-esteem and social relationships: A meta-analysis of longitudinal studies. *Journal of personality and social psychology*, *119*(6), 1459.

Hauschild, S., Kasper, L. A., Berning, A., & Taubner, S. (2023). The relationship between epistemic stance, mentalizing, paranoid distress and conspiracy mentality: an empirical investigation. Research in Psychotherapy: Psychopathology, Process, and Outcome, 26(3).

Hill, J., Pilkonis, P., Morse, J., Feske, U., Reynolds, S., Hope, H., ... & Broyden, N. (2008). Social domain dysfunction and disorganization in borderline personality disorder. *Psychological Medicine*, *38*(1), 135-146.

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., ... & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet public health*, *2*(8), e356-e366.

Hurrelmann, K., & Quenzel, G. (2018). *Developmental tasks in adolescence*. Routledge.

Hébert, M., Lavoie, F., & Blais, M. (2014). Post Traumatic Stress Disorder/PTSD in adolescent victims of sexual abuse: resilience and social support as protection factors. Ciencia & saude coletiva, 19, 685-694.

Jaworska, N., & MacQueen, G. (2015). Adolescence as a unique developmental period. *Journal of psychiatry & neuroscience: JPN*, *40*(5), 291.

Kalmakis, K. A., & Chandler, G. E. (2014). Adverse childhood experiences: towards a clear conceptual meaning. *Journal of advanced nursing*, *70*(7), 1489-1501.

Kenny, R., Dooley, B., & Fitzgerald, A. (2013). Interpersonal relationships and emotional distress in adolescence. *Journal of adolescence*, *36*(2), 351-360.

Laible, D. (2007). Attachment with parents and peers in late adolescence: Links with emotional competence and social behavior. *Personality and individual differences*, *43*(5), 1185-1197.

Lamblin, M., Murawski, C., Whittle, S., & Fornito, A. (2017). Social connectedness, mental health and the adolescent brain. *Neuroscience & Biobehavioral Reviews*, *80*, 57-68.

Lansford, J. E., Dodge, K. A., Pettit, G. S., Bates, J. E., Crozier, J., & Kaplow, J. (2002). A 12-year prospective study of the long-term effects of early child physical

maltreatment on psychological, behavioral, and academic problems in adolescence. *Archives of pediatrics & adolescent medicine*, *156*(8), 824-830.

Lavik, K. O., Veseth, M., Frøysa, H., Binder, P. E., & Moltu, C. (2018). 'Nobody else can lead your life': What adolescents need from psychotherapists in change processes. *Counselling and Psychotherapy Research*, *18*(3), 262-273.

Lazarus, S. A., & Cheavens, J. S. (2017). An examination of social network quality and composition in women with and without borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment*, *8*(4), 340.

Li, E., Campbell, C., Midgley, N., & Luyten, P. (2023). Epistemic trust: a comprehensive review of empirical insights and implications for developmental psychopathology. Research in Psychotherapy: Psychopathology, Process, and Outcome, 26(3).

Li, E. T., Midgley, N., Luyten, P., Sprecher, E. A., & Campbell, C. (2022). Mapping the journey from epistemic mistrust in depressed adolescents receiving psychotherapy. Journal of Counseling Psychology, 69(5), 678.

Liotti, M., Milesi, A., Spitoni, G. F., Tanzilli, A., Speranza, A. M., Parolin, L., ... & Giovanardi, G. (2023). Unpacking trust: the Italian validation of the epistemic trust, mistrust, and credulity questionnaire (ETMCQ). *Plos one*, *18*(1), e0280328.

Luyten, P., & Fonagy, P. (2015). The neurobiology of mentalizing. *Personality Disorders: Theory, Research, and Treatment*, *6*(4), 366.

Marszał, M., & Jańczak, A. (2018). Emotion dysregulation, mentalization and romantic attachment in the nonclinical adolescent female sample. Current Psychology, 37(4), 894-904.

McCrory, E., Foulkes, L., & Viding, E. (2022). Social thinning and stress generation after childhood maltreatment: A neurocognitive social transactional model of psychiatric vulnerability. *The Lancet Psychiatry*, *9*(10), 828-837.

McNeely, C. A., & Barber, B. K. (2010). How do parents make adolescents feel loved? Perspectives on supportive parenting from adolescents in 12 cultures. *Journal of Adolescent Research*, *25*(4), 601-631.

Milesi, A., Liotti, M., Locati, F., & Parolin, L. (2023). Adolescents and the urge to learn from others: Validation of Epistemic Trust, Mistrust, and Credulity Questionnaire for Adolescents. In *SPR 54th International Annual Meeting Scientific Program*.

Mikulincer, M., Shaver, P. R., & Berant, E. (2013). An attachment perspective on therapeutic processes and outcomes. *Journal of personality*, *81*(6), 606-616.

Mitic, M., Woodcock, K. A., Amering, M., Krammer, I., Stiehl, K. A., Zehetmayer, S., & Schrank, B. (2021). Toward an integrated model of supportive peer relationships in early adolescence: A systematic review and exploratory meta-analysis. *Frontiers in Psychology*, *12*, 589403.

Muenzer, A., Ganser, H. G., & Goldbeck, L. (2017). Social support, negative maltreatment-related cognitions and posttraumatic stress symptoms in children and adolescents. Child Abuse & Neglect, 63, 183-191.

Neil, L., Viding, E., Armbruster-Genc, D., Lisi, M., Mareschal, I., Rankin, G., ... & McCrory, E. (2022). Trust and childhood maltreatment: evidence of bias in appraisal of unfamiliar faces. *Journal of child psychology and psychiatry*, *63*(6), 655-662.

NHS England, Population Health, Clinical Audit &. Specialist Care Team (2023) *Mental Health of Children and Young People in England, 2023 - wave 4 follow up to the 2017 survey*. rep. Surrey, England: NHS England.

Ozer, E. J., Lavi, I., Douglas, L., & Wolf, J. P. (2017). Protective factors for youth exposed to violence in their communities: A review of family, school, and community moderators. *Journal of Clinical Child & Adolescent Psychology*, *46*(3), 353-378.

Pine, D. S., & Cohen, J. A. (2002). Trauma in children and adolescents: Risk and treatment of psychiatric sequelae. Biological psychiatry, 51(7), 519-531.

Pinto, R. J., Morgado, D., Reis, S., Monteiro, R., Levendosky, A., & Jongenelen, I. (2017). When social support is not enough: Trauma and PTSD symptoms in a risk-sample of adolescents. Child abuse & neglect, 72, 110-119.

Powers, A., & Casey, B. J. (2015). The adolescent brain and the emergence and peak of psychopathology. *Journal of Infant, Child, and Adolescent Psychotherapy*, *14*(1), 3-15.

Quesque, F., Apperly, I., Baillargeon, R., Baron-Cohen, S., Becchio, C., Bekkering, H., & Brass, M. (2024). Defining key concepts for mental state attribution. Communications Psychology, 2(1), 29.

Racine, N., Eirich, R., Dimitropoulos, G., Hartwick, C., & Madigan, S. (2020). Development of trauma symptoms following adversity in childhood: The moderating role of protective factors. *Child Abuse & Neglect*, *101*, 104375.

Radez, J., Reardon, T., Creswell, C., Lawrence, P. J., Evdoka-Burton, G., & Waite, P. (2021). Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *European child & adolescent psychiatry*, *30*(2), 183-211.

Roach, A. (2019, July). A concept analysis of adolescent friendship. In *Nursing forum* (Vol. 54, No. 3, pp. 328-335).

Russell, S. L., Wentzel, K. R., & Donlan, A. E. (2016). Teachers' beliefs about the development of teacher–adolescent trust. Learning Environments Research, 19, 241-266.

Sar, V., Ozturk, E., & Ikikardes, E. (2012). Validity and reliability of the Turkish version of Childhood Trauma Questionnaire. Turkiye Klinikleri Tip Bilimleri Dergisi, 32(4), 1054-1063.

Schroder-Pfeifer, P., Talia, A., Volkert, J., & Taubner, S. (2018). Developing an assessment of epistemic trust: a research protocol. *Research in Psychotherapy: Psychopathology, Process, and Outcome*, *21*(3).

Schwerdtfeger Gallus, K. L., Shreffler, K. M., Merten, M. J., & Cox Jr, R. B. (2015). Interpersonal trauma and depressive symptoms in early adolescents: Exploring the moderating roles of parent and school connectedness. *The Journal of Early Adolescence*, *35*(7), 990-1013.

Sharp, C., Steinberg, L., McLaren, V., Weir, S., Ha, C., & Fonagy, P. (2022). Refinement of the reflective function questionnaire for youth (RFQY) scale B using item response theory. *Assessment*, *29*(6), 1204-1215.

Spalletta, G., Janiri, D., Piras, F., & Sani, G. (2020). Childhood Trauma in mental disorders. In *In Childhood Trauma in Mental Disorders*.

Sperber, D., Clément, F., Heintz, C., Mascaro, O., Mercier, H., Origgi, G., & Wilson, D. (2010). Epistemic vigilance. *Mind & language*, *25*(4), 359-393.

Sutter, M., & Kocher, M. G. (2007). Trust and trustworthiness across different age groups. Games and Economic behavior, 59(2), 364-382.

Tarrant, M., MacKenzie, L., & Hewitt, L. A. (2006). Friendship group identification, multidimensional self-concept, and experience of developmental tasks in adolescence. *Journal of adolescence*, *29*(4), 627-640.

Tashjian, S. M., Rahal, D., Karan, M., Eisenberger, N., Galván, A., Cole, S. W., & Fuligni, A. J. (2021). Evidence from a randomized controlled trial that altruism moderates the effect of prosocial acts on adolescent well-being. Journal of youth and adolescence, 50(1), 29-43.

Taubner, S., White, L. O., Zimmermann, J., Fonagy, P., & Nolte, T. (2013). Attachment-related mentalization moderates the relationship between psychopathic traits and proactive aggression in adolescence. Journal of abnormal child psychology, 41, 929-938.

Thomas, K. K., & Bowker, J. C. (2013). An investigation of desired friendships during early adolescence. *The Journal of Early Adolescence*, *33*(6), 867-890.

Tironi, M., Charpentier Mora, S., Liotti, M., Fiorini Bincoletto, A., Tanzilli, A., Cavanna, D., ... & Bizzi, F. (2024). Adverse childhood experiences and psychological maladjustment in adolescence: The protective role of epistemic trust, mentalized affectivity, and reflective functioning. Journal of Clinical Psychology.

Vahapoglu, A., Nacar, S. M., & Gungor, Y. S. D. H. (2018). Is childhood trauma a predictive factor for increased preoperative anxiety levels?. Medicine Science| International Medical Journal, 8(2), 1.

Van Den Berghe, L., Vandevelde, S., & De Pauw, S. S. (2022). School dropout as the result of a complex interplay between individual and environmental factors: A study on the perspectives of support workers. *Teachers and Teaching*, *28*(5), 603-617.

Van den Bos, W., van Dijk, E., & Crone, E. A. (2012). Learning whom to trust in repeated social interactions: A developmental perspective. Group Processes & Intergroup Relations, 15(2), 243-256.

Viding, E., & McCrory, E. (2020). Disruptive behavior disorders: The challenge of delineating mechanisms in the face of heterogeneity. *American Journal of Psychiatry*, *177*(9), 811-817.

Weymouth, B. B., Buehler, C., Zhou, N., & Henson, R. A. (2016). A meta-analysis of parent–adolescent conflict: Disagreement, hostility, and youth maladjustment. *Journal of Family Theory & Review*, *8*(1), 95-112.

Wray-Lake, L., & Flanagan, C. A. (2012). Parenting practices and the development of adolescents' social trust. Journal of Adolescence, 35(3), 549-560.

World Health Organization. (2020). Adolescent health.

Chapter 3: Critical Appraisal

Introduction

This critical appraisal provides a reflection on the research presented in this thesis. Consideration is given to my personal experience with the research process and design, before thinking critically about the recruitment strategy and procedure of data collection. Possible avenues for further research into adolescent social networks are provided, as well as reflection about how the concepts explored in this thesis have impacted my clinical work within a child and adolescent trauma service.

Prior to my doctoral training, I had conducted small pieces of research, primarily in my undergraduate and masters' dissertations, all with qualitative methodologies. One thing that has always drawn me to qualitative research is the depth to which you can explore a topic and really hear someone's point of view and lived experience. Therefore, it was important to me that any quantitative research I undertook had a similar level of person-centred understanding and focus. Trust, and the related psychological functions and experiences explored in this thesis, are innately personal concepts that captured my interest and met this self-set criteria for quantitative research. However, I maybe did not anticipate how much I would find myself questioning "why" the results looked the way it did and wanting to delve deeper into the reasoning behind the responses. For example, I felt very curious as to why childhood trauma was emerging as a significant univariate predictor of relationship quality, but not when considered alongside other variables within a more complex model. One hypothesis I questioned, and proposed within the empirical paper, was whether the effects of childhood trauma on relationship quality could be mediated by these intrapersonal capacities, such as epistemic mistrust. While I felt

this was a reasonable theory-driven adjustment given the literature on social thinning (Viding & McCroy, 2020), the limitations of the data, as well as the statistical complexity of having multi-level data, meant it was not possible to explore this further in this context in a statistically sound way. While frustrating to not always be able to point to the “why” in quantitative research, the rigour and objectivity of sticking to the original roadmap of my research questions was important for me to remember. While there were limitations to my study design, it had been put together to consider the specific theory-driven research questions and straying too far from this could increase risk of bias if I were to start fishing for answers that the dataset was not designed to consider. However, the questions I did have provided for interesting reflections about the future of this research area, as presented within the empirical discussion and this critical appraisal.

Recruitment Strategies

Setting out on this project, I was primed that recruitment of participants may be difficult. A previous DClinPsy project in 2020 had conducted a pilot of this study and was only able to recruit 13 participants, although this had taken place during the unprecedented time of the COVID-19 pandemic. So, while 24 feels like a win in comparison, this is still a small sample size and limited the power of the study, with an optimal sample size of 32 being needed to be considered powered. Despite overcoming the significant challenges of locating new recruitment sites to conduct the research, NHS ethical approval, and R&D approval at each site, there were still barriers within the identified services to consider. Even with active encouragement through regular communication and presentations to the whole teams, it emerged that there was a small number of enthusiastic referrers at each site. For example, in one site referrals came from only 3 clinicians. While all communication with individual

team members and whole teams was positive, it is important to consider why some clinicians did not make any referrals throughout the recruitment window. Some potential barriers that clinicians face when asked to refer young people to psychological research are considered below along with the impact this may have on the results, and ways to potentially mitigate these in the future are proposed.

Firstly, we were asking for referrals to be made as early as the assessment session so that measures could be taken at an early therapeutic timepoint. The beginning of therapy is an important time point for clinicians and clients to form their relationship and work towards building a positive therapeutic alliance. Understanding the presenting problems and thinking about therapeutic goals are often the priorities of assessment sessions, and it may have felt out of synch or jarring to mention a research project, especially if this was the young person's first experience of mental health services and they were anxious about the process regardless. Clinicians may have been apprehensive about adolescents perceiving them to be offering them up to be "studied" and what meanings they may attribute from this to the service they were coming to.

These worries could have altered depending on presenting problems, initial connection between the client and clinician, or assumptions about the young person's perception based on background knowledge of their situation. Adolescents with lower risk concerns or better initial sparks with the therapist may have been more likely to be offered the opportunity to volunteer, for example. Our presentations to services involved discussing the best ways to introduce the study and the importance of inviting any young person, even those with poorer engagement or enthusiasm. However, it is understandable if clinicians used clinical judgement to decide otherwise in the moment as they must constantly juggle the priorities of what

is in the adolescent's best interests. Nonetheless, a bias such as this could have impacted the results by only selecting adolescents with good professional relationships, potentially skewing the results and preventing exploration of those with more of a propensity for poorer relationship quality.

This study only collected measures at an early time point of therapy due to the original study design which planned to explore changes in social networks following psychological intervention. On reflection, the change to a cross-sectional correlational design could have allowed for recruitment of adolescents at any stage of their therapy, or even those awaiting treatment. This may have eased recruitment barriers, increasing the pool of potential participants and easing the concerns about introducing the study at an early point in therapeutic alliance formation. Ultimately, a change such as this could have increased the sample size and study power and allowed for a more comprehensive exploration of the research questions.

Secondly, we must consider the immense pressure that CAMHS services are under given the rising prevalence of mental health problems in the UK (Grimm et al., 2022). Adding another element to hold in mind, namely offering a research project to all young people, while managing the relentless demands of being a CAMHS clinician could be perceived as adding to their workload and may be viewed negatively. While we made every effort to make the process of referring young people as easy and streamlined as possible, these are understandable concerns that I empathise with being a CAMHS clinician myself throughout my final year of training. However, relying on clinician referrals was an important part of the research design due to other parts of the joint project (Appendix A) investigating measures of therapeutic alliance, as well as aiming to explore social relationships of adolescents in therapy.

As discussed in the empirical paper, the use of a clinical sample points to some of the difficulties that adolescents experiencing mental health difficulties may exhibit in relationships, but future research may consider the introduction of a general non-clinical population for comparison. Exposure to childhood trauma has been reported to be as high as 31.3% of young people in the general population in England and Wales, with rates of 6.6-29.2% of those exposed to trauma experiencing psychological distress or disorders (Lewis et al., 2019). While these rates are high, it does beg the question about the percentage of those exposed to trauma that do not exhibit such symptoms and/or are not seeking psychological support. It may be hypothesised that the psychological functions discussed in the empirical paper, such as epistemic trust and mentalizing, may be protecting young people from these risks by allowing them to benefit from social support from interpersonal relationships. Alternatively, it could be that adolescents with significant levels of epistemic mistrust feel unable to seek help and access vital support.

Research that considers childhood trauma within both clinical and general population samples may allow for further exploration of barriers or resilience factors that could be harboured within clinical interventions to support those with more epistemically vigilant stances. In this proposed example, where recruitment could be extended wider, careful consideration would have to be given for how to view the relationships reported from a different perspective, in the absence of referring NHS clinicians.

Procedural Considerations

The procedure of study involved the researcher meeting with the adolescents online to complete questionnaire measures. This was designed to make data

collection as accessible as possible for young people, especially given the varying location of sites and researcher. However, this could have added barriers. Young people have voiced their concerns about trusting unknown professionals with sensitive information in a therapeutic setting (Radez et al., 2021), and so it could be reasonably assumed that this may carry over to meeting unknown psychological researchers online. During this project, efforts were made to ensure that the meetings with young people were as friendly and casual as possible, with opportunities for phone calls offered prior, as well as to bring along a trusted adult to the online call if preferred. This method appeared to work well for the adolescents that did volunteer to be part of the research, but it is important to consider why some young people declined the offer to volunteer. It may be possible that this method of collecting data could have prevented some adolescents from deciding to volunteer for the research, and it may be hypothesised that those who are naturally more distrusting could have been the most dissuaded. There are a few options that could be considered for future research, but each brings its own strengths and limitations too.

Firstly, adolescents could be sent the questionnaires over an email link and asked to complete independently. This could allow them to complete the questionnaires in their own time and reduce the pressure of meeting someone new. However, from corresponding with adolescents throughout the research, and working with young people for many years before this, I do question whether the measures would actually be completed and returned within a deadline, especially for those who are very busy and have more pressing priorities such as schoolwork, exams, or family difficulties. Additionally, this means that adolescents would not have the

support of having the researcher right there to answer any questions or concerns as they arise while completing the questionnaires.

A second option could be to ask referring clinicians to complete the measures with the young person. This would provide adolescents with the support of clinicians, who would likely be familiar with the process of completing questionnaires and could be provided with an induction by the research team of the specific measures. Furthermore, this may increase referrer buy-in if they feel more involved in the study, potentially increasing the possibility of making further referrals. At the same time, it could dissuade some referrers as it is an increased workload that may be viewed as too much in already under pressure CAMHS settings. This could use precious clinical time that clinicians and adolescents really need to use to work towards their therapeutic goals, which would especially be a concern for services offering only time-limited interventions.

Measuring Relationships

As highlighted in the empirical paper, the key dependent variable of this study, the Social Network Questionnaire, has not been validated for clinical use. The tool was developed from several iterations of expert consensus of four researchers with interest and expertise in social networks and was piloted in other projects on help-seeking and social networks in adolescents with mental health difficulties. It can therefore be considered a bespoke tool, but there are still limitations to consider about whether this tool accurately measures what it says it does.

The items on the social network questionnaire asked adolescents to rate relationships over a range of areas, including frequency of contact, approachability, and frustration. Though given the literature discussed in the empirical paper, it is

likely that adolescents will have different expectations of different relationships. It could be the case that through the subjective nature of rating these questionnaire items, adolescents applied different criteria for rating on personal and professional relationships. For example, perhaps instead rating their friendships by comparing them to other friends, or comparing teachers with each other, but not necessarily comparing across categories. It was hoped that by completing the questionnaires during the same sitting, adolescents would devise a consistent strategy to respond to the items across all items, but it would be interesting to know if this was in fact the case.

Furthermore, I find myself questioning if we can really expect the tool to allow for direct comparison of relationships, especially when adolescents may look for different strengths between relationships. For example, they might not see a social worker as often as they would a friend and so the social worker would “lose points” on the *frequency of contact* item. However, if an adolescent had worked with the same social worker for many years and felt well understood and supported by them, they may actually view the relationship as “stronger” than the tool allows them to rate. Similarly, a “friend” may lose points on the *practical support* item as it is unlikely that a teenage friend would be taking the young person to appointments, for example. This does not necessarily mean that the adolescent rates the relationship as “lower quality” as the questionnaire interprets, as other items such as emotional closeness and understanding may hold more weight to the young person in a friendship. While comparing different relationships allows for direct statistical comparison between relationship types, it is important for future research to think about ways to overcome these measurement barriers.

Bronfenbrenner's ecological systems theory framework emphasises the dynamic nature of social connections. From immediate microsystem factors - close family, friends and school -, mesosystem - how the microsystem interacts with each other, - exosystem, - external settings with direct influence -, and macrosystem - broader cultural and societal influences -, development is considered to be a result of the interactions of social networks (Bronfenbrenner, 1994). Neal and Neal extended this model in 2013, proposing that each system level is more integrated than Bronfenbrenner's model originally suggested, and the direct and indirect social interactions, between the self and others, are vital for understanding the influence of wider environmental structures (Neal & Neal, 2013). The design of the empirical paper meant that each relationship was considered individually and did not allow for further exploration of these overlapping connections. As discussed in the empirical paper, one method to gain a deeper understanding of the complex web of adolescent relationships could be the use of Social Network Analysis (SNA).

SNA is a way of understanding the structure of social relationships, how they connect to each other and how information might be passed through the network (Tabassum et al., 2018). We could consider the relationships reported by adolescents as "nodes", individual actors in the network, then looking at the ties, edges, and links that represent the connection between them. Furthermore, by applying weighted edges between ties on a social network, SNA can reflect the strength of different relationships, perhaps through the use of a questionnaire such as the one used in this study. By being able to map out a social network in this way, we might be better able to understand the differences in the predictive nature of psychological functions between relationship types. For example, "mother" was significantly more predictive of relationship quality than "friend", and it might be

helpful to understand how mothers and friends connect with each other in an SNA. This method allows for the identification of the most important nodes in the network, i.e. the centrality measures, and reveals groups or clusters. We could potentially then look at the differences in social network structures between adolescents with different intrapersonal strengths and difficulties, such as mentalizing abilities and epistemic stances, as well as differing experiences of childhood trauma. While this method is novel to me, from my reading it sounds like it could be a good fit to continue to explore the preliminary evidence in this project.

In the empirical study, relationship quality was measured by an adolescent's perception of receiving helpful and caring interactions from a significant other and did not consider the ways in which they help and understand others. As outlined in the empirical paper, social support provides psychological and material resources to support managing emotional distress (Cohen, 2004), and so measuring relationships in this way provides a helpful insight into how supportive adolescents view their relationships to be. However, this excludes exploration of the quality of the relationship as perceived by the other party, which could perhaps consider how well the adolescent understands and supports them in return. How actively an individual is able to help and care for those around them may also be a helpful indicator of relationship quality and may provide different benefits than simply being supported themselves. For example, displaying kind and pro-social behaviours has been linked with greater adolescent well-being (Tashjian et al., 2021). Developing the social network questionnaire further to also consider adolescent behaviour within a relationship could provide a deeper understanding of relationship quality. Furthermore, comparing the current being-supported items with new supporting-

other items could provide helpful insight into how psychological factors influence relationship behaviours.

Clinician Perspectives of Relationships

In the empirical paper, there were differences in clinician perception of relationships when compared to adolescents. Additionally, there were differences between clinician perception of adolescents' personal and professional relationships. Clinicians consistently reported lower relationship quality across many items in the personal relationships category. While this could mean that the clinician genuinely has a different perception that the quality of relationship is poorer in these areas, it could also suggest that these relationships are not discussed at length in therapy sessions for the clinician to develop a coherent sense of relationship quality. It must be acknowledged, however, that the reporting clinicians were relatively new professionals in the adolescents' lives due to measures being collected at the start of therapy, so it may be that these differences change over the course of therapy. Nonetheless, it is important to consider how the clinician obtains the information to be able to judge personal relationships.

In professional relationships, the results suggest that clinicians view the professional network more positively than adolescents themselves do. This could suggest that clinicians hold a stronger bias that professionals are naturally helpful and create good quality relationships. However, there were also less significant differences detected between respondents in professional than personal relationships. This is interesting and suggests that professionals potentially have a greater knowledge of the professionals working with the adolescent, as their views are more aligned. This would make sense if clinicians were working alongside the reported professionals,

perhaps in the same team or meeting regularly in professionals' meetings, even if only new to working with the adolescent.

These differences between clinician perspective of personal and professional relationships could benefit from further exploration, perhaps through qualitative research that considers the ways in which a clinician judges adolescent reports of relationships and reasons why they may strongly they align, or misalign, with their perceptions. For example, do clinicians pick up on ostensive cues that an adolescent exhibits credulity within interpersonal relationships and consequently judge adolescent perception as overreporting quality. Alternatively, do they consider a mistrusting adolescent as negatively viewing relationships that they themselves view as helpful and supportive. Understanding how a clinician makes these judgements could provide helpful clinical information, potentially highlighting specific markers of how to adapt and improve interventions that promote social connection.

Change Over Time

As discussed in the empirical paper, it would be of great clinical benefit to understand if relationship quality changes over the course of a therapeutic intervention, especially for relationships external to the therapy itself. Fonagy & Allison (2014) propose that the process of psychotherapy allows for the learning that takes place in the therapy room to extend to wider social learning across different contexts, and so a positive change in relationship quality may be expected if therapy is successful. Changes in the explored intrapersonal concepts may also provide insight to the potential therapeutic mechanisms of improving relationship quality, such as improvements in mentalizing or reduction in epistemic mistrust.

The range of recruitment sites of the current study could provide an interesting comparison between different models of care and how likely these significant changes are to occur given the trans-therapeutic nature of the concepts. The recruitment sites included an educational mental health support team, a community CAMHS service, and a specialist tertiary service. Each team will work with adolescents with different criteria, therefore likely offering therapeutic interventions with varying parameters. While there were no significant differences between sites in the early therapy measures, it would be interesting to observed if any significant differences emerge following completion of intervention, and whether any of the psychological variables explored could play a role in predicting any observed change. While the exact treatment offers at each site were not identified as part of the current research, it could be assumed that the tertiary service will provide longer term care compared to the mental health support team, for example, with the latter perhaps offering a time-limited number of sessions. However, there are also considerations about whether it is the time spent with the adolescent, the quality of the therapeutic alliance, or the fit of a chosen intervention protocol, to name a few possibilities, that would make the most difference. Continuing to think about these three sites as examples for this research, it might be that the young people meeting the criteria for the primary care service will require less support to apply the social learning benefits of an intervention than those in the tertiary service may. It appears to me that this area of research really has many avenues to be explored and I feel hopeful that as this exploration continues, the clinical benefits will only continue to grow.

Developing Clinical Understanding

Working clinically alongside the current research has been mutually beneficial, where my clinical experience has helped me better understand the theoretical underpinnings, and the development of my theoretical knowledge has allowed me to develop my clinical abilities. I currently work in a child and adolescent mental health team specialising in attachment and trauma, where I see the concepts explored in this thesis live every day. We primarily work with looked after children who have experienced significant developmental trauma by assessing their needs and consulting with adopted families or carers and professional networks on how best to support the young person, while also providing trauma intervention to young people and families. Firstly, having a deeper understanding of intrapersonal capacities such as epistemic trust and mentalizing, and their development through childhood trauma has helped me structure my clinical interviews to better meet the needs of a child.

Secondly, having a greater understanding of the theoretical links between these capacities and social networks has been invaluable. During consultations with families and wider professionals, we often advise that adolescents should have opportunities to grow their social networks. We advise that they join clubs, take part in activities with same-age or same-stage peers, and that they connect with wider family and community members where possible. The children I work with often find themself in difficult interpersonal situations, such as difficulty forming and maintaining relationships or being bullied. While we often consider developmental trauma and insecure attachment styles and how they might lead to interpersonal difficulties, for example through expectations of care or distorted worldviews, considering concepts

such as epistemic mistrust and credulity may provide more context about why this might be.

The current study pointed to different psychological factors being associated with personal and professional relationships. It can sometimes be jarring for professionals when we can form what seems like a positive therapeutic relationship with a young person, and we then hear about the significant difficulties they are having in other personal relationships. This has allowed me to reflect as a practitioner on how a child might be inherently mistrusting and have difficulties with personal relationships, but more able to sit with me and work on therapeutic goals. Similarly, adolescents with greater epistemic credulity might be more able to align with professional guidance and structure, but less able to manage in personal relationships and experience an increased risk of victimisation. Sharing my understanding of this research within case discussions has allowed me and my team to deepen our person-centred understanding of the children we are working with and how we can better support them with their interpersonal relationships.

Conclusions

While the current empirical research has provided preliminary evidence of the psychological functions required for personal and professional relationships, the critical reflections presented in this chapter think about the challenges of such research and how they may be overcome in the future. Additionally, my personal experience with the research alongside clinical work has allowed me to reflect further about the clinical benefits of research of this type.

References

Tabassum, S., Pereira, F. S., Fernandes, S., & Gama, J. (2018). Social network analysis: An overview. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, *8*(5), e1256.

Bronfenbrenner, U. (1994). Ecological models of human development. *International encyclopaedia of education*, *3*(2), 37-43.

Cohen, S. (2004). Social relationships and health. American psychologist, 59(8), 676.

Neal, J. W., & Neal, Z. P. (2013). Nested or networked? Future directions for ecological systems theory. *Social development*, *22*(4), 722-737.

Lewis, S. J., Arseneault, L., Caspi, A., Fisher, H. L., Matthews, T., Moffitt, T. E., & Danese, A. (2019). The epidemiology of trauma and post-traumatic stress disorder in a representative cohort of young people in England and Wales. *The Lancet Psychiatry*, *6*(3), 247-256.

Grimm, F., Alcock, B., Butler, J. E., Fernandez Crespo, R., Davies, A., Peytrignet, S., & Tallack, C. (2022). Briefing: improving children and young people's mental health services: local data insights from England, Scotland, and Wales.

Tashjian, S. M., Rahal, D., Karan, M., Eisenberger, N., Galván, A., Cole, S. W., & Fuligni, A. J. (2021). Evidence from a randomized controlled trial that altruism moderates the effect of prosocial acts on adolescent well-being. Journal of youth and adolescence, 50(1), 29-43.

Viding, E., & McCrory, E. (2020). Disruptive behavior disorders: The challenge of delineating mechanisms in the face of heterogeneity. *American Journal of Psychiatry*, *177*(9), 811-817.

Appendix A: Joint Project Statement

This thesis was conducted as part of a joint project with two other trainee clinical psychologists, Shannon Potter, and Susannah Taplin. Each trainee designed their own individual project based on ongoing research at the Anna Freud Centre being conducted by Dr Tobias Nolte and Professor Peter Fonagy. The ongoing study will include follow up sessions with the same participants and so adolescents were invited at this stage to volunteer to all stages of the study. The current study, however, only investigated stage 1 of the project. Questionnaire sessions with adolescents involved collecting measures for all questionnaire items used across all studies. The final battery included:

All adolescents completed the following questionnaires:

- Attachment Questionnaire for Children (AQC)
- Childhood Trauma Questionnaire (CTQ-SF)
- Revised Childhood Anxiety and Depression Scale (RCADS)
- Strengths and Difficulties Questionnaire (SDQ)
- Borderline Personality Disorder Features Scale for Children (BPFSC)
- Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ)
- Reflective Functioning Questionnaire for Youth (RFQ-Y)
- Scale to Assess Therapeutic Relationship (STAR-P)
- Social Network Analysis Questionnaire

All referring clinicians were invited to complete the following questionnaires:

- Scale to Assess the Therapeutic Relationship (STAR-C)
- Social Network Analysis Questionnaire

Data was analysed and interpreted independently for each study by each trainee. Only my project included analysis of the Social Network Analysis Questionnaires and only Shannon Potter's project included analysis of Therapeutic Relationship measures. Susannah Taplin's study involved qualitative interviews with adolescents to talk about some of their interpersonal relationships reported on the Social Network Analysis Questionnaires.

All trainees were involved in preparing documentation for ethical approval. All trainees were responsible for seeking out new recruitment sites, but only Shannon Potter was successful in obtaining two new recruitment sites. All trainees were involved in presenting to the services and consulting with referring clinicians. Each trainee was responsible for the main communication with one of the three sites, sending regular reminders, responding to questions, and managing referral communication.

Questionnaire session referrals were split evenly amongst the three trainees until Susannah Taplin began conducting qualitative interviews as part of her project. From this point, referrals were split between me and Shannon Potter while Susie managed the interview session referrals.

Appendix B: Prisma Checklist – Main and Abstract

PRISMA 2020 Main Checklist

Topic	No.	Item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Chapter 1 Title; Introduction Current Study; Methods
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Chapter 1 Introduction: Previous Reviews.
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Chapter 1 Introduction: Current Study.
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Chapter 1 Methods: Eligibility Criteria.
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Chapter 1 Methods: Search Design.

Topic	No.	Item	Location where item is reported
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Chapter 1 Methods: Search Design; Appendix C.
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Chapter 1 Methods: Screening.
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Chapter 1 Methods: Data Extraction.
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Chapter 1 Methods: Eligibility Criteria.

Topic	No.	Item	Location where item is reported
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Chapter 1 Methods: Data Extraction.
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Chapter 1 Methods: Quality Assessment.
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	Chapter 1 Methods: Analytic Strategy.
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item 5)).	Chapter 1 Methods: Screening.
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Chapter 1 Methods: Data Extraction.
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Chapter 1 Methods: Data Extraction, Analytic Strategy.

Topic	No.	Item	Location where item is reported
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Chapter 1 Methods: Analytic Strategy.
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Chapter 1 Methods: Analytic Strategy.
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	Chapter 1 Methods: Analytic Strategy.
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Not conducted.
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Chapter 1 Methods: Analytic Strategy.
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Chapter 1 Results: Identified Studies. Figure 1: PRISMA flow diagram.
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Not reported.

Topic	No.	Item	Location where item is reported
Study characteristics	17	Cite each included study and present its characteristics.	Chapter 1 Results: Study Characteristics, Table 1. Summary of Characteristics.
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Chapter 1 Results Quality Assessment. Table 2 Quality Assessment.
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Chapter 1 Results
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Chapter 1 Results
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	Chapter 1 Results
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	Chapter 1 Results

Topic	No.	Item	Location where item is reported
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	Chapter 1 Results
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	Not conducted.
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	Chapter 1 Results
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Chapter 1 Discussion.
	23b	Discuss any limitations of the evidence included in the review.	Chapter 1 Discussion.
	23c	Discuss any limitations of the review processes used.	Chapter 1 Discussion Limitations
	23d	Discuss implications of the results for practice, policy, and future research.	Chapter 1 Discussion
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Chapter 1 Methods Paragraph 1.
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Chapter 1 Methods Paragraph 1.

Topic	No.	Item	Location where item is reported
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Chapter 1 Methods Paragraph 1.
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	UCL DClinPsy project – no additional funding.
Competing interests	26	Declare any competing interests of review authors.	No competing interests.
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Not reported.

PRIMSA Abstract Checklist

Topic	No.	Item	Reported?
TITLE			
Title	1	Identify the report as a systematic review.	Yes
BACKGROUND			
Objectives	2	Provide an explicit statement of the main objective(s) or question(s) the review addresses.	Yes
METHODS			
Eligibility criteria	3	Specify the inclusion and exclusion criteria for the review.	Yes

Topic	No.	Item	Reported?
Information sources	4	Specify the information sources (e.g. databases, registers) used to identify studies and the date when each was last searched.	Yes
Risk of bias	5	Specify the methods used to assess risk of bias in the included studies.	Yes
Synthesis of results	6	Specify the methods used to present and synthesize results.	Yes
RESULTS			
Included studies	7	Give the total number of included studies and participants and summarise relevant characteristics of studies.	Yes
Synthesis of results	8	Present results for main outcomes, preferably indicating the number of included studies and participants for each. If meta-analysis was done, report the summary estimate and confidence/credible interval. If comparing groups, indicate the direction of the effect (i.e. which group is favoured).	Yes
DISCUSSION			
Limitations of evidence	9	Provide a brief summary of the limitations of the evidence included in the review (e.g. study risk of bias, inconsistency and imprecision).	Yes
Interpretation	10	Provide a general interpretation of the results and important implications.	Yes
OTHER			
Funding	11	Specify the primary source of funding for the review.	No
Registration	12	Provide the register name and registration number.	No

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. MetaArXiv. 2020, September 14. DOI: 10.31222/osf.io/v7gm2. For more information, visit: www.prisma-statement.org

Appendix C: Search Strategy

Scopus	*(attachment) AND (alliance OR “therap* adj2 relation*)*
PubMed	*(attach*) AND (alliance OR "therapeutic relation*”)*
Ovid	*(attach* and (alliance or "therapeutic relation*")).*
Web of Science	*(ALL=(attachment)) AND ALL=(alliance OR "therapeutic relation*")*
CINAHL	*(attach*) AND (alliance OR "therapeutic relation*")*

Appendix D: Included Attachment Measures.

Experiences of Close Relationships Scale (ECR; Brennan, Clark & Shaver, 1998). 13 studies in the analysis used the ECR and 3 used the revised version ECR-Short (ECR-S). The ECR is a 36-item self-report measure, rating each statement on a 7-point Likert scale. The shorter version (ECR-S) is a 12-item self-report measure, also rating on a 7-point Likert scale. Both versions score on 2 subscales: attachment anxiety and attachment avoidance. Both versions are reported to have good construct validity, internal consistency, and test-retest reliability (Brennan, Clark & Shaver 1998; Wei et al., 2007)

Relationships Questionnaire (RQ; Bartholomew & Horowitz, 1991). 4 studies used the RQ in this analysis. The RQ can be delivered as a categorical or continuous measure, but only continuous data was extracted for the purpose of this analysis. The RQ consists of four paragraphs describing attachment styles: secure, preoccupied, dismissive, and fearful. Respondents then respond to a 7-point Likert scale depending on how much they identify with each of the statements. Despite facing criticism as a single-item measure of attachment (REF), the RQ has been reported to significantly correlate with structured attachment interviews (Bartholomew & Horowitz, 1991) and with other measures of attachment (Reis & Grenyer, 2002; Wongpakaran, Demaranville & Wongpakaran, 2021).

Relationships Scale Questionnaire (RSQ; Griffin & Bartholomew, 1994). 2 studies used the RSQ in this analysis. The RSQ is a 30-item self-report measure based upon the RQ. It rates on a 5-point Likert scale on up to 4 subscales: secure, preoccupied, dismissive, and fearful. Construct validity is reported, along with

modest convergent validity with coded attachment interviews (Griffin & Bartholomew, 1994).

Appendix E: NOS critical appraisal checklist for quasi-experimental longitudinal studies

Item number	Question	Score Yes = 1 No, Unsure, N/A = 0
1	Is the source population (cases, controls, cohorts) appropriate and representative of the population of interest?	
2	Is the sample size adequate and is there sufficient power to detect a meaningful difference in the outcome of interest?	
3	Did the study identify and adjust for any variables or confounders that may influence the outcome?	
4	Did the study use appropriate statistical analysis methods relative to the outcome of interest?	
5	Is there little missing data and did the study handle it accordingly?	
6	Is the methodology of the outcome measurement explicitly stated and is it appropriate?	
7	Is there an objective assessment of the outcome of interest?	

Appendix F: JBI critical appraisal checklist for longitudinal studies

Item number	Question	Score Low risk = 0 High risk = 3
1	Were the criteria for inclusion in the sample clearly defined?	
2	Were the study subjects and the setting described in detail?	
3	Were the outcomes measured in a valid and reliable way?	
4	Were confounding factors identified?	
5	Were strategies to deal with confounding factors stated?	
6	Was the exposure measured in a valid and reliable way?	
7	Was appropriate statistical analysis used?	

Appendix G: Included Alliance Measures

Working Alliance Inventory (WAI; Horvath & Greenberg, 1986). 15 studies in the current analysis used the WAI, also referred to as the WAI-Client Version (WAI-C), while 4 used the revised WAI-Short Revised (WAI-SR) version. The WAI is completed by both therapist and client, but for the current study only data regarding the client version, WAI-C, was extracted. The WAI is a 36-item self-report measure using a 7-point Likert scale. It consists of 3 subscales: goals, tasks, and bonds. The scores from each subscale can be combined to obtain a global alliance score, with a higher score indicating a stronger alliance. The WAI is reported to have good construct validity, and concurrent and predictive validity when compared to other measures (Horvath & Greenberg, 1986). The WAI-SR (Tracey & Kokotovic, 1989) is a 12-item self-report measure rated on a 5-point Likert scale (rarely/never to always). It also consists of 2 subscales: goals, tasks, and bonds, and can be combined to obtain a global alliance score. High internal consistency and good construct validity has been reported in both outpatient and inpatient populations (Munder et al., 2010).

Combined Alliance Short Form-Patient Version (CASF-P; Hatcher & Barends, 1996). One study in the analysis used the CASF-P (Siefert & Hilsenroth, 2015). X studies in the analysis used the CASF-P. This is a 20-item self-report measure rating on a 7-point Likert scale. All scores are summated to give a global alliance score, while 4 subscales can also be derived: confident collaboration, goal-task agreement, idealized relationship, and client-therapist bond. The CASF-P was created from factor analysis of three other widely used alliance measures: the WAI, the Penn Helping Alliance Questionnaire (HAQ; Alexander & Luborsky 1986), and the California Psychotherapy Alliance Scales (CALPAS; Gaston & Marmar, 1994).

Subscale internal consistency estimates have ranged from 0.72 to 0.93 in previous research (Clemence et al., 2005; Siefert & Hilsenroth, 2015).

Couples Therapy Alliance Scale-Revised (CTAS-R; Pinsof & Catherall, 1986). One study (Miller et al., 2015) used the CTAS-R in this analysis. The CTAS-R is a 40-item self-report measure completed by individual members of the couple receiving therapy, rating on a 7-point Likert scale. Scores are added to summate to 3 subscales: goals, task, and bonds, across two groups: self-group alliance (individual to therapist) and within-system alliance (between partners). For the current meta-analysis, only the self-group alliance score was extracted due to its relevance to the research question. The Cronbach's alpha for the self-group subscale in the reported study was .83 (Miller et al., 2015).

Individual Therapy Alliance: Revised/Short (ITA-RS; Pinsof et al., 2008). One study (Sullivan, Lawson & Akay-Sullivan, 2020) used the ITA-RS in this analysis. The ITA-SR is a 5-item self-report measure rating on a 7-point Likert scale. An average score is taken to give a total alliance score, with a higher score indicating a stronger bond. Confirmatory analysis conducted by the author suggested the distinction between tasks, goals, and bonds subscales in line with alliance theory (Pinsof et al., 2008). The alpha coefficient for the included study was reported as .76 (Sullivan, Lawson & Akay-Sullivan, 2020).

Appendix H: Key worker information sheets

Exploring how epistemic trust and mentalizing are related to trauma, psychopathology, and perceptions of helping relationships in adolescents.

PARTICIPANT INFORMATION SHEET FOR CLINICIANS/THERAPISTS/KEY WORKERS

Invitation

We would like to invite you to help us with a research study. This is because you are currently providing therapy for a young person who is participating in our research study. Agreeing to participate is entirely up to you. This information sheet is intended to help you decide by giving you more information about the research and what is involved. Please ask the researcher any questions you might have.

Why is this research being done?

We want to learn more about how young people view their social help network (which includes both personal and professional support networks). We are specifically looking at epistemic trust (the openness to learn from others) and mentalizing (the ability to hold others' views and feelings in mind). We are looking at how trust affects young people's expectations of and engagement with their help network. We are also interested in whether trust in the therapist and help network changes over the course of therapy and if so, what contributes to this. This is important to us because the information that we get from this project might help us understand factors affecting young people's engagement with help networks and may allow us to better help people in the future.

Do I have to take part?

No. It is entirely up to you. Your participation is also dependent on whether the young person participant in your clinical care (and their parent or carer, if they are aged 12-15) agree to participate. You will only be asked to participate if they consent. However, in order for the participation of the young person to reach its maximum potential, we would greatly appreciate if you chose to participate. If you do agree to participate, we will ask you to complete a consent form.

What would taking part involve?

The young person participating in this study is allocated to your clinical care. They will be asked to complete a range of questionnaires before and after receiving a course of therapy with you. Some might also be invited to complete an interview before and after the therapy course.

You will be asked to complete 2 questionnaires at the same two timepoints that the young person participant completes their questionnaires. These will include questions about your understanding of the young person participant's current helping relationships.

- Scale to Assess the Therapeutic Relationship, Clinician Version
- Social Network Analysis Questionnaire

The latter questionnaire will be based on the names given by the young person participant in their completion of the Social Network Analysis Questionnaire.

We may also ask you to provide us with information from the young person's clinical records if they agree to this and this is necessary or helpful for the study (e.g., NHS number, primary problem descriptor).

Time Commitment

The two questionnaires will take up to 15 minutes to complete each of the two times.

What are the possible benefits of taking part?

If you decide to help us with the participation of the young person participant, you will be helping us to understand the part trust plays in helping relationships. This may help other people in the future. You may find your participation enjoyable and interesting to think about or reflect over.

What are the possible disadvantages and risks of taking part?

The research is not intended to be upsetting. However, if you do find it stressful or upsetting, we will give you information about who you can contact for support. We will also provide this to the young person if they find it stressful or upsetting.

Rules that we must follow

There are a few things for you to know before you decide whether or not to take part in this study. We have to follow some important rules to make sure that people who help us are treated well and are safe and are not harmed in any way:

1. **Consent**

- You do not have to agree to take part if you do not want to. You are completely free to decide whether or not you want to take part in the study.
- If you do agree to take part, you can change your mind and stop at any time, without giving a reason. This should not affect the care you are providing to the young person.
- If you agree to take part however lose capacity to consent at some point during the study, then personal data will be removed, however anonymous data will be kept.

2. **Confidentiality**

The information you give is private, confidential, and anonymous. You may be informed if the young person participant discloses the following and we are concerned about their mental health:

- They tell us that they or another person are planning to seriously harm a specific person.
- They tell us that they or another young person is at risk of harm.

If it is necessary to take any of the above steps, this will be discussed with young person participant (and their parent/carer if age-appropriate) first.

Further supporting information:

How will my information be kept confidential?

We will keep all the information that you and the young person give us is private (confidential). You and the young person participant will be given an ID number (e.g., 063) so names will not be on any answers (it is anonymous). All data will be collected and stored in accordance with the Data Protection Act 2018 and the General Data Protection Regulation (GDPR).

As part of the study, the young person will be asked to list up to 6 important people that help them. You will be informed of these names so that we can ask you about your understanding of these helping relationships. Aside from this one exception, their information will not be shared with anyone (e.g., school).

The controller for this project will be University College London (UCL). The UCL Data Protection and Research Governance Officer provides oversight of UCL activities involving the processing of personal data, and can be contacted at data-protection@ucl.ac.uk. They may have insight into some study documents. The lawful basis that will be used to process your personal data and special category data is: 'public task' and 'research purposes', respectively. 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. Once the study is finished, the data will be stored and archived very securely, and 5

years after the study end, all personal data will be deleted. However, anonymised data may be used to support research in the future and may be shared with other researchers for this purpose.

If you would like to learn more about how personal data will be protected, please visit this webpage where you can read UCL General Privacy Notice for Participants and Researchers in Health and Care Research Studies. 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.

What will happen to the results of the study?

It may take some time to analyse the data we collect in this project. Once the project is finished, we will happily tell you what we have learnt if you are interested in this. A report will be written about the results of the study. In that report, no one could identify you, or your parent/carer. In other words, we can guarantee that information about you will be kept private and confidential because we talk about groups not individuals. We can share this report with you if you would like.

Who has reviewed the study?

This study has been reviewed and given favourable opinion by the North of Scotland (1) Research Ethics Committee (reference number 23/NS/0064).

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires, and making adaptations to the questionnaire pack.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London (UCL) have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by UCL (Prof Peter Fonagy) and it is an educational project.

What if something goes wrong?

If you have any worries about how this study is being run, you should ask to speak to the researcher who will do their best to answer your questions.

If you would like to contact someone outside the team you can do this through the Research Governance Sponsor, UCL. You can write to Joint UCLH/UCL Biomedical Research Centre, Research & Development, Maple House 1st Floor, 149 Tottenham Court Road, London, W1T 7DN quoting reference 158229. All communication will be in confidence.

If something does go wrong and you are harmed then you may have grounds for a legal action for compensation against UCL.

If you would like to contact Cambridgeshire and Peterborough Patient Advice and Liaison Services (PALS), they can be contacted either by calling 0800 376 0775, via email PALS@cpft.nhs.uk, or in writing to:

Patient Advice and Liaison Service,
Elizabeth House,
Fulbourn,
Cambridge
CB21 5EF

Thank you for reading.

Our contact details are:

Removed

Appendix I: Example Adolescent information sheet – aged 12-13

Exploring how epistemic trust and mentalizing are related to trauma, psychopathology, and perceptions of helping relationships in adolescents.

PARTICIPANT INFORMATION SHEET FOR YOUNG PEOPLE AGED 12-13

Invitation

We would like to invite you to join a research project. This is because you are currently having therapy for your mental health in one of the teams that we work with. The decision to join the research project is totally your choice, and your parent or carer also has to agree. Before you decide, we want to give you some information about this research project so you know what we will ask you to do if you agree to join. A person from our team will help you to understand this information. You can ask any questions that you want to, and we will answer them. You can also talk about this research project with your parent or carer, your family, or your friends.

Why is this research being done?

We want to learn more about how you think about the people that support you. These people make up your social help network (this can include personal people like friends and family, or professional people like your therapist). We are interested in something called "epistemic trust" (which is all about how open you are to learning from other people) and "mentalizing" (which is all about how you think about other people's thoughts and feelings). Specifically, we want to learn if how much you trust someone in your social help network affects how they can best help you, and if you want to have them around to support you. Since you will be having therapy, we also want to learn if this changes during therapy, and why this might change. This is important to us because the information that we get from this project might make us better at helping other young people in the future.

Do I have to join?

No. It is entirely up to you and your parent or carer. This information sheet and speaking to someone from our research team can help you decide whether you would like to join or not. If you decide you do not want to join, nothing will change for you, and your therapy or care will not be affected in any way.

What will I be asked to do?

Towards the beginning of your CAMHS therapy sessions, we will arrange to meet you and your parent/carer either in person where you have your therapy sessions or on video call. We will ask you and your parent/carer to sign a form, and then we will ask only you to answer questions in different surveys. We also want to ask your therapist to sign a different form and answer some questions. This will not affect your therapy in any way. The form and surveys are explained below in more detail. You can ask any questions you want about them.

The assent form

The assent form shows that you agree to join the study. Your parent/carer will have to sign a consent form to show they also agree that you can join the study.

If you change your mind or you want to stop, you can tell the researcher and we will undo your agreeing to take part. This will not affect you or your therapy in any way.

Part One: Surveys

When you start your therapy sessions, we will ask you to answer questions on a list of different surveys. They ask things like how you are feeling, what you typically behave like, how you get on with your friends and family, if you want or need support or help from others, and if you feel that you can get this support or help from them. You will answer the questions by ticking some boxes. We can help you answer them if there are things you do not understand, since we will be together either in person or on a video call. Here are the official names of the surveys:

- Attachment Questionnaire for Children (AQC)
- Childhood Trauma Questionnaire (CTQ-SF)
- Revised Childhood Anxiety and Depression Scale (RCADS)
- Strengths and Difficulties Questionnaire (SDQ)
- Borderline Personality Disorder Features Scale for Children (BPFSC)
- Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ)
- Reflective Functioning Questionnaire for Youth (RFQ-Y)
- Scale to Assess Therapeutic Relationship (STAR-P)
- Social Network Analysis Questionnaire

The questionnaires your CAMHS therapist/key worker fills in

At the same time, we will also ask your therapist or key worker to answer two surveys. These surveys include questions about them about your social help network. The official names of the surveys are:

- Scale to Assess the Therapeutic Relationship (STAR-C)
- Social Network Analysis Questionnaire

We will then meet you again when your therapy is finished. We will meet either in person or on a video call. We will ask you to answer the same surveys again. We will also ask your therapist to answer the same surveys again.

It is important for you to know that the surveys are **NOT** tests.

Part Two: Conversation Sessions

You will also be invited to have conversations with one of the people in our team. You do not have to do this part of the research, and you can choose to just do the ticking boxes explained above if you prefer. The conversations would last about an hour each time, and one at the start of your therapy~~, and another at the end of your therapy~~. They will take place either on a video call or in person in the place where you have therapy. During the first conversation, we will think about your trust in the people in your social help network in more detail than the questionnaires. I~~n the second conversation, we will think about if there has been any change in this during your therapy, and what might have caused the change (or non-change).~~

We will record the conversations that we have with you in this part of the research project. This makes sure we can remember exactly what you said, since we do not want to change any of your words when we write them down in text format. We will not share the conversations we have with you with anybody else. The person who writes them down in text format is the same person who also speaks to you. We will not put your name on anything. Once we have written what you said down, we will delete the recordings we made.

How much time does it take, and will I get paid?

It will take about 90 minutes to finish answering all the questions in the surveys. You can have breaks whenever you want. If you decide that you want to stop before all the surveys are finished, then you can. Remember that we will ask you to answer the same questions again at the end of therapy, so this will be another 90 minutes if you decide to do this part also.

If you choose to talk with us, the conversations will take about 1 hour each. You can have breaks whenever you want. If you decide that you want to stop before the conversation with us is finished, then you can. You do not have to talk to us if you do not want to.

We are really grateful for your help in our research. You will receive a payment from us as a thank you for your time and work for us. For completing the first set of surveys at the start of your therapy, you will get a £15 gift card or voucher. For completing the second set of surveys at the end of your therapy, you will also get another £15 gift card or voucher. If you agree to have a talk with us, you will receive another £20 gift card or voucher for the first conversation ~~and a £20 gift card or voucher for the second conversation.~~

What is good about joining the study?

If you do decide that you want to join the study, you will help us to understand more about trust and how important trust is for relationships with people in your social help network. This may help other people in the future. You may also like some of the questions we will ask you and find them interesting.

Will joining the study make me feel upset?

We do not want to upset you. But sometimes it can happen that the questions we ask you feel stressful or upsetting. You can tell us if this happens, and you can stop. You do not have to continue if you feel upset. We will also help you feel better if you do feel upset.

What rules do we have to follow?

There are some rules to make sure that everything is done right, that you are treated well and that you are safe. It is important that you know the rules we have to follow before you decide if you want to join this research project.

(1) **Assent and consent: Agreeing to join the study**

- You do not have to agree to join the study if you do not want to. You are completely free to decide whether or not you want to take part in the study.
- If you decide you would like to join, then you and your parent/carer have to agree.
- If you do agree to join, you can change your mind and stop at any time, and you do not have to tell us a reason. This will not change the support or therapy you are receiving. If you want to stop taking part, you can do this even if you parent or carer wants you to continue. Your decision to stop counts the most.
- If you agree to join, but something happens that means you or your parent/carer cannot make decisions anymore, then any answers that describe you in a personal

way, like your name, birthday or where you live, will be deleted. The answers you give us on the surveys or the talks will not be linked to your name so they will not be deleted.

(2) **Confidentiality: Keeping what you tell us private**
The things you tell us and your answers are private. Nothing you say will be told to anyone outside the research team, except in three specific situations:

- If you tell us that you or another person are planning to seriously hurt a specific person.
- If you tell us that you or another young person is at risk to be seriously hurt.

We might have to tell your therapist or key worker if we are concerned about your mental health. This is to make sure you can be looked after.

If we have to do any of this, we will tell you before we do this.

Further supporting information:

How will my information be kept confidential?

We will keep all the information that you give us private (confidential). You will be given an ID number (e.g., 063) so your name will not be on any of your answers (it is anonymous). This is in line with the Data Protection Act 2018 and the General Data Protection Regulation (GDPR).

As part of the study, you will be asked to list up to 6 important people that help you. We will share these names with your therapist/key worker, so that we can ask them about their understanding of this. Aside from this one exception, the personal and identifiable information you give us will not be shared with anyone (e.g., school).

There are two reasons why we must collect some of the personal information about you that we keep private. First, it is for making sure that our research study can have the best quality of data that helps us create successful results (GDPR lawful basis "research purposes"). Second, it is to make sure that the results we get from the data can be applied to other people like you in the public (GDPR lawful basis "public task"). In other words, we want to make sure that our study findings can help other people. Once the study is finished, the data will be stored very securely, and after 5 years, all personal data will be deleted. However, anonymised data may be used to support research in the future and may be shared with other researchers for this purpose.

University College London (UCL), where the research team is working and where the study is being conducted, is in charge of (controlling) your data. There is a responsible data protection and research governance officer who makes sure everything is done according to the rules. This means they might check some of our study documents. We follow both the rules described above, but also the general data protection rules. If you would like to learn more about how your personal data will be protected in general, please visit this webpage where you can read UCL General Privacy Notice for Participants and Researchers in Health and Care Research Studies.

If you or your parent/carer have any questions, you can ask the research team or contact the data protection team at UCL by sending an email to data-protection@ucl.ac.uk.

What other information about me will be accessed by the research team?

If you agree to this, we may ask for information from your clinical records that are being held at the service where you are doing therapy. This can include, for instance, your NHS number or information about your mental health problem.

What will happen to the results of the study?

It may take some time to analyse the data we collect in this project. Once the project is finished, we will happily tell you what we have learnt if you are interested in this. A report will be written about the results of the study. In that report, no one could identify you, or your parent/carer. In other words, we can guarantee that information about you will be kept private and confidential because we talk about groups not individuals. We can share this report with you if you would like.

Will I be contacted again?

It is possible that our research project leads to the development of new studies. If you would like to be contacted by the research team for future studies, you can agree to this on the assent form.

Who has reviewed the study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect you. This study has been reviewed and given favourable opinion by the North of Scotland (1) Research Ethics Committee (reference number 23/NS/0064).

How have young people been involved in this study?

Young people have provided consultation to the research project by reviewing materials, planning how to present the questionnaires, and making adaptations to the questionnaire pack.

Who is organising and funding the study?

Doctoral trainees at the Department of Clinical, Educational and Health Psychology at University College London (UCL) have set up the project. Professor Peter Fonagy and Dr Tobias Nolte are supervising the research. The research is being funded by UCL (Prof Peter Fonagy) and it is an educational project.

What if something goes wrong?

If you have any worries about how this study is being run, you should ask to speak to the researcher who will do their best to answer your questions.

If you would like to contact someone outside the team you can do this through the Research Governance Sponsor, UCL. You can write to Joint UCLH/UCL Biomedical Research Centre, Research & Development, Maple House 1st Floor, 149 Tottenham Court Road, London, W1T 7DN quoting reference number 158229. All communication will be in confidence.

If something does go wrong and you are harmed then you may have grounds for a legal action for compensation against UCL.

If you would like to contact Cambridgeshire and Peterborough Patient Advice and Liaison Services (PALS), they can be contacted either by calling 0800 376 0775, via email PALS@cpft.nhs.uk, or in writing to:

Patient Advice and Liaison Service, Elizabeth House, Fulbourn, Cambridge, CB21 5EF.

Thank you for reading.

Our contact details are:

Removed

Appendix J: Example consent form – Parent/Carer

Exploring how epistemic trust and mentalizing are related to trauma, psychopathology, and perceptions of helping relationships in adolescents.

CONSENT FORM FOR PARENTS/CARERS OF YOUNG PEOPLE PARTICIPANTS AGED 12-15

Chief investigator: Prof Peter Fonagy

Please put your initials into the box to show that you agree.	
1. I confirm that I have read the information sheet dated 13.03.2023 (version V1.0) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	
2. I understand that my child's participation is voluntary and that they are free to withdraw at any time without giving any reason, without their medical care or legal rights being affected.	
3. I understand that information collected will be treated as strictly confidential and handled in accordance with the provisions of the UK Data Protection Act 2018.	
4. I understand that some documents from the study may be looked at by responsible people appointed by UCL, who must make sure (as Research Governance sponsor) that the study is being run properly. I give permission for this group to have access to the necessary information.	
5. I agree that my child's CAMHS therapist/key worker (clinician) can be informed of their participation in the study, including for the purpose of their	

involvement in the study, and I understand that my child's participation will not affect the clinical care provided to my child.		
6. I agree that the information collected about my child may be used to support other research in the future and may be shared anonymously with other researchers.		
7. I agree for my child to take part in Part One of the above study, which involves completing questionnaires.		
Please put your initials into the Yes or No box depending on your preference	**Y**	**N**
8. I agree that the research project named above can request information from my child's clinical records held at the support service that referred them to this research project.		
9. I agree that someone from the research study can contact me in the future about participating in other research, via email/telephone.		
10. I would like to receive an email copy of the research findings once they are published.		
11. If my child is invited, I agree for my child to take part in Part Two of the above study, which involves a conversation session, and for this conversation session to be audio recorded for the purpose of transcription and analysis, and for anonymous quotes to be used in reports of this project.		

Name of parent/carer	Date	Signature
Name of researcher taking consent	Date	Signature

Our contact details are:

Removed

Appendix K: Childhood Trauma Questionnaire – Short Form

Removed for copyright

Appendix L: Epistemic Trust, Mistrust and Credulity Questionnaire

Removed for copyright

Appendix M: Reflective Functioning Questionnaire Youth Version

Removed for copyright

Appendix N: Social Network Questionnaire – Adolescent Report

Removed for copyright

Appendix O: Social Network Questionnaire – Clinician Report

Removed for copyright

Appendix P: Ethical approval

North of Scotland Research Ethics Committee (1)
Summerfield House
2 Eday Road
Aberdeen
AB15 6RE

Telephone: 01224 558458
Email: gram.nosres@nhs.scot

NHS Grampian

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

01 August 2023

Prof Peter Fonagy
Head of Department
Dept of Clinical, Educational and Health Psychology
University College London
26 Bedford Way
London
WC1H 0AP

Dear Prof Fonagy

Study title:	**Exploring how epistemic trust and mentalizing are related to trauma, psychopathology, and perceptions of helping relationships in adolescents**
REC reference:	**23/NS/0064**
Protocol number:	**0.1**
IRAS project ID:	**327053**

Thank you for your letter of 17 July 2023, responding to the Research Ethics Committee's (REC) request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair along with committee members Dr Suzanne Breeman and Mrs Jane McWhirr.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Good practice principles and responsibilities

The UK Policy Framework for Health and Social Care Research sets out principles of good practice in the management and conduct of health and social care research. It also outlines the

responsibilities of individuals and organisations, including those related to the four elements of research transparency:

1. registering research studies
2. reporting results
3. informing participants
4. sharing study data and tissue

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

Confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or NHS management permission (in Scotland) should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All research should be registered in a publicly accessible database and we expect all researchers, research sponsors and others to meet this fundamental best practice standard.

It is a condition of the REC favourable opinion that **all clinical trials are registered** on a publicly accessible database within six weeks of recruiting the first research participant. For this purpose, 'clinical trials' are defined as:

- clinical trial of an investigational medicinal product
- clinical investigation or other study of a medical device
- combined trial of an investigational medicinal product and an investigational medical device
- other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice.

Failure to register a clinical trial is a breach of these approval conditions, unless a deferral has been agreed by the HRA (for more information on registration and requesting a deferral see: Research registration and research project identifiers).

If you have not already included registration details in your IRAS application form you should notify the REC of the registration details as soon as possible.

Publication of Your Research Summary

We will publish your research summary for the above study on the research summaries section of our website, together with your contact details, no earlier than three months from the date of this favourable opinion letter.

Should you wish to provide a substitute contact point, make a request to defer, or require further information, please visit: https://www.hra.nhs.uk/planning-and-improving-research/application-summaries/research-summaries/

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

After ethical review: Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study, including early termination of the study
- Final report
- Reporting results

The latest guidance on these topics can be found at https://www.hra.nhs.uk/approvals-amendments/managing-your-approval/.

Ethical review of research sites

NHS/HSC sites

The favourable opinion applies to all NHS/HSC sites taking part in the study, subject to confirmation of Capacity and Capability (in England, Northern Ireland and Wales) or management permission (in Scotland) being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" link below).

Non-NHS/HSC sites

I am pleased to confirm that the favourable opinion applies to any non-NHS/HSC sites listed in the application, subject to site management permission being obtained prior to the start of the study at the site.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Confirmation of any other Regulatory Approvals (e.g. CAG) and all correspondence [Confirmation of data protection privacy notice]		30 May 2023
Confirmation of any other Regulatory Approvals (e.g. CAG) and all correspondence [Confirmation of risk assessment]		03 May 2023
Covering letter on headed paper [Cover letter for REC]	1.0	13 March 2023
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only)		01 August 2022
GP/consultant information sheets or letters [Clinician Referring Potential Participants - Information Sheet]	1.0	13 March 2023
Interview schedules or topic guides for participants [Interview schedule]	1.0	13 March 2023
IRAS Application Form [IRAS Form 05/06/2023]	327053/162 1950/37/30 8	05 June 2023
IRAS Checklist XML [Checklist 29/07/2023]		29 July 2023
Letter from funder [Funding declaration letter - internal dept funding]	1.0	13 March 2023
Letter from sponsor [Confirmation of UCL sponsorship]		22 May 2023
Letters of invitation to participant [Cover letter for parents-carers to be sent with PIS 12-15]	1.0	13 March 2023
Other [Applicant response letter to REC Provisional Opinion]		17 July 2023
Participant consent form [Assent Form for 12-15]	1.0	13 March 2023
Participant consent form [Consent form for 16-18]	1.0	13 March 2023
Participant consent form [Consent Form Parent-Carer]	1.0	13 March 2023
Participant consent form [Consent form Clinician-Therapist-Keyworker]	1.0	13 March 2023
Participant information sheet (PIS) [PIS Clinician-Therapist-Keyworker]	1.0	13 March 2023
Participant information sheet (PIS) [PIS 14-15]	1.0	13 March 2023
Participant information sheet (PIS) [PIS 12-13]	1.0	13 March 2023
Participant information sheet (PIS) [PIS 16-18]	1.0	13 March 2023
Participant information sheet (PIS) [PIS Parent-Carer]	1.0	13 March 2023
Referee's report or other scientific critique report [Peer review of protocol]		13 March 2023
Research protocol or project proposal	0.2	17 July 2023
Summary CV for Chief Investigator (CI) [Peter Fonagy brief CV]	1.0	13 March 2023
Summary CV for student [Sally Bell CV]	1.0	13 March 2023
Summary CV for student [Susie Taplin CV]	1.0	13 March 2023
Summary CV for student [Shannon Potter CV]	1.0	13 March 2023

Summary CV for supervisor (student research) [Tobias Nolte brief CV]	1.0	13 March 2023
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Non-technical summary of protocol]	1.0	13 March 2023
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Personal Information flow chart]	1.0	13 March 2023
Validated questionnaire [Attachment Questionnaire for Children]		
Validated questionnaire [Childhood Trauma Questionnaire Short Form]		
Validated questionnaire [Revised Child Anxiety and Depression Scale]		
Validated questionnaire [Strengths and Difficulties Questionnaire]		
Validated questionnaire [Borderline Personality Disorder Features Scale for Children]		
Validated questionnaire [Epistemic Trust, Mistrust and Credulity Questionnaire]		
Validated questionnaire [Reflective Functioning Questionnaire Youth Version]		
Validated questionnaire [Scale To Assess Therapeutic Relationships - Patient Version]		
Validated questionnaire [Scale To Assess Therapeutic Relationships - Clinician Version]		
Validated questionnaire [Social Network Analysis Questionnaire, Patient Version]		
Validated questionnaire [Social Network Analysis Questionnaire, Clinician Version]		

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Learning

We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities – see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

IRAS project ID: 327053	Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely

[redacted]

Professor Nigel Webster
Chair

Email: gram.nosres@nhs.scot

Link: After ethical review guidance for sponsors and investigators – Non CTIMP Standard Conditions of Approval

Copy to: Jessica Broni-Tabi
Julia Griem, Research Officer
Lead Nation - England: approvals@hra.nhs.uk

Appendix Q: Descriptive statistics data distribution summary.

This is a summary of the distribution of data in the questionnaire variables included in this thesis. Shapiro-Wilk tests of normality were non-significant for all subscales of the ETMCQ and average scores of personal social networks, suggesting normal distribution of data. However, a slight negative skew of -.656 was observed in the Trust subscale of the ETMCQ (S.E. = .472) and a slight positive skew of .637 in the average scores of personal social networks (S.E. = .472). Shapiro-Wilk tests were significant for RFQ ($p < .05$), CTQ ($p < .001$), average scores of professional social networks ($p < .05$), and total count of both personal ($p < .001$) and professional relationships ($p < .001$), suggesting significant deviation from normal distribution. A positive skew of 1.960 was observed in the CTQ (S.E. = .472) and a negative skew of -1.391 was observed in the RFQ (S.E. = .472) and of -.789 in the average scores of professional social networks (S.E. = .472). Due to the deviations from normal distribution, non-parametric tests were employed as necessary throughout the analysis.

Appendix R: Series of one-way ANOVA Kruskal-Wallis tests on differences of key questionnaire variables between test sites.

A Kruskal-Wallis test was performed on the CTQ scores of the three test sites (1, 2, and 3). The differences between the means of 46.14 (Site 1), 38.08 (Site 2) and 62 (Site 3) were not significant, $H(2) = 3.29$, $p = .193$, suggesting no significant differences.

A Kruskal-Wallis test was performed on the RFQ scores of the three test sites (1, 2, and 3). The differences between the means of 8.34 (Site 1), 9.18 (Site 2) and 8.4 (Site 3) were not significant, $H(2) = 3.95$, $p = .139$, suggesting no significant differences.

A one-way ANOVA was performed on the ET scores of the three test sites (1, 2, and 3). The differences between the means of 22.71 (Site 1) , 25 (Site 2) and 25.8 (Site 3) were not significant, $F(2) = 0.99$, $p = .386$, suggesting no significant differences.

A one-way ANOVA was performed on the ETMCQ Mistrust scores of the three test sites (1, 2, and 3). The differences between the means of 24.14 (Site 1), 24.75 (Site 2) and 26 (Site 3) were not significant, $F(2) = 0.46$, $p = .637$, suggesting no significant differences.

A one-way ANOVA test was performed on the ETMCQ Credulity scores of the three test sites (1, 2, and 3). The differences between the means of 21.29 (Site 1), 18.42 (Site 2) and 21.6 (Site 3) were not significant, $F(2) = 0.81$, $p = .458$, suggesting no significant differences.

Appendix S: Relationship Count Hypothesis 1a

The **number** of relationships reported in **personal** social networks, including family, peer, and wider community relationships will:

vi. Negatively correlate with childhood trauma scores

vii. Negatively correlate with epistemic mistrust scores

Univariate linear regressions were conducted with childhood trauma and epistemic mistrust on the total count of personal relationships as the dependent variable. Results, displayed in Table S1, showed no significant effects across the independent variables tested.

A series of multiple linear regressions were then conducted to explore the combined effect of the independent variables on the dependent variable of total count of personal relationships reported. Demographic variables were entered into each stage of the model, with age as a continuous covariate and gender and ethnicity as categorical covariates. Variables were added in a stepped manner, beginning with the CTQ and RFQY, before adding trust, mistrust, and then credulity. As displayed in Table S2, no model yielded a result that significantly explained the variance (indicated by F-values $p > 0.05$) within the count of personal relationships. Similarly, no variables emerged with significant independent effects. Therefore, no support for the hypothesis was detected.

Table S1. *Univariate Linear Regressions with Total Count of Personal Relationships as Dependent Variable.*

Independent Variable	Standardized β	Standard error	t-statistic	p-value
CTQ	-0.17	0.01	-0.82	.422
Epistemic Mistrust	-0.1	-0.05	-0.48	.635

NOTE: **** = significant result.***

Table S2. *Series of Multiple Regression Analyses with Total Personal Relationship Count as Dependent Variable.*

		Coefficients				
Model	*Independent Variable*	*Unstandardized B*	*Standard Error*	*Standardized β*	*t*	*p*
1	*Age*	-0.19	0.1	-0.46	-1.86	.081
	Male Gender	-0.18	0.549		-0.37	.717
F (7, 16) = 1.241, p = .338	*Non-binary Gender*	.063	0.65		0.1	.924
	Mixed Ethnicity	0.72	0.53		1.34	.198
	Asian Ethnicity	0.17	0.51		0.34	.736
	Black Ethnicity	0.57	0.43		1.33	.203
	CTQ	-9.564×10^{-4}	0.01	-0.02	-0.1	.922
2	*Age*	-0.2	0.1	-0.47	-1.97	.067
	Male	-0.2	0.47		-0.44	.664
	Non-binary	0.38	0.66		0.57	.575
F (8, 15) = 1.441, p = .258	*Mixed Ethnicity*	1.2	0.63		1.99	.066
	Asian Ethnicity	0.09	0.42		0.99	.853
	Black Ethnicity	0.63	0.43		1.5	.15
	CTQ	0.007	0.01	0.17	0.66	.518
	Epistemic Mistrust	-0.1	0.07	-0.4	-1.49	.159

NOTE: **** = significant result.***

Appendix T: Relationship Count Hypothesis 2b

The **number** of relationships reported in **professional** social networks, including teachers, youth group workers, and mental health workers will:

viii. Negatively correlate with childhood trauma scores

ix. Negatively correlate with epistemic mistrust scores

Univariate linear regressions were conducted with childhood trauma and epistemic mistrust on the total count of professional relationships as the dependent variable. Results, displayed in Table T1, showed no significant effects.

A series of multiple linear regressions were then conducted to explore the combined effect of the independent variables on the dependent variable of total count of professional relationships reported. Demographic variables were entered into each stage of the model, with age as a continuous covariate and gender and ethnicity as categorical covariates. Variables were added one step at a time, beginning with the CTQ and RFQY, before adding trust, mistrust, and then credulity. As displayed in Table T2, no model yielded a result that significantly explained the variance within the count of professional relationships. Similarly, no variables emerged with significant independent effects (indicated by F-values $p > 0.05$). Therefore, no support for the hypothesis was detected.

Table T1. *Univariate Linear Regressions with Total Count of Professional Relationships as Dependent Variable.*

Independent Variable	Standardized β	Standard error	t-statistic	p-value
CTQ	0.02	0.01	0.08	.934
Epistemic Mistrust	-0.06	0.08	-0.29	.778

*NOTE: * = significant result.*

Table T2. *Series of Multiple Regression Analyses with Total Professional Relationship Count as Dependent Variable.*

		Coefficients				
Model	*Independent Variable*	*Unstandardized B*	*Standard Error*	*Standardized β*	*t*	*p*
1	*Age*	-0.12	0.17	-0.19	-0.7	.497
	Male Gender	-0.1	0.8		-0.12	.904
F (7, 16) = .501, p = .82	*Non-binary Gender*	1.53	1.07		1.43	.171
	Mixed Ethnicity	-0.32	0.87		-0.36	.721
	Asian Ethnicity	-0.38	0.83		-0.45	.657
	Black Ethnicity	-0.04	0.71		-0.06	.952
	CTQ	0.01	0.02	0.09	0.33	.745
	Age	-0.12	0.17	-0.2	-0.71	.49
2	*Male Gender*	-0.12	0.82		-0.15	.881
	Non-binary Gender	1.81	1.14		1.58	.135
F (9, 14) = .457, p = .88	*Mixed Ethnicity*	-0.14	1.07		0.13	.902
	Asian Ethnicity	-0.45	0.84		-0.53	.606
	Black Ethnicity	0.01	0.72		0.02	.988
	CTQ	0.01	0.02	0.2	0.66	.518
	Epistemic Mistrust	0.09	0.12	0.24	-0.75	.465

*NOTE: * = significant result.*

Appendix U: Number of reported relationships per participant

Participants were asked to report 3-5 personal relationships and 3-5 professional relationships of importance to them.

Fifteen participants reported five personal relationships, four reported four personal relationships, and five reported three personal relationships.

Nine participants reported five professional relationships, one reported four professional relationships, and eleven reported three professional relationships. Although participants were requested to identify at least three relationships, one participant reported two professional relationships, and another reported only one professional relationship.

Appendix V: Multiple linear regression of key questionnaire variables on personal relationship quality not accounting for multilevel model of data.

Univariate linear regressions were conducted with each key variable on the total quality of each reported personal relationship as the dependent variable, not considering the multilevel structure of the data. Results are displayed in Table V1. Significant results were observed in the predictive effects of childhood trauma, which explained 8.5% of the variance in this univariate model (adjusted R2 = .085), F (1, 104) = 10.81, p < .05, epistemic mistrust, which explained 17.1% of the variance in this univariate model (adjusted R2 = .171), F (1, 104) = 22.67, p < .001, and epistemic credulity which explained 5.5% of the variance in this univariate model (adjusted R2 = .055), F (1, 104) = 6.01, p < .05. These results suggest that epistemic mistrust may be the strongest variable when predicting personal relationship quality, though further analysis is required to investigate the effect alongside other variables.

Table V1. *Univariate Linear Regressions with Total Personal Relationship Quality as Dependent Variable.*

Variable	Standardized β	Standard error	t-statistic	p-value
CTQ	**-0.26**	**0.03**	**-2.6**	**.008***
Epistemic Trust	-0.11	0.14	-1.15	.255
Epistemic Mistrust	**-0.45**	**0.16**	**-5.01**	**<.001***
Epistemic Credulity	**-0.2**	**0.1**	**-2.05**	**.043***
RFQ	0.13	0.54	1.3	.196

NOTE: **** = significant result.***

Further multiple regression analyses were conducted to explore the relative contributions of the key variables in predicting the quality of personal relationships reported by participants, not considering the multilevel structure of the data. A four-stage regression was conducted with the total relationship quality score as the

dependent variable. Models were sequentially built and the order of the steps of the regression were determined by the univariate analyses, starting with mistrust and CTQ as the strongest univariate predictors, before adding credulity, the RFQ, and then ET. Demographic variables were entered into each stage of the model, with age as a covariate and gender and ethnicity as nominal factors.

As displayed in Table V2, each model was significant in explaining the variation in the dependent variable, with the final model explaining 17.2% of variance. Epistemic Mistrust was the only significant independent predictor in all stages of the regression, with increasing mistrust scores predicting decreasing personal relationship quality.

Table V2. *Linear Regression Models with Total Personal Relationship Quality as Dependent Variable.*

		Coefficients				
Model	*Independent Variable*	*Unstandardized B*	*Standard Error*	*Standardized β*	*t*	*p*
1	*Age*	0.28	0.33	0.1	0.85	.395
	Male Gender	1.23	1.49		0.83	.411
F (8, 85) = 3.683, p < .001*	*Non-binary Gender*	0.35	2.4		0.15	.884
	Mixed Ethnicity	1.82	2		0.91	.366
	Asian Ethnicity	-1.4	1.63		-0.86	.392
Adjusted R2 = .172	*Black Ethnicity*	-0.05	1.33		-0.03	.973
	CTQ	-0.04	0.04	-0.14	-1.25	.215
	Epistemic Mistrust	**-0.85**	**0.22**	**-0.47**	**-3.78**	**< .001***
2	*Age*	0.44	0.56	0.15	1.25	.216
	Male Gender	1.82	7.18		1.16	.247
	Non-binary Gender	-0.1	0.35		-0.04	.967
F (9, 94) = 3.46, p = .001*	*Mixed Ethnicity*	1.62	1.56		0.81	.421
	Asian Ethnicity	-1.25	2.42		-0.77	.444
	Black Ethnicity	-0.01	2		-0.01	.992
Adjusted R^2 = .117	*CTQ*	-0.05	1.63	-0.16	-1.45	.151
	Epistemic Mistrust	**-0.97**	**1.33**	**-0.54**	**-3.97**	**< .001***
	Epistemic Credulity	0.15	0.04	0.15	1.23	.221
	Age	0.32	0.37	0.11	0.87	.389

3	*Male Gender*	2.4	1.67		1.44	.152
	Non-binary Gender	0.34	2.46		0.14	.892
F (10, 93) = 3.218, p = .001*	*Mixed Ethnicity*	1.3	2.03		0.64	.524
	Asian Ethnicity	-1.87	1.74		-1.08	.284
	Black Ethnicity	0.05	1.33		0.04	.971
Adjusted R^2 = .177	*CTQ*	-0.03	0.04	-0.11	-0.86	.390
	Epistemic Mistrust	**-1.01**	**0.25**	**-0.56**	**-4.09**	**< .001***
	Epistemic Credulity	0.18	0.13	0.18	1.41	.163
	RFQ	0.76	0.75	0.14	1.02	.313
4	*Age*	0.39	0.39	0.13	1.01	.316
	Male Gender	2.48	1.67		1.48	.142
F 11, 92) = 2.948, p = .002*	*Non-binary Gender*	1.17	2.77		0.42	.673
	Mixed Ethnicity	1.45	2.05		0.71	.479
	Asian Ethnicity	-2.18	1.8		-1.21	.230
Adjusted R^2 = .172	*Black Ethnicity*	0.52	1.51		0.35	.730
	CTQ	-0.03	0.04	-0.1	-0.76	.447
	Epistemic Mistrust	**-1.004**	**0.25**	**-0.56**	**-4.05**	**< .001***
	Epistemic Credulity	0.19	0.13	0.19	1.5	.138
	RFQ	0.98	0.82	0.18	1.2	.235
	Epistemic Trust	-0.12	0.18	-0.09	-0.67	.507

NOTE: **** = significant result.***

Appendix W: Multiple linear regression of key questionnaire variables on professional relationship quality not accounting for multilevel model of data.

Univariate linear regressions were conducted with each key variable on the total quality of each reported professional relationship as the dependent variable, not considering the multilevel structure of the data. Results are displayed in Table W1. Significant results were observed in the predictive effects of childhood trauma, which explained 7.2% of the variance in this univariate model (adjusted R2 = .072), F (1, 83) = 6.47, p < .05, and epistemic credulity which explained 5.6% of the variance in this univariate model (adjusted R2 = .056), F (1, 83) = 4.94, p < .05.

Table W1. *Univariate Linear Regressions with Total Professional Relationship Quality as Dependent Variable.*

Variable	Standardized β	Standard error	t-statistic	p-value
CTQ	**0.27**	**0.04**	**2.54**	**.013***
Epistemic Trust	0.09	0.18	0.86	.391
Epistemic Mistrust	0.05	0.22	0.47	.638
Epistemic Credulity	**0.24**	**0.12**	**2.23**	**.029***
RFQ	-0.02	0.7	-0.17	.865

NOTE: **** = significant result.***

Following the univariate analyses, further multiple regression analyses were conducted to explore the relative contributions of the key variables in predicting the quality of personal relationships reported by participants, not considering the multilevel structure of the data. A four-stage regression was conducted with the total relationship quality score as the dependent variable. Models were built sequentially and the order of the steps of the regression were determined by the univariate analyses, starting with credulity and CTQ as the only significant univariate predictors, before adding ET,

mistrust, and then the RFQ. Demographic variables were entered into each stage of the model, with age as a covariate and gender and ethnicity as nominal factors.

As displayed in Table W2, each model was significant in explaining the variance in professional relationship quality, with the final model explaining 43.4% of variance. In the final model, credulity was the only significant predictor of the key questionnaire variables, with increasing credulity scores predicting greater professional relationship quality. Increasing age, being of male gender (when compared to female as the comparative category) and being of black ethnicity when compared to white ethnicity as the comparative category, were significant predictors of increasing professional relationship quality. While these findings are interesting, it is important to acknowledge the risk of Type I error when using the multilevel data model. The sample contained only 5 male participants and 5 Black participants, with one participant meeting both criteria, reducing the reliability of these significant effects. The model does not account for the repeated time-invariant demographic factors and assumes independence between subjects.

Table W2. *Linear Regression Models with Total Professional Relationship Quality as Dependent Variable.*

		Coefficients				
Model	*Variable*	*Unstandardized B*	*Standard Error*	*Standardized β*	*t*	*p*
1	***Age***	**1.58**	**0.37**	**0.46**	**4.23**	**< .001***
	Male Gender	**5.02**	**1.68**		**2.99**	**.004***
F (8, 76) = 8.962, p < .001*	***Non-binary Gender***	**-6.26**	**2.29**		**-2.73**	**.008***
	Mixed Ethnicity	**-4.47**	**1.94**		**-2.3**	**.024***
	Asian Ethnicity	0.73	1.83		0.4	.692
Adjusted R^2 = .431	***Black Ethnicity***	**5.2**	**1.52**		**3.41**	**.001***
	CTQ	-0.01	0.04	-0.02	-0.22	.830

	Epistemic Credulity	**0.6**	**0.12**	**0.5**	**4.95**	**< .001***
2	***Age***	**1.7**	**0.4**	**0.5**	**4.22**	**< .001***
	Male Gender	**4.83**	**1.69**		**2.85**	**.006***
	Non-binary Gender	-5.6	2.43		-2.3	.024
F (9, 75) = 8.005, p < .001*	*Mixed Ethnicity*	-4.3	1.96		-2.2	.031
	Asian Ethnicity	0.42	1.88		0.22	.825
	Black Ethnicity	**5.67**	**1.63**		**3.47**	**< .001***
Adjusted R^2 = .429	*CTQ*	-0.01	0.04	-0.02	-0.2	.843
	Epistemic Credulity	**0.62**	**0.13**	**0.53**	**4.99**	**< .001***
	Epistemic Trust	-0.14	0.17	-0.08	-0.81	.418
3	***Age***	**1.73**	**0.4**	**0.51**	**4.31**	**< .001***
	Male Gender	**4.73**	**1.69**		**2.81**	**.006***
	Non-binary Gender	-5.02	2.45		-2.05	.044
F (10, 74) = 7.5, p < .001*	*Mixed Ethnicity*	-2.73	2.24		-1.22	.228
	Asian Ethnicity	0.34	1.86		0.18	.855
	Black Ethnicity	**5.69**	**1.62**		**3.51**	**< .001***
Adjusted R^2 = .436	*CTQ*	0.02	0.04	0.05	0.44	.658
	Epistemic Credulity	**0.72**	**0.14**	**0.62**	**5.08**	**< .001***
	Epistemic Trust	-0.12	0.17	-0.07	-0.69	.494
	Epistemic Mistrust	-0.4	0.28	-0.2	-1.41	.162
4	***Age***	**1.5**	**0.42**	**0.44**	**3.57**	**< .001***
	Male Gender	**6.05**	**1.86**		**3.26**	**.002***
F (11, 73) = 7.202, p < .001*	*Non-binary Gender*	-3.68	2.56		-1.44	.156
	Mixed Ethnicity	-3.4	2.26		-1.51	.136
	Asian Ethnicity	-0.44	1.91		-0.23	.818
Adjusted R^2 = .448	***Black Ethnicity***	**6.18**	**1.63**		**3.79**	**< .001***
	CTQ	0.05	0.04	0.14	1.09	.280
	Epistemic Credulity	**0.76**	**0.14**	**0.65**	**5.33**	**< .001***
	Epistemic Trust	-0.22	0.18	-0.14	-1.24	.220
	Epistemic Mistrust	-0.45	0.28	-0.22	-1.62	.110
	RFQ	1.5	0.93	0.24	1.61	.111

*NOTE: * = significant result.*