

Does sibling attachment mediate the effects of parental attachment on future romantic relationships?

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Abstract

Individual's experiences with social relationships across adolescence, young adulthood and particularly during formative years in childhood are of substantial value in the context of well-being and health. Various scholars have researched the influence of parent and peer attachments on romantic relationships; however, little is known about the role siblings play in romantic relationships. A nation-wide survey in Aotearoa reported that 60% of families with children have more than two children (Statistics NZ, 2020). Accordingly, this research examined the links between sibling attachment, parental attachment, and romantic relationship quality. 151 students aged 18 or older, from the psychology department at the Auckland University of Technology answered an anonymous survey which explored their attachment with their parents, and siblings in childhood, and romantic partners in adulthood. Results from the data analysis reported sibling attachment to be the strongest predictor of romantic quality. In comparison, maternal attachment was a stronger predictor of romantic relationship quality, than paternal attachment. Furthermore, findings from the path analyses revealed that sibling attachment mediated the impacts of parental attachment on the quality of romantic relationships. Some of the study limitations included the sample being small and female dominated; however, recommendations for future research were discussed. Overall, the current study contributes to understanding how sibling attachments influence parental attachment impacts on romantic relationships, and highlights how attachments with various family members in early life plays into their romantic relationships. This research hopes to facilitate an exciting direction for future research around sibling and parental attachment.

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Attestation of Authorship

“I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person, except where explicitly defined in the acknowledgements, nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.”

Signed: Sameera Challa

Date: December 15, 2022

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The Auckland University of Technology Ethic Committee (AUTC) granted ethical approval for this study on the 16th of June 2021. Reference: 21/163

Introduction

From a biological standpoint, humans act social as a species (Cacioppo & Cacioppo, 2014). Throughout a person's life, the quality of their interpersonal interactions is crucial to their well-being (Cooper *et al.*, 2021). Interpersonal social networks consist of immediate and extended family members in childhood. Friends and more family members may be involved during adolescence (Franco & Levitt, 1997). These networks provide social provisions such as companionship, attachment, and worth enhancement (Seibert & Kerns, 2009). Families are an essential setting for establishing interactional norms and patterns that guide intimate relationships in the future (Oriña *et al.*, 2011). Sibling relationships are frequently the relationships that last the longest in individuals' lives. Brothers and sisters take on roles of companions, mentors, and confidants throughout childhood and adolescence, in addition to serving as support systems during adulthood (Dunn, 2007). The current study will use the theory of attachment as a base to test if sibling relationships have an impact on romantic relationships.

The Attachment Theory

John Bowlby developed the theory of attachment; he investigated the value and role of attachment in the context of maladjusted boys and argued that child attachment is an evolutionary aspect (Bowlby, 1969). This developmental theory was established under the ethological notion that humans are born with ingrained psychobiological systems that drive them to seek closeness to attachment figures (Bergin & Bergin, 2009; Bowlby 1969, 1973, 1980). Various behaviour systems are associated with this theory: the fear, the exploration, the attachment, and the sociability systems (Bowlby, 1969). Individuals' attachment strategy arises through emotional and physical interactions with their parent/guardian as the individual's internal working model of others as well as themselves evolves (Bowlby, 1969). The fear and attachment behaviour systems cause individuals to seek closer proximity to their primary caregivers as they look for security and reassurance (Kennedy, Betts & Underwood, 2014).

A close and consistent bond between an individual and someone they consider important is known as attachment (Lewis, Feiring & Rosenthal, 2000). It represents a strong endearing relationship in which an individual utilises their attachment figure as a haven to seek comfort, support, and protection during stressful times (Levy *et al.*, 2011). Learning is a result of behaviours that are activated by the exploratory behaviour system, and social interaction is a result of the sociable system; both these systems have been found to flourish after the individual has developed a secure attachment with their primary caregiver (Kennedy, Betts & Underwood, 2014). Attachment figures generally display behaviours such as consistency, perseverance as well as make space for emotional bonds such as comfort, security, joy, and pleasure (Bosmans *et al.*, 2009). These characteristics become more apparent during stressful times and have significant implications for individuals' internal working model, known as the cognitive or affective dimension, which is established through recurring experiences (Dewitte & De Houwer, 2011).

Starting from childhood, and across adolescence and adulthood, attachment is considered imperative for positive health outcomes, survival, and resilience (Picardi *et al.*, 2013). Attachment theory argues that attachment quality from early life may have long-term influences on the individual's ability to develop strategies for emotional coping and evolve emotionally (Passanisi *et al.*, 2015). Individuals generally form attachments with familiar people who act as confidants, companions, and childhood role models and sources of support and love in adulthood (Cicirelli, 1995). Interactions and experiences with an attachment figure in childhood equip the individual with information that they use to establish the internal working model about others, themselves, and the world (Koohsar and Bonab, 2011). These working models alter and evolve across time through experiencing meaningful relationships (Wilkinson, 2004). Individuals build positive models of themselves and others when they have positive experiences with their attachment figures, whereas negative models may develop when they have negative experiences (Mikulincer & Shaver, 2012).

Individuals' attachment styles reflect the balance of their behavioural systems (Kennedy, Betts & Underwood, 2014). It varies based on the nature of the interactions between these systems and results in one of the three distinct strategies, that were originally formulated by

Mary Ainsworth and her colleagues (Ainsworth *et al.*, 1978) and later developed further by Crittenden (1992):

Attachment A: anxious-avoidant

Attachment B: secure

Attachment C: anxious-ambivalent

Attachment systems are active through all phases of one's lifespan, starting from childhood to adulthood, and can be seen in the way individual's form and maintain their romantic and other relationships (Feeney, 2008). Securely attached individuals generally are more open and willing to explore their relationships and surroundings. They typically have positive outlooks of others and themselves, and are more comfortable trusting their attachment figures, themselves, and others (Levy *et al.*, 2011; Simpson & Rholes, 2017). Avoidant or anxious individuals experience insecurity and tend to rely on hyperactivating or deactivating their attachment systems to cope with uncomfortable or threatening situations; these are called secondary attachment strategies (Cassidy & Kobak, 1998). Anxious-ambivalent attachment may present in the form of insecurity and anxiety about one's worth, fear of rejection and need for constant reassurance in relationships. Individuals with an anxious attachment style are more prone to anxiety, OCD, depression, and other comorbid clinical diagnoses. This may stem from having unreliable, abusive, dismissive, or overprotective attachment figures (Brown & Whiteside, 2008). On the contrary, individuals with anxious-avoidant attachment try to not seek proximity, have poor social skills, deny attachment related needs, and avoid intimacy and dependence in relationships. These behaviours may be a result of having attachment figures who punish or disapprove of closeness, vulnerability, and expressions of emotional and physical needs (Ainsworth *et al.*, 1978). This research emphasizes the impacts attachment figures from early life may have on one's ability to form or maintain relationships in adulthood (Robertson, Shepherd & Goedeke, 2014).

Parental Attachment

According to Cox (2010) individuals are part of a larger family system, they cannot be fully understood outside that context. Internal working models developed through early attachment experiences, serve as life-long templates for preconceived ideas of reliability and value of future intimate relationships (Cox, 2010). Parental attachment gives children a secure base required for learning, exploring, and relating, along with the opportunities, wellbeing, and motivation needed for those tasks (Rees, 2007). Parents are typically one of the most important attachment figures for individuals during early life. The quality and type of attachment styles developed with parents or caregivers substantially influence one's physical, behavioural, and psychological wellbeing (Kaur, 2022; Rees, 2007). The style of attachment developed with one's parents exhibits strong links with attachment styles developed in other intimate relationships (Mikulincer & Shaver, 2004). Individuals' parents play several roles in their lives such as caregivers, playmates, attachment figures, teachers, and disciplinarians (Benoit, 2004). However, of all these, the parent's role of an attachment figure is probably the most crucial in influencing the emotional and social functioning of their children (Kaur, 2022).

Parenting styles are characterised by the behaviours and attitudes parents express, which establish the emotional ambience for communication between them and their children and impact child development (Siegler *et al.*, 2006). Parenting styles are classified into three types: authoritarian, permissive, and authoritative. Authoritarian parents are generally more demanding and display low levels of warmth, whereas parents with a permissive style are less or not demanding and display high levels of warmth (Siegler *et al.*, 2006). Comparatively, authoritative parents are as demanding as they are warm, and this parenting style has been associated with positive romantic relationships in early adulthood (Dinero *et al.*, 2008). Moreover, authoritative parents who exhibit characteristics such as drawing healthy boundaries, demandingness, discipline, and both emotional and physical availability must practice these values starting from childhood into adolescence as they can contribute towards a secure attachment between children and their parents (Dinero *et al.*, 2008).

Sibling attachment

Research on attachment relationships suggests that children may direct attachment behaviour to multiple family members, including siblings (Ainsworth, 1967). Numerous studies have investigated attachment with peers and parents/guardians, and their impacts on romantic relationships (Pietromonaco & Beck, 2015; Simpson & Rholes, 2012). However, it is imperative to broaden horizons and focus on sibling attachment relationships as well, especially as most of the world's population have siblings (Milevsky, 2011). Attachment behaviours frequently change from parents to friends/peers and siblings while transitioning from childhood to adolescence (Buist *et al.*, 2002). Growing evidence emphasises siblings' effects on one's behavioural development and future relationships (Conger *et al.*, 2009). Like the bond with parents, the bond between siblings is regarded as an attachment bond as they provide each other comfort, support, security, and closeness (Cassidy, 1999; Doherty & Feeny, 2004).

Siblings typically spend more time with each other than with anyone else, including friends and parents (Sanders, 2017). Cultural orientations and values of familism have been found to play a role in sibling attachments. Individuals brought up in households with strong familism values consider their families to be important and acknowledge an obligation to their families (Germán *et al.*, 2009). Familism values promote intimacy and communication frequency between siblings, ultimately enhancing their relationship (Killoren *et al.*, 2004). Additionally, sisters were found to possess more caregiving and emotionally supportive behaviours whereas brothers demonstrated more dominant attitudes towards their siblings (Gungordu & Hernandez-Reif, 2020).

Recent research on retrospective sibling relationships reports siblings to be the most crucial developmental influences an individual can have. They impact the attainment of interpersonal skills, sensitivity, adjustment, and cognitive and emotional development (Kramer 2014; Prime *et al.*, 2014). Kosonen (1996) stated that approximately 83% of children consider their siblings as some of the most valuable and important people in their lives. These influential and unique bonds tend to be some of the most enduring, stable, and long-lasting relationships. They may outlast one's alliances with their partners, parents, and even their children in some cases (Gungordu & Hernandez-Reif, 2020; Robertson *et al.*, 2014). Furthermore, it was found

that sibling relationships have the potential to be as strong as parent or peer relationships (Whiteman *et al.*, 2015). Sibling relationships evolve and change over different stages of development and do not remain the same throughout life (Goetting, 1986). As siblings develop, they have many engagement opportunities for different interactions. As they spend most of their time together outside school, there are opportunities for learning in the context of identity formation, social skills, distress tolerance, and conflict management (Kramer, 2010).

In a study where 21 siblings were interviewed, it was found that siblings may depend on each other for support and share tough experiences when parents/guardians are not available or approachable (Bryant, 1992). Shared experiences and self-disclosure between siblings during childhood may enhance their overall emotional regulation and emotional understanding (Noller, 2005). Children tend to increase the understanding of their own emotions and others' emotions when they can acknowledge and describe their internal states and improve skills for emotional regulation (Lam, McHale & Crouter, 2014). Due to siblings' availability and companionship, over time they may become social-relational partners (Whiteman *et al.*, 2015). In adulthood, healthy sibling relationships are built on open lines of communication, increased warmth, decreased proximity, abiding by clean fighting rules, and the development of proper boundaries in childhood (Lam *et al.*, 2014). This is partly related to the developmental processes of transitioning into adulthood, such as moving out of the family home, commencing employment, pursuing higher education, and concentrating on relationships outside of one's family (e.g., friends, romantic partners) (Conger & Little, 2010).

Sibling relationships may be emotionally charged, frustrating, and call for the development of skills to promote healthy interactions (Kramer *et al.*, 2019). Sisters, people with a younger sibling, and women indicating a close relationship with their sister, report having the most positive experience with siblings (Spitze & Trent, 2006). Research emphasised that siblings expressed increased levels of trust in sibling relationships based on warmth. Siblings are more likely to disclose personal information when there is an increased feeling of security between them (Howe *et al.*, 2011). It was also found that siblings display stronger attachments in the absence of a romantic relationship (Doherty & Feeny, 2004), however, sibling relationships may still be perceived as meaningful and close even if there is a decrease in communication frequency (Hamwey *et al.*, 2019).

Despite being renowned for warmth and support, sibling relationships can also be tumultuous and involve conflict. A certain degree of conflict in sibling relationships is considered typical (Stocker *et al.*, 2002). Lower levels of conflict and everyday interactions are indicative of intelligent reasoning techniques, positive social learning, and negotiation skills to help resolve conflict in other areas of life (Howe *et al.*, 2002). However, extended conflict can detrimentally affect one's mental health, important relationships, and overall wellbeing. According to Kramer *et al.* (2019), siblings who encountered differing treatment from their parents without any credible explanation, including partiality/favouritism by one or both parents, had higher levels of rivalry and conflict among themselves during childhood (Kramer *et al.*, 2019). Children raised in dysfunctional families and conflictual homes where issues are escalated rather than solved are at a higher risk of suffering poor adjustment into their adulthood, impacting romantic relationships (Wiehe, 1997). Consequently, these children are at a higher risk for a plethora of behavioural and psychological implications (Howe *et al.*, 2002).

Negative and controlling parent-child relationships are correlated to hostility and aggression in sibling relationships (Dunn, 2002). Children with secure attachment to parents were found to have more healthy/positive relationships with siblings compared to children with insecure attachment to their parents (Volling & Belsky, 1992). Siblings have also been found to be protective factors in constantly changing environments (Szymańska, 2021). Additionally, partial evidence suggested that respect and acceptance towards siblings may be linked to lowered depressive symptoms, anxiety, and other somatic difficulties (Walęcka-Matyja, 2018). Furthermore, the quality of sibling bonds seems to influence general perceptions of health, and romantic relationship satisfaction (Palmer, 2017)

Romantic Relationships

The theory of lifespan development highlights the imperative task of accomplishing interpersonal intimacy and choosing a long-term partner between 18 to 40 years (Erikson, 1963; Cantor *et al.*, 1992). Consequently, this leads to the discourse on young adults' romantic relationships, a subject that has increasingly been of interest in the psychology field (Fincham & Cui, 2011; Scharf & Mayseless, 2001). Romantic relationships are characterised in terms of the

aspects of the relationship and do not have a unidimensional definition (Crockett & Randall, 2006). Bonds between individuals that involve physical and emotional sentiments of love, reciprocity, commitment, and intimacy are referred to as romantic relationships (Hendrick, 1988). Research also suggests that romantic relationships may include, but are not confined to, marriage, dating, living together, and engagement, among other things (Vaughn & Baier, 1999).

Building and maintaining strong romantic bonds promotes wellbeing and health, whereas failing to do so may be a predictor of physical and emotional difficulties (House *et al.*, 1988). Romantic relationships typically begin in adolescence, the time of self-exploration and identity and continue into adulthood. Maintenance of romantic relationships is an imperative task that can have positive impacts on young adults' behavioural adjustment, social competency, and psychological wellbeing (Davila *et al.*, 2017). This may play a predictive role for the framework of future relationships (e.g., marriage). It is important to consider the role of quality and satisfaction in romantic relationships. Quality and satisfaction in romantic relationships are influenced by several variables such as the degree of commitment, presence of role complementation, amount of disclosure, and overall happiness and emotional contentment (Moss & Schwebel, 1993).

Whether romantic relationships' quality improves or deteriorates as they progress is dependent on the presence of satisfaction between the individuals involved. Lund (1985) stated that quality of romantic relationships, including satisfaction, commitment, and love, is increased over time. Sprecher (1999) also reported high levels of quality and satisfaction in romantic relationships when they begin, however, as the relationship continues and people get older, these characteristics tend to deteriorate and may lessen in intensity (Sprecher, 1999). Studies accounting for heightened romantic quality are not in line with the findings of Cumming and Henry (1961), who reported that with age, romantic relationships are likely to become less satisfying. Overall, level of romantic relationships' quality was found to be high in the beginning stages and become moderate over time.

The intensity of the positive and negative emotions exhibited in sibling and romantic relationships is a distinguished feature of both bonds (Seiffge-Krenke & Connolly, 2010). Relationships with siblings are non-selective, and those closer in age generally have better understanding and communication as they experience developmental challenges in similar

surroundings (Seiffge-Krenke & Connolly, 2010). Sibling bonds and romantic relationships have been regarded as congruent or compensatory. The skills and social support that siblings shared during childhood can enhance their capacity to create good quality romantic relationships in later stages of life (Robertson *et al.*, 2014).

Similar to any other relationship, romantic relationships may also have conflict. Efficiently resolving conflict with siblings in childhood can equip individuals with the skills they require to resolve romantic conflict (Updegraff *et al.*, 2002). Repeated sibling disputes, followed by effective resolutions, can improve one's capacity to handle disputes in other relationships, especially romantic ones. Power and dominance can be used to resolve conflicts and disagreements between siblings, without terminating their relationship (Laursen *et al.*, 2001), however, conflict in a romantic relationship entail balancing the interests of the people involved to maintain the alliance. Hence, couples' social skills acquired from childhood or attachments from early life can play a crucial role in helping couples maintain a balance of power in romantic relationships. Additionally, the lack of skills to settle disagreements raises the risk of repeated violence and conflict among romantic partners (Sadeh *et al.*, 2011). Therefore, the ability to successfully resolve conflict is imperative in maintaining healthy romantic relationships.

Impacts of Attachment on Relationships

The cognitive, affectional, and behavioural dynamics that individuals learn with siblings, parents, and family during the early stages of life can be displayed in important relationships outside the family environment, such as romantic relationships and friendships (Simpson, 1990). Securely attached individuals reported ease in establishing intimate relationships and enjoying loving and enduring romantic relationships (Meyer & Pilkonis, 2001). Individuals with secure attachment styles usually report bonding with romantic partners who have similar levels of security, describe comfort with intimacy, and experience low anxiety regarding their romantic relationships. Furthermore, they demonstrate heightened trust, interdependence, commitment, and are more likely to report greater satisfaction in romantic relationships when compared to individuals with avoidant or anxious attachment styles (Robertson *et al.*, 2014).

On the contrary, individuals who are avoidantly attached, experience difficulties attaining closure with others. The lack of disclosure has been proven to impact both romantic and social relationships (Mikulincer & Nachshon, 1991). Due to anticipated refusal or rejection from their romantic partners, individuals with avoidant attachment are more inclined to downplay their attachment needs. Whereas anxiously attached individuals find it less difficult to fall in love, they may develop romantic relationships that are marked by emotional mood swings and misery (Brennan & Shaver, 1995). When there is a lack of attention from their romantic partner, anxious individuals' attachment system could be hyper-activated (Stevens, 2017). Furthermore, any fears of being abandoned, a longing for enmeshment, and the perceived lack of intimacy with their romantic partners may cause anxiously attached individuals to experience frustration (Weger, 2006). Among the three attachment styles mentioned above, individuals with secure attachment styles have been most likely to report better quality and high satisfaction in romantic relationships (Stackert & Bursik, 2003).

Furthermore, early familial experiences can forge lifelong impacts on individuals' romantic relationships, even when individual elements, such as personality characteristics are considered (Cusimano & Riggs, 2013). Stable and positive family atmospheres allow individuals to build positive and strong interpersonal styles that later carry over into romantic relationships (Ackerman *et al.*, 2013). Studies report that organised, cohesive, and warm family environments assist individuals in developing constructive communication skills and lowered animosity. This has been linked to improved functioning, and fewer difficulties in conflict resolution in romantic relationships (Girme *et al.*, 2021). Essentially, the likelihood of individuals forming satisfying and close romantic relationships is increased as a consequence of being exposed to positive family atmospheres with parents and siblings (Masarik *et al.*, 2013).

Utilising efficient parenting techniques such as acceptance, constructive criticism, discipline, and inductive reasoning may promote appropriate and healthy reciprocal communication in children (Gavita *et al.*, 2013), increasing the chances of healthy sibling communication. These factors have also been reported to later apply to romantic partners. Additionally, individuals' ability to stand up for their rights and negotiate considerately with siblings assists them in developing skills to negotiate power dynamics, which could have direct impacts on their romantic relationships' quality (Doughty *et al.*, 2015). Individuals exposed to

positive and supportive relationships with parents and siblings demonstrate greater comfort and confidence in their ability to rely on romantic partners (Richter, 2013). Therefore, exposure to positive, cohesive, and organised family environments enhance the likelihood of individuals establishing satisfying and healthy romantic relationships (Aloia & Solomon, 2015).

In comparison, family conflict and dysfunction increase the risk of poor outcomes in intimate relationships, in addition to lowered proficiency in conflict resolution (Maleck & Papp, 2015). This in turn reduces the chances of individuals engaging in romantic relationships. Furthermore, inefficient parenting styles such as harsh, overprotective, or abusive parenting could emphasise the role of using controlling behaviours or actions to solve problems. Consequently, this may lead children to engage in unhealthy behaviours with future romantic partners during conflict; essentially, promoting hostility in their romantic relationships and substantially reducing relationship quality (Parade *et al.*, 2012).

The theory of attachment argues that long-term romantic relationships are basically attachments that provide all the individuals involved with benefits (Ainsworth, 1989; Bowlby, 1969). Attachment goes beyond childhood, continuing in adulthood and is observable in the way other relationships are developed and maintained (Feeney, 2008). Romantic relationships that involve love, mutual respect and engagement, and commitment have better stability and contribute to positive psychological outcomes (Gómez-López *et al.*, 2019). Such relationships are also less likely to end. As romantic relationships evolve over time, functions of caregiving and attachment systems become more important in helping the relationship persevere, especially in situations where there is a reduction in sexual interest (Birnbaum *et al.*, 2006).

Sibling Research in Aotearoa New Zealand

Robertson and colleagues investigated the relationship between romantic relationship satisfaction and sibling attachment in the Aotearoa context (Robertson *et al.*, 2014). This study recruited undergraduate students in Aotearoa and used the Relationship Assessment Scale (RAS) to evaluate the quality of their romantic relationship. The Sibling Relationship Questionnaire (SRQ) was sent to the participants, which retrospectively assessed the attachment with their siblings in adolescence (Robertson *et al.*, 2014). This study tested whether there was a positive

relationship between perceived quality of romantic relationship and sibling relationship during adolescent years, if birth order affected romantic relationship satisfaction, and finally if duration of the romantic relationship influenced its satisfaction (Robertson *et al.*, 2014).

The results reported that younger siblings described their romantic relationships as satisfying more than older siblings did (Robertson *et al.*, 2014). This finding was explained with previous research which suggested that younger siblings have lower expectations of satisfaction in their relationships, which leads to them perceiving romantic relationships as more satisfying in comparison to older siblings (Robertson *et al.*, 2014). Furthermore, other studies suggest that older siblings tend to become attachment figures for their younger siblings and do not typically require an attachment figure for themselves (Bank, 1992; Dunn & Kendrick, 1982). This influences the degree to which one can develop secure attachment in future romantic relationships.

The study did not find substantial correlations between retrospective attachment with siblings and satisfaction in romantic relationships. However, it is important to note that there are no prior studies examining this association and this study had a small sample size (Robertson *et al.*, 2014). Nevertheless, the study found significant correlations between relationship length, birth order, and the RAS (Robertson *et al.*, 2014). It was found that romantic relationships that exceeded a 24-month period reported significantly increased satisfaction when compared to relationships that were shorter than 24 months, which revealed lower levels of satisfaction (Robertson *et al.*, 2014).

Kaur (2022) examined the relationship between romantic relationship satisfaction and sibling, paternal and maternal attachment in childhood (0-11 years). Results from this study reported that individuals with strong sibling attachments during childhood experienced higher satisfaction and quality in future romantic relationships (Kaur, 2022). Findings were explained in terms of the attachment theory, where positive encounters with attachment figures (e.g., parents or siblings) could lead individuals to develop positive outlooks towards themselves and other social relationships (Mikulincer & Shaver, 2012).

Moreover, sibling attachment was the highest and only predictor of future romantic relationship satisfaction when compared to paternal and maternal attachments. However, warmth in sibling relationships predicted reduced romantic relationship quality (Kaur, 2022). Previous

research suggested that warm sibling relationships may lead individuals to become romantically involved with partners who demonstrate high levels of autonomy and power (Dunn, 1983). Romantic partners exhibiting significantly higher social confidence and interpersonal skills may be perceived as threatening or intimidating by some individuals, negatively impacting the level of relationship satisfaction (Hollifield & Conger, 2015). Sibling conflict had high correlations with romantic satisfaction, aligning with past research that reported how successful conflict resolution with siblings enhances individuals' negotiation and communication skills that carry over to romantic relationships in the future (Kramer, 2010; Kaur, 2022). Finally, there were no significant associations between power and rivalry in sibling relationship and future romantic relationship quality, but the sample size was too small to make meaningful generalisations (Kaur, 2022). Robertson *et al.* (2014) and Kaur (2022) both asserted that sibling attachments can have a role in affecting the levels of satisfaction in romantic relationships and appealed for more data.

The Present Study

A recent nation-wide survey found that 6 out of 10 families in Aotearoa have children in their homes, and around 60% of these households have two or more children (Statistics NZ, 2020). This demonstrates that more than half of Aotearoa homes contain siblings, yet sibling attachment remains a neglected area (Kaur, 2022). Peer and parent-child relationships have been repeatedly reported to impact romantic relationships. Hence, sibling relationships have high chances of being influential (Cohn *et al.*, 1992; Crockett & Randall, 2006; Dunn, 2000). Compared to parents, siblings spend more time with each other, (Kramer, 2010; Cox, 2010), yet the impact of early life sibling attachment on parental attachment and romantic relationships have received limited attention. This emphasised the need for exploring the correlation between sibling and parental attachment and later romantic relationships' quality (Brumbaugh, 2017; Donnellan *et al.*, 2005; Robertson *et al.*, 2014). There are several factors to investigate for sibling attachment (e.g., different dyads, structure of families), however, assessing sibling and parental attachment during childhood was of special interest. This led to the proposition of the following research question: "Does sibling attachment mediate the effects of parental attachment on future romantic relationships?"

The objective of the current study was to examine the mediating effect of retrospective sibling attachment on parental attachment and current relationship quality. Previous studies have focused on the impact's parental and sibling relationships in adolescence (13-18 years) have on romantic relationships (Creasey, 2002; Robertson *et al.*, 2014). To my knowledge, there are no existing studies that examined the mediating effect of childhood sibling attachment on the correlations between retrospective parental attachment and adult romantic relationship quality. To contribute to research on sibling attachment in childhood, the age group of 0-11 was chosen. Significant attachments are created during these formative years, where there is substantial communication with parents and siblings. During these ages (0-11), children complete kindergarten, begin and complete primary school in Aotearoa, and most children gain an understanding of the significant relationships in their lives (Shepherd *et al.*, 2021).

In the present study parents are defined as caretakers, legal guardians, and any individual(s) who raised the participant. This not only included biological parents, adoptive parents, stepparents, and foster parents but also grandparents, friend of a parent, uncles, and aunts. For a thorough investigation of parental attachment, this study assessed maternal and paternal attachment independently. Additionally, the definition of siblings included adopted siblings, half-siblings, stepsiblings, and anyone that shared one or both parents biologically or by law. Adoptive siblings do not share biological parents but are connected through legal ties and marriage, whereas stepsiblings and half-siblings may have one biological parent in common. Despite the huge prevalence of biological siblings, a growing proportion of siblings are categorised as adopted siblings, half-siblings, or stepsiblings (Cicirelli, 1995). Hence, including all types of siblings in this study was deemed appropriate. As participants are likely to have more than one sibling, they were requested to complete the questionnaire based on the relationship they shared with the sibling closest to them in age. The reason behind this was because siblings with a smaller age gap have a greater opportunity for influence as they spend more time with each other and interact more (White & Hughes, 2017).

Hypotheses

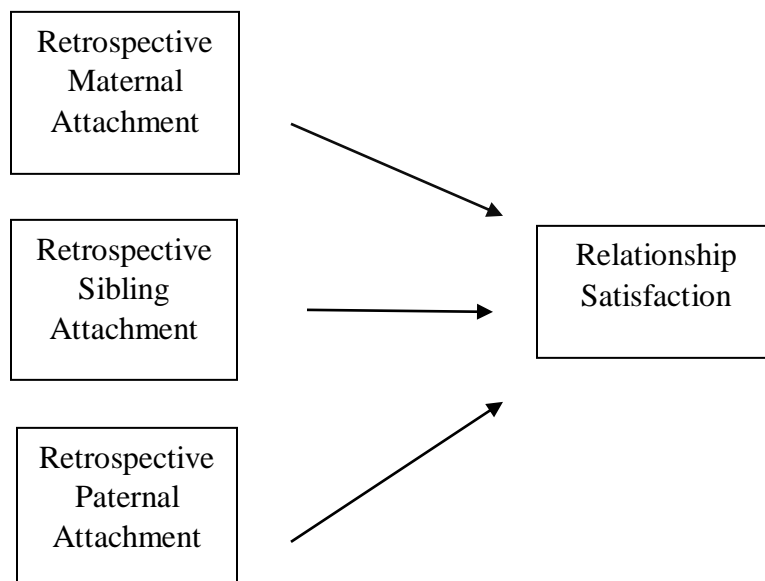
The quality of romantic relationships is subjective in nature, hence, measuring it directly is not likely. However, it can be deduced based on the degree of satisfaction present in a relationship (Hendrick, 1988). Levels of satisfaction in romantic relationships are an important predictor of progression or termination of the relationship. Similarly, assessing the quality of sibling and parental attachment directly is also difficult, due to its subjective nature. Hence, the present study will administer two self-report measures to participants. The Inventory of Parent and Peer Attachment – Revised (IPPA-R) evaluates retrospective sibling, paternal and maternal attachment in childhood (Armsden & Greenberg, 1987), and the Experience in Close Relationships – Revised (ECR-R) will be utilised to assess adult romantic relationships' quality or satisfaction (Fraley *et al.*, 2000). However, due to the nature of this scale, higher ECR-R scores indicate lower romantic relationship quality and satisfaction, whereas lower scores suggest higher romantic relationship quality and satisfaction. As a result, the present study tested a few hypotheses relevant to the research question – Does sibling attachment mediate the effects of parental attachment on future romantic relationships?

Bowen's theory of family systems explains that adults come into romantic relationships with varying degrees of emotional intelligence based on the emotional climate of their own families (Bowen, 1978). Families are an important training ground for individuals' romantic relationships (Tallman *et al.*, 1998). Dynamics learnt in peer and parental relationships can be exhibited in other significant relationships, especially romantic ones (Ackerman *et al.*, 2013). The emotional ties and behavioural dynamics of sibling attachments can influence an individual's relationships and development just as much (Crockett & Randall, 2006). Furthermore, research emphasises sibling attachment's compensatory nature in families that lack positive or adequate parental attachment (Rebar *et al.*, 2020). Due to the uniqueness and significance of sibling and parental attachments in an individual's life it was hypothesised that sibling, paternal and maternal attachments would independently have negative correlations with the ECR-R scores. Due to the negative framing of questions in the ECR-R, higher scores on this scale indicate decreased romantic relationship quality and satisfaction. Hence, this hypothesis suggests positive correlations between sibling and parental attachment, and the quality of future

romantic relationships. Figure 1 represents the model of this hypothesis; however, the Anxiety and Avoidance dimensions of the ECR-R were explored separately in path analyses.

Figure 1

Hypothesised model of early life attachments and romantic relationship quality

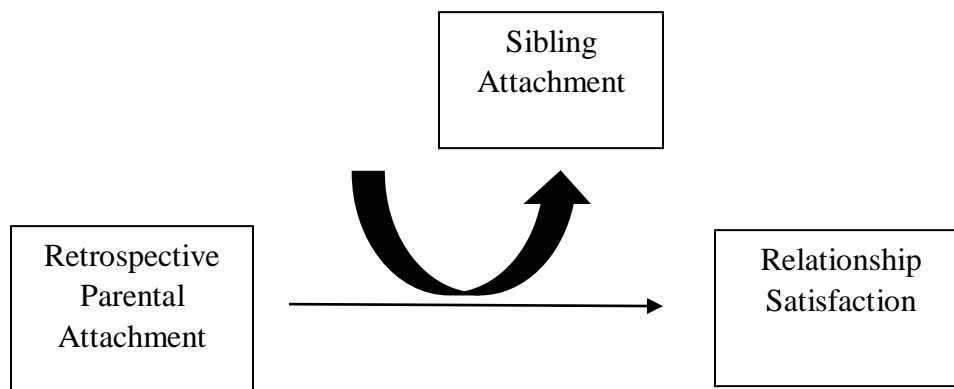


Apart from parents, sibling could also help develop attachment systems, thereby serve as attachment figures (Brumbaugh, 2017). Compared to other relationships, sibling attachments vary due to availability, proximity, and companionship, in addition to becoming social-relational partners (Whiteman *et al.*, 2015). Considering that 80-90% of the world population grow up with siblings, it appears that positive sibling attachments should also be regarded as potential buffers against stress brought on by life events (Cicirelli, 1980). Jenkins and Smith (1990) stated in their cross-sectional study that positive sibling relationships could be protective in homes with high marital conflict. This study found that children living in homes with high marital conflict were at the risk of experiencing emotional difficulties, however, that was compensated for by positive sibling relationships (Jenkins & Smith, 1990). This suggests that siblings may serve as sources of support during stressful times. Therefore, it was hypothesised that sibling attachment would have

significant negative correlations with the Anxiety and Avoidance scores of the ECR-R scale. This meant that positive sibling relationships would mediate the relationship between parental attachment and romantic relationship satisfaction and serve as buffering variables in this research. Figure 2 represents the hypothesis model, however, Avoidance and Anxiety in relationships were explored separately in path analysis.

Figure 2

Hypothesised model of sibling attachment acting as a buffer between parental attachment and romantic relationship quality



This research will be one of the few studies in Aotearoa that examined the impact of early attachment with siblings and parents on the quality of romantic relationships in later life. The findings of this study may help increase the amount of literature relevant to young adults and shed light on and guide future studies around parent-child and sibling attachment.

Method

Participants

For the present study data were collected from a convenience sample of 151 undergraduate and postgraduate students (76.8% females, 23.2% males). Participation in the study was voluntary, and the inclusion criteria required participants to be at least 18 years old and have at least one sibling. Participant ages ranged from 18 to 60 years, with a mean age of 23.4 years ($SD = 7.46$). Participants identifying as New Zealand European dominated (37.1%), while 11.3% of the participants identified as multi-ethnic (i.e., belonging to more than one ethnicity), and 2.6% identified as Māori. Table 1 below presents the demographic data of the participants included in the current study.

Table 1

Demographic information of participants in the study (N = 151)

Category	N	%
Participant Gender		
Male	35	23.2
Female	116	76.8
Participant Ethnicity		
New Zealand European	56	37.1
Māori	4	2.6
Pasifika	11	7.3
Asian	32	21.2
LMA*	8	5.3
Other	22	14.6
Multi-ethnic	17	11.3
Residual	1	0.7

Note. * Latin American/Middle Eastern/African

Of the 151 participants, 138 had at least one sibling. The nearest sibling's age range spanned from 1 to 58 years, with the mean age being 23 years ($SD = 9.29$). Of the 138 siblings, 86 were female, and 52 were male. Over 67% of the sample were raised in two-parent homes as a nuclear family, with their biological parents who were in committed relationships or married. Furthermore, 115 of the 151 participants reported engagement in romantic relationships, and only 5 participants had open relationships. Finally, they answered questions regarding a previous or current romantic relationship. Table 2 displays the demographic information of participant's romantic relationships, families, and siblings.

Table 2

Demographic information regarding romantic relationships and families of participants
($n = 151$)

Category	n	%
Sibling Status		
Has Sibling(s)	138	91.4
No Siblings	13	8.6
Sibling Gender (nearest in age)		
Male	52	37.7
Female	86	62.3
Relationship with sibling (nearest in age)		
Full Biological Sibling	124	89.9
Half Sibling	11	8.0
Step Sibling	1	0.7
Adoptive Sibling	1	0.7
Missing	1	0.7
Childhood Living Situation		
Nuclear Family	102	67.5
Only Biological Mother	14	9.3
Only Biological Father	2	1.3
Shared Care	18	11.9
Biological Mother and Stepfather	7	4.6
Biological Father and Stepmother	2	1.3
Adoptive Parents	2	1.3
Other	4	2.6
Biological Parents Relationship		
Married	107	70.9

Divorced	22	14.6
Separated	14	9.3
Never Married	6	4.0
Unknown	1	0.7
Other	1	0.7
Participant's Acting Mother in Childhood		
Biological Mother	134	88.7
Stepmother	1	0.7
Adoptive Mother	2	1.3
Grandmother	6	4.0
Aunt	1	0.7
No One	5	3.3
Other	2	1.3
Participant's Acting Father in Childhood		
Biological Father	116	76.8
Stepfather	4	2.6
Adoptive Father	1	0.7
Grandfather	7	4.6
Uncle	2	1.3
Family Friend	1	0.7
No One	19	12.6
Other	1	0.7

Measures

The questionnaire utilised in this study consisted of two previously developed and psychometrically validated scales: the revised version of the Inventory of Parent and Peer Attachment, and the revised version of the Experience in Close Relationships Questionnaire (*re: Appendix B*)

Inventory of Parent and Peer Attachment – Revised

The Inventory of Parent and Peer Attachment – Revised (IPPA-R) was used to assess retrospective sibling, maternal and paternal attachment between the ages of 0-11 years. The IPPA was initially developed to assess the positive and negative impacts in significant relationships with peers and parents to gauge the degree of psychological security that these attachment figures could offer (Armsden & Greenberg, 1987). Dimensions including quality of communication, anger, mutual trust, and alienation were measured by this scale. The original version of the IPPA comprised of 25 attachment items for peers and 28 items for parents. The

revised version (IPPA-R) used in this research separated the parental attachment measure into paternal and maternal attachment measures, which resulted in 25 items each subscale (Gullone & Robinson, 2005). Additionally, modifications were made to the peer attachment scale by changing the word ‘peer’ to ‘sibling’ to investigate sibling attachment instead of peer attachment.

The IPPA-R is a self-report measure in which participants are required to rate the extent to which each statement is true for them on a 5-point Likert scale, with answers ranging from almost never or never true (1) to almost always or always true (5). Numerical values assigned to each item were summed to find the total scores for all three subscales independently. Scores on each attachment scale were between 25 (less attachment) and 125 (higher attachment), where higher scores indicated higher levels of attachment and better relationship quality (Gullone & Robinson, 2005). Due to negative framing of questions, several items from the paternal and maternal attachment measure needed to be reverse coded when data was being conditioned.

Pervious research that assessed psychometric properties of the IPPA-R reported it to have strong reliability and Cronbach’s alpha (α_c) of .92 (peer attachment), $\alpha_c = .87$ (maternal attachment), and $\alpha_c = .89$ (paternal attachment) (Gullone & Robinson, 2005). Additionally, the IPPA-R has been acknowledged as a psychometrically sound measure as it has moderate to high associations with the Family Environmental Scale and other comparable instruments.

Experience in Close Relationships – Revised

The Experiences in Close Relationships – Revised (ECR-R) scale comprised of 36 items that assessed the style of attachment in current romantic relationships (Fraley *et al.*, 2000). This self-report measure assessed individuals on two subscales of attachment in romantic relationships: Anxiety and Avoidance. The Anxiety subscale included 18 items (e.g., “I am afraid that I will lose my partners love”) and assessed individuals’ anxiety about their relationship, relationship participation, fear of abandonment, and the frequency of seeking care and attention from their partner. The Avoidance subscale also contained 18 items (e.g., “I do not feel comfortable opening up to romantic partners”) and assessed issues with forming an intimate relationship with their romantic partners and general uneasiness with intimacy (Fraley *et al.*, 2000).

Both subscales employed a 7-point Likert scale with response ratings ranging from (1) ‘strongly disagree’ to (7) ‘strongly agree’, and both required participants to rate their perceptions about their previous or current romantic relationship. To attain scores, Items 1-18 were averaged for the Anxiety subscale and Items 19-36 were averaged for the Avoidance subscale (Fraley *et al.*, 2000). Higher scores on the ECR-R indicated lower romantic satisfaction, whereas lower scores indicated higher satisfaction. Both the Anxiety and Avoidance subscales of the ECR-R have exhibited high internal validity ($\alpha_c = .90$) in previous research (e.g., Busonera *et al.*, 2014). Furthermore, external validity has been supported through correlations with comparable measures that assess psychopathology, adult attachment, personality, and relationship satisfaction (e.g., Fairchild & Finney, 2006).

Procedure

Participants were recruited from several postgraduate and undergraduate health science programmes at the north shore campus of the Auckland University of Technology (AUT). The aim of the research project was announced in lectures, and questionnaires were handed out to students. The eligibility criteria were that participants had at least one sibling and were over the age of 18. Participants were required to answer questions about their sibling and parental attachment between the ages of 0 and 11, in the IPPA-R. This was done to attain retrospective evaluation of attachment quality. Participants with two or more siblings were instructed to base their answers on the sibling closest in age, assuming that these two siblings would have the most interactions. Next, participants that answered the ECR-R questions about a former relationship, were asked to respond in accordance to how they felt during the relationship.

Instructions were explained verbally, emphasising the inclusion criteria and the importance of answering demographic questions along with the rest of the questionnaire (*re*: Appendix B). Participant information sheets (*re*: Appendix A) were distributed simultaneously with the questionnaire, and students were given instructions on how to answer individual scales in the questionnaire. Participants were given the option to withdraw from the research at any point without any consequences prior to handing back the questionnaire, as removal after that would be impossible due to the anonymous nature of the questionnaire. Completing the

questionnaire took around 15-20 minutes, and data was collected across four weeks. A total of 151 participants completed the questionnaire sufficiently, and data was analysed using their responses.

Data Analysis

The data for the current study was first downloaded as an Excel spreadsheet from where it was imported into the Statistical Package for the Social Sciences (SPSS v. 25). Here, the data were conditioned (e.g., certain items were reverse coded) and composite variables were computed. After scrutinising data to make sure test assumptions were met, several statistical analyses investigating the correlations between sibling attachment, parental attachment, and romantic relationships were performed. Initial analyses included computing descriptive statistics, constructing summated scales, evaluating reliability of the two key scales used in this study, and performing path analyses.

The descriptive statistics of the sample were computed and was followed by the computation of Cronbach's alpha to assess scale reliability of composite variables. Coefficients over $\alpha_c = .70$ were considered as acceptable Cronbach's alpha values. Next, the strength of correlations between the three instruments was examined using Pearson product-moment correlation coefficients to determine the strength (i.e., r) and significance (i.e., p) of bivariate relationships between variables. Correlations were interpreted based on Cohen's (1988) guidelines for effect size, where correlation coefficients from .10 to .29 signify a weak association, coefficients over .30 represent a moderate correlation, and coefficients with an effect size of .50 or above represent a strong association. Correlations with the probability value of $p < .05$ were considered statistically significant in the current study.

Furthermore, to examine whether the links between retrospective parental attachment and romantic relationship quality were moderated by retrospective sibling attachment, path analyses were conducted. Six path analyses were performed with all analyses assigning scores of the ECR-R scales (Anxiety and Avoidance) as outcome variables. The first two analyses deployed sibling, maternal and paternal attachment scores as predictors, whereas the remaining analyses entered maternal attachment only or paternal attachment only as predictors and sibling

attachment as a possible moderator. The indirect effect of parental attachment on future relationship satisfaction (the ECR-R total score) through sibling attachment was investigated using the AMOS (v. 24) add-in available with SPSS. The path analysis was undertaken using a bootstrapping process that estimated 95 % bias-corrected confidence intervals (CI) obtained using 2000 bootstrap samples.

Ethical Considerations

The research proposal for this study was approved by the Postgraduate Research committee on the 28th of April 2022. The Auckland University of Technology's Ethics Committee (AUTEC) granted approval (Appendix C) which came into effect for three years starting from the 16th of June 2021 until the 16th of June 2024.

By incorporating an information page at the start of the questionnaire, the current study ensured to obtain informed consent. The front page of the questionnaire clearly stated that completing the questionnaire would be considered as consent to participate. Since the responses were anonymous, confidentiality and privacy of participants was protected. Other than age, gender, ethnicity, romantic relationship duration, age difference with siblings, and if the sibling was older or younger than the participant, no other identifying information were collected. This research adopted the traditional 'positivist' quantitative approach, where researchers are considered as 'experts'. This may not align with the Treaty of Waitangi's three principles: partnership, protection, and participation. The vocabulary used in the questionnaire and participant information sheet were modified to avoid phrases and academic jargon that laypersons may not comprehend. This was done to prevent patronising the participants and keep the research as collaborative and inclusive as possible. This may help lessen the perception that the researcher holds the position of 'expert'.

Results

Preliminary Analyses

The descriptive statistics for the five subscales utilised in this study are displayed below in Table 3. This includes the total number of scale items, Cronbach's alpha coefficient (α_c), mean (M), and standard deviation (SD). The Cronbach's alpha value for all five subscales was above .80 suggesting excellent internal consistency. Overall, both the IPPA-R and ECR-R were reliable and exhibited adequate internal consistency.

Table 3

Descriptive statistics for each of the scales that were summated in the Inventory of Parent and Peer Attachment – Revised (IPPA-R), and Experiences in Close Relationships Questionnaire – Revised (ECR-R), including the Cronbach's alpha (α_c) values.

Scale	Number of Items	M	SD	α_c
IPPA-R	75			
Maternal Attachment	25	94.60	16.60	.83
Paternal Attachment	25	83.22	22.73	.91
Sibling Attachment	25	89.71	21.03	.93
ECR-R	36			
Avoidance	18	49.35	19.84	.92
Anxiety	18	60.53	23.09	.93

Maternal Attachment Scale

Table 4 displays the descriptive statistics along with the reliability analysis for the Maternal Attachment Scale. The mean scores ranged from 2.89 and 4.47, and standard deviations ranged from 1.08 to 4.47. There was no evidence of extreme averages (i.e., ceiling and floor effects), and all items had acceptable standard deviations (i.e., not close to zero). The 'Cronbach's alpha if item deleted' column in the table depicts how every item affects scale reliability. The

Cronbach's alpha if deleted was highest for Item 20 (.80), whereas several other items had similarly low values ranging from .74 to .76. All items on the Maternal attachment scale had 'Cronbach's alpha if item deleted' values over .70, and the overall Cronbach's alpha of .83 (*re*: Table 3) was not significantly affected. Therefore, the maternal attachment scale was deemed appropriate for this study as all the items in this scale displayed sufficient internal consistency, and all items were retained in analysis.

Table 4

Individual mean (M), Cronbach's alpha if item deleted (α_c), and standard deviation (SD) for all the Maternal Attachment Scale items of the IPPA-R

Item	<i>M</i>	<i>SD</i>	Cronbach's Alpha if Item Deleted
Maternal Attachment			
Item 1	3.60	1.16	.75
Item 2	4.02	1.08	.75
Item 3*	4.29	2.65	.78
Item 4	3.86	1.26	.75
Item 5	3.39	1.32	.75
Item 6*	4.37	1.66	.76
Item 7	3.54	1.12	.75
Item 8*	4.27	1.43	.76
Item 9*	4.46	1.51	.76
Item 10*	4.18	1.36	.76
Item 11*	4.29	1.93	.76
Item 12	3.46	1.23	.75
Item 13	3.29	1.27	.75
Item 14*	4.32	1.71	.76
Item 15	3.03	1.32	.74
Item 16	2.89	1.27	.75
Item 17*	4.28	1.35	.76
Item 18*	4.38	1.29	.76
Item 19	3.00	2.04	.75
Item 20	3.54	4.47	.80
Item 21	3.18	1.30	.74
Item 22	3.85	1.34	.75
Item 23*	4.39	1.64	.76
Item 24	3.18	1.35	.75
Item 25	3.52	1.33	.75

Note. * Items were reverse scored

Paternal Attachment Scale

The descriptive statistics for the Paternal Attachment Scale, including reliability analyses, are displayed in Table 5. Item means ranged from 2.14 to 4.14, and the standard deviations were between 5.72 and 1.19. All items in this scale had adequate *SD* values, however, Item 1 had a high *SD* score, indicating that the mean might not represent the data very well. The ‘Cronbach’s alpha if item deleted’ value for Item 1 was the highest ($\alpha_c = .91$), whilst most items had equally low values ($\alpha_c = .85$). The Cronbach’s alpha values for all items in the Paternal Attachment Scale were above .70, and there were no significant influences created on the overall Cronbach’s alpha value of .91 (see Table 3). Therefore, data analysis included all items, and the Paternal Attachment Scale was deemed acceptable for this study.

Table 5

Individual mean (M), Cronbach’s alpha if item deleted (α_c), and standard deviation (SD) for all the Paternal Attachment Scale items of the IPPA-R

Item	<i>M</i>	<i>SD</i>	Cronbach’s Alpha if Item Deleted
Paternal Attachment			
Item 1	3.71	5.72	.91
Item 2	3.35	1.43	.85
Item 3*	3.94	1.31	.86
Item 4	3.46	1.29	.86
Item 5	2.75	1.37	.85
Item 6*	4.07	1.85	.86
Item 7	2.67	1.29	.86
Item 8*	3.91	1.67	.85
Item 9*	4.03	1.76	.85
Item 10*	4.07	1.60	.85
Item 11*	4.14	2.26	.85
Item 12	2.95	1.34	.85
Item 13	3.12	1.33	.85
Item 14*	4.00	1.93	.85
Item 15	2.58	1.40	.86
Item 16	2.14	1.19	.85
Item 17*	3.81	1.69	.85
Item 18*	3.85	1.63	.85
Item 19	2.38	1.31	.85
Item 20	2.73	1.37	.85

Item 21	2.80	1.41	.85
Item 22	3.49	1.43	.85
Item 23*	3.93	1.87	.85
Item 24	2.61	1.40	.86
Item 25	2.72	1.40	.85

Note. * Items were reverse scored

Sibling Attachment Scale

The descriptive statistics for the Sibling Attachment Scale, are displayed in Table 6. The mean ranged from 3.03 to 4.25, and the standard deviation ranged from 1.19 to 2.00. All items had sufficient standard deviation scores, and no extreme averages were found. The Cronbach's alpha if deleted values of all the items in the Sibling Attachment Scale were greater than .70. Since the scales overall Cronbach's alpha (.93) was not significantly influenced, all the items were included in the analysis. Overall, the scores emphasised good internal consistency levels and this scale was considered appropriate for this research.

Table 6

Individual Mean (M), Cronbach's alpha if item deleted (α_c), and standard deviation (SD) for all the Sibling Attachment Scale items of the IPPA-R

Item	M	SD	Cronbach's Alpha if Item Deleted
Sibling attachment			
Item 1	3.17	1.37	.92
Item 2	3.29	1.34	.92
Item 3	3.33	1.32	.92
Item 4*	4.02	1.33	.93
Item 5*	4.09	1.23	.93
Item 6	3.28	1.35	.92
Item 7	2.77	1.42	.92
Item 8	4.05	1.19	.92
Item 9	3.40	1.30	.93
Item 10*	4.02	1.78	.93
Item 11*	4.22	1.44	.93
Item 12	3.46	1.21	.92
Item 13	3.94	1.22	.92
Item 14	3.71	1.35	.92
Item 15	3.17	1.40	.92
Item 16	3.12	1.43	.92
Item 17	3.53	1.28	.92
Item 18*	4.17	1.50	.93
Item 19	3.14	1.48	.92
Item 20	3.96	1.25	.92
Item 21	3.71	2.00	.92
Item 22*	3.79	1.52	.93
Item 23*	4.25	1.52	.93
Item 24	3.10	1.40	.92
Item 25	3.03	1.39	.92

Note. * Items were reverse scored

Experiences in Close Relationships – Revised

The descriptive statistics for the Experiences in Close Relationships – Revised, along with the reliability analysis, are presented in Table 7. Item means for the Anxiety subscale ranged from 2.45 to 4.02, and standard deviations ranged from 1.62 to 2.15. Item means for the Avoidance subscale ranged from 2.15 to 4.06, and standard deviations from 1.45 to 2.13. All items from both subscales had adequate standard deviations. From the Anxiety scale, Items 11 and 9 had the highest Cronbach's alpha values if deleted ($\alpha_c = .93$), whereas all other items had equally low values.

Similarly, several items in the Avoidance scale had the highest and lowest Cronbach's alpha values. The 'Cronbach's Alpha if Item Deleted' values were all over .70 and did not significantly influence the overall Cronbach's alpha values for both scales. This demonstrated adequate levels of internal consistency for both subscales, therefore, the ECR-R scale was deemed acceptable for this research.

Table 7

Individual mean (M), Cronbach's alpha if item deleted (α), and standard deviation (SD) for all in the Anxiety and Avoidance Scale items of the ECR-R

Item	<i>M</i>	<i>SD</i>	Cronbach's Alpha if Item Deleted
Anxiety subscale			
Item 1	3.94	2.01	.92
Item 2	3.83	1.98	.92
Item 3	3.20	2.01	.92
Item 4	3.96	1.97	.92
Item 5	3.67	2.06	.92
Item 6	3.89	2.05	.92
Item 7	3.14	2.01	.92
Item 8	3.42	1.83	.92
Item 9*	3.94	1.98	.93
Item 10	2.47	1.74	.92
Item 11*	3.84	2.15	.93
Item 12	2.58	1.62	.92

Item 13	2.69	1.63	.92
Item 14	2.70	1.76	.92
Item 15	3.56	2.04	.92
Item 16	3.24	2.02	.92
Item 17	4.02	2.10	.92
Item 18	2.45	1.82	.92
Avoidance subscale			
Item 19	3.41	2.13	.92
Item 20*	2.63	1.69	.91
Item 21	4.06	1.98	.91
Item 22*	2.65	1.59	.92
Item 23	3.05	1.88	.91
Item 24	2.53	1.71	.91
Item 25	2.72	1.85	.92
Item 26*	2.47	1.45	.91
Item 27*	2.55	1.62	.91
Item 28*	2.41	1.60	.91
Item 29*	2.36	1.57	.91
Item 30*	2.44	1.68	.91
Item 31 *	2.27	1.46	.91
Item 32	2.75	1.78	.92
Item 33*	3.04	1.67	.91
Item 34*	3.29	1.81	.91
Item 35*	2.15	1.49	.92
Item 36*	2.56	1.54	.91

Note. * Items are reverse scored

Correlational Analysis

Sibling Attachment, Paternal Attachment, Maternal Attachment, Anxiety, and Avoidance

To analyse the relationships between variables, a Pearson product-moment correlation (r) was performed. The predictor variables included the two ECR-R subscales and the three IPPA-R subscales. The computed correlation coefficients are displayed below in Table 8. For the current study, one-tailed significance was utilised as the hypotheses were directional.

Table 8

Pearson's r between the Inventory of Parent and Peer Attachment – Revised (IPPA-R), and the Experiences in Close Relationships- Revised (ECR-R) (N=151)

Scale	1	2	3	4	5
1. Maternal Attachment	-				
2. Paternal Attachment	.52**	-			
3. Sibling Attachment	.33**	.35**	-		
4. Anxiety	-.12	-.09	-.19*	-	
5. Avoidance	-.21*	-.15	-.21*	.38**	-

Note. ** $p < .01$; * $p < .05$

Table 8 displayed that there are statistically significant, moderate, positive correlations between sibling, maternal and paternal attachment. This indicated that an increase or decrease in any of these familial attachments would likely increase or decrease the others. Furthermore, there were no statistically significant correlations between paternal attachment and both the Anxiety and Avoidance subscales, indicating that higher or lower attachment with a paternal figure is not likely to influence their attachment with a romantic partner.

Whilst there were no significant correlations found between maternal attachment and Anxiety, there was a significant, but weak negative correlation with Avoidance. This suggested that increased maternal attachment may be associated to a reduced demonstration of avoidance in romantic relationships but may not impact anxiety. In contrast, Sibling attachment had statistically significant correlations with all other variables. Sibling attachment had significant, moderate, positive correlations with maternal attachment and paternal attachment. This implies that an increase in sibling attachment may lead to an increase in paternal and maternal attachment, and vice-versa. Furthermore, sibling attachment had significant, albeit weak, negative correlations with Anxiety and Avoidance. This indicates that increased sibling attachment may be associated with reduced avoidance and anxiety in romantic relationships. Additionally, Anxiety and Avoidance both positively correlated with each other significantly, moderately but significantly, suggesting that an increase in Anxiety may lead to an increase in Avoidance.

Path Analysis

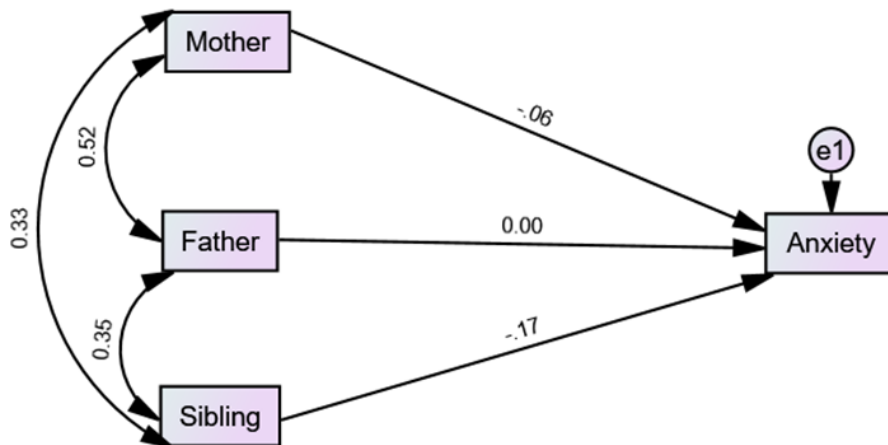
The first path analyses were performed to determine the independent effects of each predictor variable (i.e., maternal, paternal and sibling attachment) had on later romantic relationship quality (via the anxiety and avoidance subscales of the ECR-R: see Figures 3 and 6). Next, to determine the interplay between sibling attachment and both maternal and paternal attachment, four path models were tested (*re*: Figures 4, 5, 7, and 8).

Model summary for the attachment variables (independent variables) predicting Anxiety in romantic relationships:

As displayed in Figure 3, the first proposed path model was tested to investigate associations between maternal and sibling attachment and Anxiety. The standardised path coefficients (β) for all direct paths along with covariances among the predicted variables are included in Figure 3. Results from the analysis only found a significant association between sibling attachment and Anxiety ($\beta = -.17, p = .028$). This indicated that increased sibling attachment results in lowered relationship anxiety and therefore increased romantic relationship quality. Interestingly, there were no significant effects of maternal ($\beta = -.06$) and paternal ($\beta = 0$) attachment on Anxiety (both $p > .05$). The root mean square error of approximation (RMSEA) value for this model was $R^2 = .048$

Figure 3

Path model along with path coefficients for attachment variables predicting Anxiety in romantic relationships (N=151)

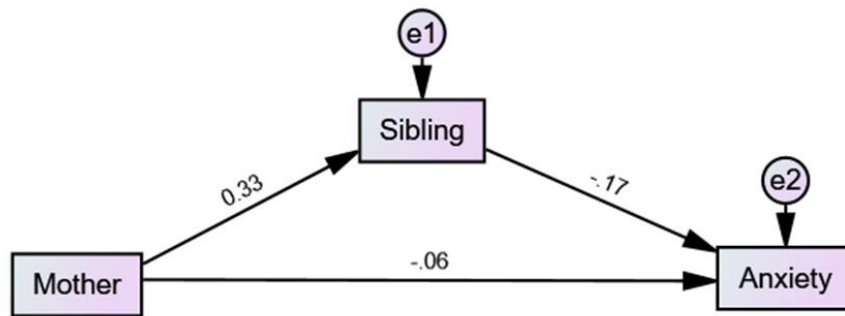


Model summary for the mediating role of sibling attachment between maternal attachment and Anxiety:

As displayed in Figure 4, the next path model was tested to examine the intervening role of sibling attachment between maternal attachment and Anxiety. The correlation matrix (see Table 8) demonstrated that maternal attachment was significantly related to sibling attachment, however, there were no significant correlation between maternal attachment and Anxiety. The standardised path coefficients for all paths are displayed in Figure 4. It was found that there was a significant direct effect between maternal attachment and sibling attachment ($\beta = .33$, $p < .001$), and a significant relationship between sibling attachment and Anxiety ($\beta = -.17$, $p = .027$). Additionally, there was no significance found in the direct path between maternal attachment and Anxiety ($\beta = -.06$, $p > .05$), but there was a significantly significant indirect effect, suggested full mediation ($p = .048$). The RMSEA value for this model was $R^2 = .052$.

Figure 4

Path model along with path coefficients for the mediating role of sibling attachment between maternal attachment and Anxiety (N = 151)

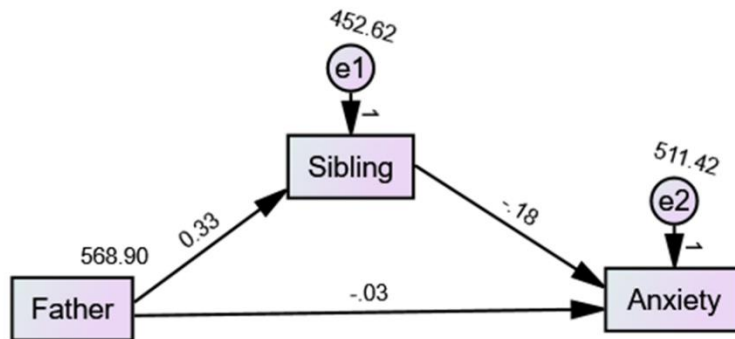


Model summary for the mediating role of sibling attachment between paternal attachment and Anxiety:

Figure 5 presents the path model tested for the mediation effects of sibling attachment between paternal attachment and Anxiety, along with path coefficients. The RMSEA value for this model was $R^2 = .045$. Significant associations were found between paternal attachment and sibling attachment ($\beta = .33, p < .001$), and between sibling attachment and Anxiety ($\beta = -.18, p = .041$). Additionally, there was no significant relationship between paternal attachment and Anxiety ($\beta = -.03, p > .05$). However, after bootstrapping, the significance level for the indirect effect was $p = .053$, hence, a mediation effect cannot be confirmed.

Figure 5

Path model including path coefficients for the mediating role of sibling attachment between paternal attachment and Anxiety (N = 151)

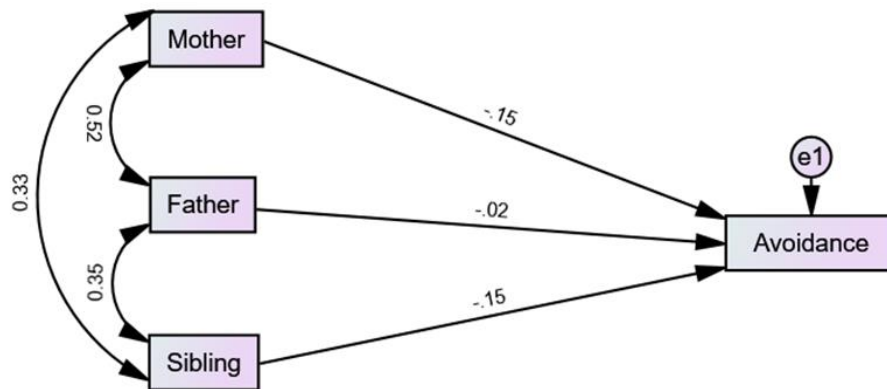


Model summary for the predictors (independent variables) explaining Avoidance in romantic relationships:

Figure 6 presents the path model applied to assess the independent effects of the attachment variables on avoidance in romantic relationships, including path coefficients and covariances among the predictor variables. The RMSEA value for this model was $R^2 = .077$. Sibling and maternal attachment were found to have significant associations with Avoidance, both $\beta = -.15$ ($p = .015$). In contrast, paternal attachment had no significant relationship with Avoidance $\beta = -.02$ ($p > .05$). This suggested that both sibling and maternal attachment significantly predict avoidance in romantic relationships, and stronger sibling or maternal attachment results in lowered avoidance. However, paternal attachment does not predict or impact avoidance in romantic relationships significantly.

Figure 6

Path model along with path coefficients for attachment variables predicting Anxiety in romantic relationships (N=151)

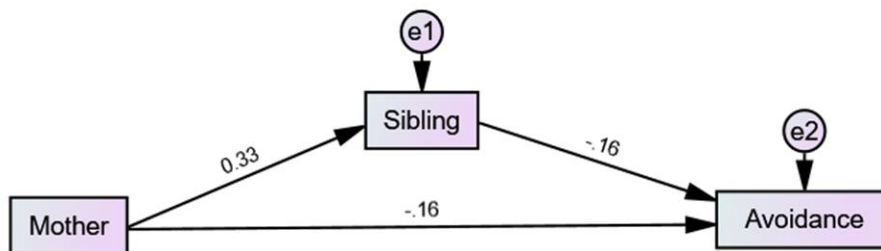


Model summary for the mediating role of sibling attachment between maternal attachment and Avoidance:

Figure 7 displays the path model that was tested to investigate the mediating role of sibling attachment between maternal attachment and relationship avoidance, including the path coefficients. Significant relationships were found between sibling and maternal attachment ($\beta = .33, p < .001$), and between sibling attachment and Avoidance ($\beta = -.16, p = .018$). Additionally, a significant association was found between maternal attachment and Avoidance ($\beta = -.16, p = .18$). A significant indirect effect was found after bootstrapping ($p = .014$). However, as the direct effect of maternal attachment on Avoidance remains significant after bootstrapping ($p = .021$), and hence partial mediation is suggested. The RMSEA value for this model was $R^2 = .085$.

Figure 7

Path model including path coefficients for the mediating role of sibling attachment between maternal attachment and avoidance in romantic relationships (N = 151)

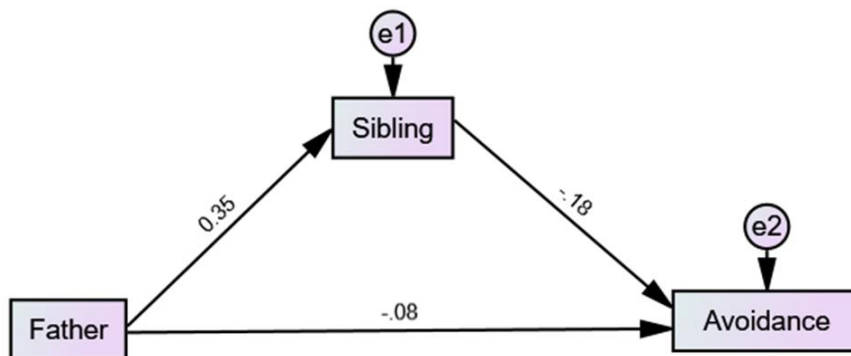


Model summary for the mediating role of sibling attachment between paternal attachment and Avoidance:

The path model examining the mediating effect of sibling attachment between paternal attachment and avoidance in romantic relationships is displayed in Figure 8, along with path coefficients. The RMSEA value for this model was $R^2 = .061$. Significant associations were found between paternal and sibling attachment ($\beta = .35, p < .001$), and between sibling attachment and avoidance ($\beta = -.18, p = .036$). There was no significant association found between paternal attachment and avoidance ($\beta = -.08, p = .0131$). However, after bootstrapping, a significant indirect effect was revealed ($p = .019$), suggesting full mediation.

Figure 8

Path model including path coefficients for the mediating role of sibling attachment between paternal attachment and avoidance in romantic relationships (N = 151)



Discussion

The aim of the current study was to investigate whether quality of romantic relationships in later life was influenced by sibling or parental attachment, and also if positive sibling attachment played a role in decreasing impacts of poor parental attachment on romantic relationship quality. Few studies have explored the roles of paternal attachment and sibling attachment in relationship quality separately (Crockett & Randall, 2006; Mikulincer & Shaver, 2012). Therefore, the current study contributes to current literature, applying path analysis modelling to examine a theoretical model of the relationship between parental attachment, sibling attachment, and future romantic relationship quality. Assessing familial attachment relationships from a childhood perspective was of special interest. Due to the nature of the Anxiety and Avoidance measures from the ECR-R scale, higher scores in either dimension indicated decreased romantic relationship quality and satisfaction, whereas lower scores suggested increased romantic relationship quality and satisfaction.

Two hypotheses were proposed to address the research question. Firstly, it was hypothesised that sibling, maternal and paternal attachments would each negatively correlate with the scores on the ECR-R. Based on the findings from the data analyses, sibling attachment was the only significant predictor of romantic relationship quality, whereas maternal attachment had a statistically significant relationship only with Avoidance, whilst paternal attachment had no statistically significant associations with future romantic relationship quality. Hence, the first hypothesis had limited support.

Next, it was hypothesised that sibling attachment would have significant positive associations with parental attachment and significant negative associations with romantic quality, suggesting a mediating effect of sibling attachment. Maternal attachment, and the Anxiety dimension of the ECR-R had significant path coefficients with sibling attachment, and this model had statistically significant direct and indirect effects, suggesting full mediation. In contrast, paternal attachment did not demonstrate statistically significant associations. Furthermore, sibling attachment partially mediated the relationship between maternal attachment and the Avoidance dimension of the ECR-R, and sibling attachment was significantly associated with paternal attachment and Avoidance, and a significant indirect effect was found after

bootstrapping indicating full mediation. Therefore, the second hypothesis was also partly supported.

Of all the findings in this study, sibling attachment having indirect effects on the relationship between parental attachment and future relationship quality was one of the most important, in addition to sibling attachment during childhood being the best predictor for romantic relationship quality. Comparatively, childhood paternal and maternal attachment did not influence romantic relationship quality in later life. These findings ultimately emphasised the significance of maintaining healthy and solid relationships with siblings in childhood, resulting in improved outcomes in later life romantic relationships. However, future studies should explore the differences between children with and without siblings regarding their romantic satisfaction.

Hypothesis One: Quality of Romantic Relationships and Attachment Relationships

Quality of Romantic Relationships and Sibling Attachment

First, it was hypothesised that childhood sibling, maternal, and paternal attachment would individually have negative associations with the Anxiety and Avoidance dimensions' scores of the ECR-R scale.

A path analysis was conducted to address this hypothesis. The results showed evidence of significant negative associations between the ECR-R scores and sibling attachment, indicating that people with strong sibling relationships during childhood experience improved satisfaction and quality in later life romantic relationships. This finding can be understood in terms of Attachment Theory which contends that positive experiences with significant attachment figures, like siblings, leads individuals to develop positive outlooks towards themselves and the social relationships in their lives (Mikulincer & Shaver, 2012). Thus, positive sibling experiences during childhood including warmth, trust, and love can improve attachment levels between siblings. This enables individuals to be kinder, more patient and develop into their 'best selves' (Mikulincer & Shaver, 2012). Research on transference suggests that the likelihood of individuals carrying over feelings and perspectives of their sibling attachment to their romantic partners is high (Brumbaugh, 2017). Additionally, individuals with siblings generally develop

good socialisation skills and more confidence to seek interpersonal relationships, such as positive romantic relationships (Cooper *et al.*, 1998).

Attachment relationships serve as templates for how individuals handle distressing situations and cope in their relationships (Kaur, 2022). Several characteristics that define sibling relationships also exist in romantic relationships. Therefore, individuals who describe having secure and positive sibling attachments in childhood are more likely to acquire techniques and skills from their siblings which help them to effectively cope in romantic and other relationships (Cooper *et al.*, 1998). Consequently, sibling relationships are considered significant throughout the lifespan given their capability to influence romantic relationships during adulthood (Robertson *et al.*, 2014).

More importantly, the present study discovered sibling attachment to be the best predictor of romantic quality in later life, compared to paternal and maternal attachments. The current participants may have grown up in positive households with secure and strong interpersonal bonds amongst them, allowing them to form healthy interpersonal styles that eventually carried over into their adult romantic relationships. Thus, current participants would experience higher satisfaction with romantic partners, improving their overall romantic relationship quality (Ackerman *et al.*, 2013).

Quality of Romantic Relationships and Maternal Attachment

It was hypothesised that maternal attachment would correlate negatively with the Avoidance and Anxiety measures. Surprisingly, no significant correlations were found for maternal attachment and the Anxiety subscale, however, the findings from this study offered evidence of a significant negative correlation between maternal attachment and Avoidance. Past research studies have found evidence of associations between maternal attachment and both Avoidance and Anxiety (Esbjørn *et al.*, 2013).

Previous longitudinal and cross-sectional studies provide indirect evidence that, compared to the Anxiety dimension of the ECR-R, the Avoidance dimension may be more stable across time (Obegi *et al.*, 2004). A cross-sectional study by Mickelson *et al.* (1997) reported that the proportion of individuals with avoidant attachment styles remained relatively constant in different age groups, whereas the anxious attachment style was negatively correlated with age.

Additionally, a longitudinal study exploring internal working models found that scores on the avoidance prototype remained relatively stable over 25 years, but the scores for the anxious (preoccupied) model decreased over time (Klohn & John, 1998). This research suggests that the anxious attachment style may become less prevalent with age, as the perceptions of intimacy may change as individuals get older. The current study focused on individuals' attachment with their mothers in childhood, and there is a possibility that certain participants migrated towards secure attachment styles later in life. The significant correlations of Avoidance but not Anxiety with maternal attachment in the present study could be explained by the instability of Anxiety and stability of Avoidance over time (Obegi *et al.*, 2004).

Furthermore, the sample of this study was predominantly female; Obegi *et al.* (2004) reported that anxiety in mothers had no relationship with anxiety in their daughters. This is consistent with findings from the study by Ratto (2014), who found that individuals with anxious attachments to their mothers engaged in less arguments and demonstrated more positive emotions than negative in romantic conflict. Comparatively, individuals with avoidant maternal attachments did not engage in confrontation, however, they displayed more avoidant defences including anger, negative emotions, and creating emotional distance from partners when romantic conflict arose (Ratto, 2014). Furthermore, anxiously attached individuals have been found to be more comfortable with intimacy and emotional expression partly due to their fear of abandonment (Walsh *et al.*, 2019). Their comfort with intimacy may contribute positively towards romantic quality. However, for avoidantly attached individuals, engaging in romantic relationships itself can increase avoidant strategies as an attempt to avoid expressing and experiencing negative emotions (Ratto, 2014). The lack of trust and discomfort with intimacy may reduce the quality of their romantic relationships. However, it is also possible that anxious attachment with mothers did not influence the quality of romantic relationships at all for the participants in this study. Thus, maternal attachment was found to predict romantic relationship quality to some extent, but further investigation is required.

Quality of Romantic Relationships and Paternal Attachment

In comparison to the findings for maternal and sibling attachments, it was interesting that no significant associations were found between paternal attachment and the ECR-R measures of Anxiety and Avoidance. Research studies in the past have offered evidence for paternal attachment being related to the quality of romantic relationships (Crockett & Randall, 2006). However, the current results may have been different if the sample was not predominantly female, as women tend to give their romantic and familial relationships more importance (Spitze & Trent, 2006), hence, the participants in the study may have had stronger attachments with their mothers. The current findings can be illuminated by a previous study that found maternal attachment to be a stronger predictor of life satisfaction than paternal attachment (Ponti & Smorti, 2019).

Additionally, several participants may have had unstable childhoods resulting in disruptive or inconsistent attachment with their fathers or paternal figures. This may have negatively impacted the participants' ability to form quality romantic relationships. Individuals who describe their fathers as distrustful, unavailable, rejecting, and unsupportive in times of distress are likely to turn to other attachment relationships to compensate for the lack of paternal attachment (Bartholomew, 1990; Simpson, Rholes, & Nelligan, 1992). Additionally, most children with divorced parents continue living with their mothers, making attachment with fathers potentially more distant or completely absent (Abbey & Dallos, 2004). However, for the sake of simplicity in the models these variables were not tested in the current study.

It is also likely that the attachment with fathers for certain participants had no contributions to the quality of their romantic relationships at all. The functioning of relationships is influenced by many factors, among which paternal attachment is only one, and there are several other elements that affect the success and functioning of romantic relationships (Mikulincer & Shaver, 2008). Fathers are likely to avoid discussing or displaying emotions around their children and consequently their influence on their children's emotional development is limited (Van Lissa *et al.*, 2019). Furthermore, there is a possibility that participants might have developed stronger attachments with their fathers later in life, such as in adulthood or adolescence. This research focused on paternal attachments only in childhood, which may have resulted in this study failing to capture participants' best experiences with their fathers.

Irrespective, retrospective paternal attachment did not predict the quality of romantic relationships in this study.

Moreover, some of the studies referenced for attachment with parents are decades old (Bartholomew, 1990; Crockett & Randall, 2006), and those findings could be outdated and not fully relevant to the sample of the present study. Pertinently, research suggests that young people of Aotearoa encounter complex and regularly changing living circumstances (McAnally *et al.*, 2021). NZ family structures have changed across time, with parents re-partnering after ending relationships, having children with multiple people, and having children later in life becoming more common (McAnally *et al.*, 2021). Consequently, research from decades earlier must consider investigating parental and sibling attachment in present times for greater applicability of research describing the influences of these attachments in contemporary times.

Hypothesis Two: Mediating Role of Sibling Attachment between Parental Attachment and Romantic Quality

In the present study, the mediation models revealed that maternal attachment had significant indirect effects on Anxiety, and significant direct effects on Avoidance, through sibling attachment. Whereas paternal attachment had a significant indirect effect on Avoidance, but not on Anxiety, through sibling attachment. Therefore, the Hypothesis Two was partially supported, suggesting that childhood sibling attachment may reduce the impacts of poor maternal attachment on relationship anxiety more than on relationship avoidance, and it may reduce impacts of poor paternal attachment more on relationship avoidance, but less on anxiety.

Currently there appears to be no existing literature examining the role of sibling attachment in parental attachments' impacts on romantic quality. However, in their study Ponti and Smorti (2019) found that parental attachments significantly influenced overall wellbeing, through perceived sibling warmth. Considering the research highlighting the influences of parental and sibling attachment on each other, and on romantic relationships, it is possible that parental attachment effects on relationship quality is also indirectly influenced by sibling attachment.

Sibling Attachment, Maternal Attachment and Romantic Relationship Quality

Results from the path models (*re*: Figures 4 and 7) suggested that sibling attachment may serve to buffer the negative impacts of maternal attachment on Anxiety more than on Avoidance. Most literature reports significant associations between maternal attachment and relationship quality (Crockett & Randall, 2006). Research on the impacts of sibling relationships on romantic relationships is sparse, but the studies that did explore these phenomena reported associations between sibling attachment and romantic relationships (Kaur, 2022; Robertson *et al.*, 2014).

A longitudinal study of 20 years reported maternal sensitivity to be negatively related to avoidance and anxiety in early adulthood (Zayas *et al.*, 2011), further highlighting the role of mothers in the development of attachment systems. Individuals who described their mothers as supportive, accepting, and warm were found to have better romantic outcomes in comparison to individuals with controlling, insensitive, unsupportive or cold mothers who were more likely to have turbulent romantic relationships (Zayas *et al.*, 2011). Attachment to the primary caregiver is one of the most significant attachments for children and siblings, and it is qualitatively different compared to other attachments (Bowlby, 1988). Despite the considerable debate on attachment research, for many children, their mothers are typically the primary caregivers, and therefore the primary attachment figures (Bretherton *et al.*, 2015), and are generally more involved in their children's lives. Children with insecure attachments with their mothers are more likely to experience adverse outcomes in psychological wellbeing and other relationships, including with siblings and romantic partners (Bowlby, 1980). In contrast, children with secure maternal attachment are generally trustworthy and more likely to care for, and support, their siblings, and romantic partners, especially in stressful times (Ponti & Smorti, 2019). This research emphasises the importance of how secure and strong attachments with mothers in childhood affect individuals and their relationship with siblings and romantic partners.

Additionally, research involving sibling dynamics found that children also influence their parents' knowledge, expectations, and parenting style in ways that have negative and positive impacts on their siblings (McHale *et al.*, 2014). The indirect effect of sibling attachment can be supported by a study that reported mothers' expected quality of experience with one child was influenced by experiences with their previous children (Whiteman & Buchanan, 2002). Mothers with positive experiences with earlier born children expected fewer problems and less difficulty

with their other children, whereas negative experiences predicted negative expectations in most cases (Whiteman & Buchanan, 2002). Mothers' perceptions and expectations influence their parenting style, which again determines the quality and type of attachment formed with their children (Seigler *et al.*, 2006).

A longitudinal study of four years found that mothers engaged in more positive parenting styles towards children when siblings displayed less hostility with each other, essentially enhancing maternal attachment (Howe *et al.*, 2003). Furthermore, mothers may encourage older children to be independent and decrease closeness with them to tend to the needs of younger ones, which can promote feelings of parental alienation for older children (Young *et al.*, 1983). Although unequal parental treatment may have negative impacts on sibling relationships, it was related to increased closeness and decreased sibling conflict if differential treatment was perceived as fair and justified by children (Young, 2011). Children may justify their parents' differing treatment based on the differences in age, specific needs, or personal traits of siblings (Kowal & Kramer, 1997). Additionally, affectionate siblings were found to have protective effects on individuals with poor maternal relationship quality and compensate for low support from mothers (Gass, Jenkins & Dunn, 2007; Milevsky, 2005). Sibling affection can provide a sense of security and safety to children with strained maternal relationships (Gass *et al.*, 2007). The feelings related to attachment with siblings are highly likely to transfer to romantic relationships (Brumbaugh, 2017).

Considering previous research on associations between sibling and maternal attachment, and the contributions of both these attachments to the quality of one's romantic relationships, it is not surprising that the current study found that maternal attachment impacts on relationship quality were influenced by the relationship with siblings.

Sibling Attachment, Paternal Attachment and Romantic Relationship Quality

Results from the mediation models (*re*: Figures 5 and 8) suggested significant indirect effects of paternal attachment on Avoidance, and no significant effects on Anxiety, through sibling attachment. However, we cannot say with confidence that there was no mediation at all in the Avoidance model (*re*: Figure 8) as the effect was only marginally insignificant ($p = .053$).

These findings may be enlightened by a study suggesting that compared to mothers, conflict styles with fathers contributed less directly to later romantic conflict resolution (Reese-Weber & Kahn, 2005). Walper and Wendt (2015) found individuals' relationship with their father did not contribute to intimacy, emotional insecurity, avoidance, and negative conflict in their romantic relationships at all. Fathers are less likely to display pleasant emotions and make themselves emotionally available to children in their times of need (Kaur, 2022). This could be related to the normative pressure men experience, leading them to perceive emotional expression as a gender-inappropriate behaviour (Stoppard & Gunn Grunchy, 1993). This may have negatively impacted paternal attachment for the participants in this study.

Fathers prefer engaging more in playmate behaviours and less in caregiving activities, and as such they may not be perceived as sources of support during distress (Kaur, 2022). Thus, paternal roles may have negative impacts on how individuals formulate attachments with their father during childhood that continue throughout their lives (Schachter & Stone, 1987). Additionally, most participants in this study were female (76.8%). A previous study on attachment networks found that fathers were likely to be perceived as significant attachment figures by sons more than daughters (Doherty & Feeney, 2004). Children may identify more with the same-gender parent as they get older and form gender-specific self-concepts of their own (Patterson, 2012). There is a possibility that the participants in the current study were more attached to their mothers, which led to paternal attachment not significantly predicting romantic quality.

Children are social comparison sources for their siblings, and indirectly shape their behaviours and characteristics. From an early age, children are aware of the differences in the treatment they receive compared to their siblings (Ansbacher & Ansbacher, 1956). These results can be understood in the context of research which has found fathers to be the parental figures making comparisons between children, especially comparing their younger children to older ones (Yaremych & Volling, 2018). Differential treatment from one or both parents in areas of discipline, affection, and privileges can negatively impact individuals' relationship with their siblings as well as parents, and promote perceptions of inadequacy (McHale *et al.*, 2012). Jealousy towards siblings due to differences in parental affection is linked to lower self-esteem and anxious attachment style, which in turn is linked to increased conflict, ambivalence, and jealousy in romantic relationships (Young, 2011). However, positive sibling relationships were

found to substantially compensate for low levels of support from fathers (Milevsky, 2005). Siblings support and rely on each other in the face of adversity, further contributing to the development of healthy attachment systems which assist in forming and maintaining positive romantic relationships (Caya & Liem, 1998). Considering that research indicates that fathers are becoming more involved in caregiving processes for their children, their involvement still remains relatively low compared to mothers' involvement (Lamb, 2004), which may have been the case for the participants in this study.

Research Limitations

The main limitation of the current study is the sample size. The findings of this study are from a rather small sample size of 151 participants. Although more than 151 people decided to participate in this study, many of the surveys were half-answered, such as missing demographic information or answers to only one or two sub-scales, due to which they were not included in data analysis. The small sample size limited the types of statistical analyses performed and the statistical power for identifying significant differences and correlations between parental attachment and quality of romantic relationships may have been low. Hence, the current sample might not be representative of broader population. Next, all the participants were psychology students, making the sample homogeneous. These participants may have possessed specific demographics, in addition to more interest in attachment systems compared to general population. This increases the chance of bias in some participants, who may display more concern and motivation about the topic (Seers & Crichton, 2001). Furthermore, the sample consisted of 116 female and 35 male respondents between the ages of 18 and 60, making it predominantly female. This limited the generalisability of the findings mostly to young women. Previous research suggests that females place higher importance on relationships, and experience more positive interactions with their attachment figures such as romantic partners, siblings, and parents (Spitze & Trent, 2006). Therefore, this difference in gender might result in various biases if the females and males in this study had different levels of attachment with their attachment figures. Hence, future research employing bigger sample sizes, more diverse sample populations, and balanced gender distribution is needed. This can assist in increasing the applicability of findings to New Zealand's bicultural population (Banerjee & Chaudhury, 2010).

Additionally, some participants may have had difficulty remembering their childhood experiences with their parents and siblings in childhood and some respondents' answers may have been influenced by more recent interactions with their attachment figures. Hence, future research should consider controlling the gap between current participant age and the age they are being assessed on (0 – 11 years) as a covariate. This can help capture more accurate answers in the context of the influence sibling and parental attachment may have on the quality of future romantic relationships.

This study assessed all the variables through self-report measures, increasing observed associations. Respondents were probed about their attitudes and feelings, both of which are prone to change. It may be that participants provided dishonest responses to conceal negative information regarding their relationships or themselves, increasing their social desirability, and possibly exhibiting more desirable behaviours (Choi & Pak, 2005). Thus, accurate and truthful responses may not have been captured. Additionally, answers may have varied based on how the respondents read and made sense of the questions. However, participants are experts on their experiences and emotions, and cannot be expressed or evaluated accurately by others. Hence, this strengthened data validity.

Furthermore, participants who answered questions in the ECR-R based on previous romantic relationships may have found it difficult to recollect experiences and emotions regarding their ex-partners, especially if those relationships ended on a bad note. This may have led their current emotions to influence their previous perspectives of those relationships. Events that occurred after the relationship was terminated may have glorified or soured the participant's perspectives, failing to accurately reflect the participant's real emotions regarding former partners. Even though the ECR-R is a reliable instrument with sufficient number of items, using other tools that evaluate other components in romantic quality, alongside attachment styles through the ECR-R, could be useful to explore romantic quality in more depth. The Love Attitude Scale (LAS) is a good example. This standardised measure consists of six love types and evaluates the extent to which people have realistic attitudes towards satisfaction love with their partners (Hendrick, 1988; Tolentino, 2006). Although it is theoretically possible that childhood attachments would predict and precede late romantic relationship functioning, the present data were cross-sectional and correlational, hence, causal effects cannot be determined. Longitudinal studies are needed to validate pathways of effect that were proposed in this study.

Recommendations for Future Research

The correlational analysis found a non-significant association between paternal attachment and romantic quality. Whereas the associations between maternal attachment and romantic relationship quality were significant to a degree. Both mothers and fathers are significant attachment figures in individuals' lives (McHale *et al.*, 2012). Therefore, investigating why the associations between paternal attachment and romantic relationship quality were non-significant would be useful. A qualitative study utilizing in-depth interviews with participants to explore their experiences with their father and mother could help explain the difference and why fathers might be perceived as less influential.

Furthermore, participants with more than one sibling were not given the option to base their responses on the sibling of their choice. Future research could offer participants the option to answer questions regarding the sibling they are closest to. Alternatively, it may be useful to consider family size and develop measures/instruments that evaluate multiple relationships instead of focusing only on one sibling. Additionally, recruiting more diverse populations, including both older and younger siblings, different ethnic and age groups would provide an expansive understanding of how familial attachments affect individuals' romantic relationships across their life span.

Administering the ECR-R to participants' romantic partners may also be of value. This would allow to gain input from both partners as they may have different perspectives of their relationship. This may ultimately help acquire a more holistic understanding of their romantic quality. Moreover, findings can be enhanced by changing the eligibility criteria to only individuals currently in romantic relationships. Individuals basing their responses on ex-partners may have mixed emotions, which could affect the overall findings. More importantly, intimacy levels in romantic relationships and familial attachments tend to fluctuate across time, hence, examining these associations over an extended period is necessary (Updegraff *et al.*, 2002).

Conclusion

The key strength of the present study was that it was the first to investigate the direct and indirect influences of retrospective sibling relationships between retrospective parental attachment and the quality of romantic relationships. The influence of sibling attachment on romantic relationships has not been as thoroughly researched compared to the impacts of parental and peer attachments. Therefore, this study aimed to determine whether sibling and parental attachments in childhood impacted the quality of future romantic relationships. Consequently, two hypotheses were proposed in this study: first it was hypothesised that each sibling, paternal, and maternal attachment would negatively correlate with the scores of the ECR-R, and next it was expected that positive sibling attachments would mediate the effects of paternal and maternal attachments on the quality of romantic relationships.

Sibling attachment being the greatest predictor of romantic quality was one of the most important findings in the present study. The negative correlations between the ECR-R scores, and sibling attachment suggested that strong sibling bonds in childhood were linked to increased quality of later romantic relationships. Interestingly, paternal attachment did not have any associations with future romantic quality, whereas maternal attachment had significant negative correlations with the Avoidance dimension of the ECR-R, but not the Anxiety dimension. Furthermore, path analyses found that strong sibling attachment served to buffer the effects of poor maternal attachment on Anxiety more than Avoidance, and sibling attachment reduced the negative impacts of paternal attachment on Avoidance more than Anxiety.

The present study's limitations and recommendations for future research were discussed. However, due to methodological limitations and low availability of comparable research, these findings must be interpreted cautiously. Overall, the results from this study suggested that this area is effective for research. The results emphasised that family dynamics in addition to the attachment with parents influence romantic relationship quality. Particularly, sibling attachments play an important role in developing skills required to form and maintain healthy romantic relationships later in life. The importance of all three familial attachments – sibling, paternal and maternal in an individuals' life cannot be overstated, however, this study makes no recommendations that any attachment is superior to the others. However, these findings indicate the necessity of implementing interventions and educational programs regarding romantic

relationships and attachments for adolescents nearing adulthood so that their capacity to sustain healthy romantic relationships is enhanced (Kaur, 2022). There is a hope that the work put into this study will inspire future research on the subject and assist with a more thorough investigation of romantic and sibling attachments (Shalash *et al.*, 2013).

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Appendix A: Participant Information Sheet

Participant Information Sheet

July 11, 2022

Project Title

Does Sibling attachment mediate the effects parental attachment on future romantic relationships?

An Invitation

Kia Ora and hello, my name is Sameera Challa. I am currently enrolled in the Bachelor of Health Science (Honours) in Psychology programme at the Auckland University of Technology. I would like to invite you to participate in a research study that I am undertaking as part of fulfilment of my honours' year.

Please be aware that participation in this study is entirely voluntary and responses will be kept confidential and anonymous. If you agree to participate, you have the option of withdrawing from this study at any moment before the responses are submitted, without any repercussions, but beyond that point it will not be possible due to the anonymity of the survey. If you choose not to participate, you are under no obligation to provide a justification, and it will not have an effect on you in any manner. Your assistance would be greatly appreciated, and your completion of the survey would be taken as consent if you do decide to take part in this research. A copy of the participant information sheet will be given to you to keep.

What is the purpose of this study?

The purpose of this study is to test whether parental and sibling relationships create an effect on one's romantic relationship. Research has frequently found links between attachment styles and the quality of later life romantic

relationships. The development of an insecure attachment style with attachment figures has been associated with poorer wellbeing and relationship outcomes. It is generally noted that individuals who have a more secure attachment style are likely to have higher relationship satisfaction than individuals who have an avoidant or anxious attachment style. For example, adults with secure childhood attachments have higher self-confidence, more social skills, are more likely to seek close romantic relationships, and are less likely to experience loneliness (Cooper et al., 1998; Hazan & Shaver, 1990). In contrast, sibling relationships are characterised by conflict, rivalry, and support and are generally the longest lasting relationship of one's life and tend to be unique in contrast to other relationships an individual has. Sibling relationships are supportive and protective in the development of youngsters. Research has concentrated on parent-child attachment and sibling attachment, but the influence of these on one's romantic relationship remains unexplored. Early experiences with parents and siblings can influence future romantic relationships in adulthood, thus it is of interest to look at whether parental or sibling attachments have the greatest influence on romantic relationships.

This research will result in a dissertation for the Bachelor of Health Science (Honours) program. The dissertation will be available to view from the AUT library and may also result in a publication at a later date.

How was I identified and why am I being invited to participate in this research?

You have been asked to participate in this research as you are a student at AUT and a large sample is required for the study.

To participate you must be over the age of 18 and have at least one sibling. If you have multiple siblings, please base your answers on your relationship with the sibling closest in age to you.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time prior to completion of data collection. The removal of your data may not be possible after data collection as the survey is anonymous. Completion of questionnaires will be taken as consent and agreement to participate.

What will happen in this research?

This study involves completing a series of questionnaires. Some questionnaires will ask questions regarding personal information about yourself, and your relationship with your sibling and partner. It will take approximately 20 minutes to complete everything. Completed questionnaires will be taken as agreement and consent for participation.

What are the discomforts and risks?

If you participate, there is a possibility you may experience discomfort from answering questions regarding your relationship with your parents and sibling.

How will these discomforts and risks be alleviated?

In the occurrence of discomfort, you are welcome to access three free session of counselling from AUT Health Counselling and Wellbeing. At AUT, all domestic and international students can get free, confidential counselling sessions and mental health support. Counsellors are based at all of our campuses. You can also get help from our mental health advisors.

You can make an appointment with an AUT counsellor to talk about your support needs.

Phone +64 9 921 9292 or email counselling@aut.ac.nz, or drop in to WB level 2, City Campus

If you need help in a mental health crisis you should call:

- Community Mental Health Urgent Response team: 0800 800 717
- In an emergency, you should call 111

You may also wish to explore:

- 1737, need to talk? (free call or text service)
- Puāwaitanga (phone and online service)

What are the benefits?

Benefits for the participant: Experience participating in research and insight about yourself and your relationships.

Benefits for the researcher: You will be helping me complete the research requirement for the Bachelor of Health Science in Psychology. I will get to conduct research in an area that has been relatively neglected and is of interest to me.

Benefits for the community: Greater knowledge in regard to parent and sibling attachment and romantic relationships.

How will my privacy be protected?

No identifying information will be collected, and names will not be asked.

Demographic details such as age, ethnicity, gender, how many years apart you are from your sibling and if you are the younger or older sibling will not be reported on an individual level. The data will be kept in a locked filing cabinet and only I will have access to it to complete data analysis and produce the findings.

What are the costs of participating in this research?

There are no costs involved in taking part in this study, other than survey completion time of approximately 15 minutes.

What opportunity do I have to consider this invitation?

Announcements in lectures/tutorials will specify the time period in which the research will take place. Consideration of participation will be from the time of the announcement until the end of the research participation period.

Will I receive feedback on the results of this research?

As the research is anonymous, there will not be individual feedback. Group data in the form of a summary of the findings will be made available upon request by contacting the researcher. The completed dissertation, with an abstract summarising the research will be available from the AUT library in the latter half of 2023

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Researcher, Sameera Challa, ktf4823@aut.ac.nz,

Concerns regarding the conduct of the research should be notified to the Executive

Secretary of AUTECH, Dr Carina Meares., ethics@aut.ac.nz , 921 9999 ext.

6038 Whom do I contact for further information about this research?

Please keep this Information Sheet for your future reference. You are also able to contact the research team as follows: **Researcher Contact Details:**

The researcher, Sameera Challa, ktf4823@aut.ac.nz, can be contacted via her email address

Appendix B: Questionnaire

Does parental attachment or sibling attachment have the greatest influence on an individual's current romantic relationship?



The research involves answering a series of questionnaires. The first questionnaire contains personal information about you, your parents, and your sibling closest to you in age. The other questionnaires contain questions about current romantic relationship. You will be asked to answer some demographic questions as well. These will take approximately 20 minutes to complete.

Conditions of Consent:

Completion of this questionnaire will be taken as consent to participate.

Please read accompanying participant information sheet for more details regarding this study.

You can participate in this questionnaire, IF:

- You identify as a New Zealander or live in New Zealand
- You are a student aged 18 or above
- You have at least one sibling. If you have multiple siblings, please base your answers on your relationship with the sibling closest in age to you.

What is attachment?

Attachment is described as an emotional bond characterised by consistency and persistence which becomes specifically observable during distress and danger. The attachment theory focuses on the relationship that forms between the primary caregiver and the infant. There are three styles of attachment: secure, anxious, and avoidant. These are typically characterised by positive or negative models of the self and others, and scores in the anxiety and avoidance dimensions persist through to adulthood. Securely attached individuals tend to hold positive views of their self and others, they score lower in anxiety and avoidance dimensions. In contrast, anxiously attached individuals (insecure) hold negative views of the self and score high in the anxiety dimension. Avoidantly attached individuals (insecure) hold negative views of their attachment figures and tend to score high in the avoidant dimension.

What is paternal attachment?

The quality of social relationships is of great importance across the lifespan, particularly the formative years bracketing childhood. Parents tend to have one of the most significant attachments with an individual in their life and research has highlighted those traits and qualities of romantic intimacy tend to develop in early years of childhood. The types of parenting styles utilised on children by parents can influence one's romantic relationships. Parenting styles are reflected in three different ways, authoritarian, authoritative, and permissive. The influence parent-child attachment creates on later life romantic relationships is crucial to understand as parents can proactively enhance the health and wellbeing of individuals in later relationships in many ways.

What is sibling attachment?

Sibling relationships are unique to other relationships within an individual's life and found to be of central importance to both individuals and the family. The relationship with one's sibling, particularly with the sibling closest in age, is unique and as of equal strength to that of the relationship with parents and peers. Siblings

have substantial contact and offer companionship throughout childhood and adolescence. In fact, the relationships between siblings are often the longest lasting relationship in an individual's life. Sibling relationships differ due to the proximity, companionship, and availability of siblings compared to that of other relationship partners, therefore siblings commonly become social relationship partners. Sibling relationships provide those involved with numerous opportunities to learn about themselves and how they may be viewed by others.

What is a romantic relationship?

Romantic relationships can include, but are not limited to, dating, cohabiting (living together without marriage), engagement, or marriage. Romantic relationships are generally formed during adolescence, a time of identify and self-exploration, and persist through to adulthood. As with sibling attachments, romantic relationships are associated with developmental aspects including adjustment, identify formulation, harmonious friendships, and sexual identify formation. **Please answer the following questions about yourself and your family life:**

1. Your Age: _____
2. Your Gender: M / F
3. Ethnicity:
 - a. New Zealand European
 - b. Māori
 - c. Pacific Peoples
 - d. Asian
 - e. Middle Eastern/Latin American/African
 - f. Other Ethnicity
 - g. Residual Categories

If you do not have any siblings, please skip to question 9.

4. Your (closest in age) Sibling's Age: _____
5. Your (closest in age) Sibling's Gender: M / F
6. Relationship with sibling closest to you in age. Please tick one:
☐ Full Biological Sibling (i.e., you share the same biological mother and father)
☐ Half Sibling (i.e., you share only one biological mother or father)

- ☐ Stepsibling (i.e., you do not share a biological mother and father)
- ☐ Adoptive Sibling

7. Number of older brothers _____ Number of my older Sisters _____

8. Number of younger brothers _____ Number of younger sisters _____

9. Growing up, which best represents your family situation? Please tick one:

- ☐ Lived with my biological mother and biological father
- ☐ Lived with my biological mother
- ☐ Lived with my biological father
- ☐ Lived at times with either my biological mother or biological father (i.e., shared care)
- ☐ Lived with my biological mother and stepfather
- ☐ Lived with my biological father and stepmother
- ☐ Lived with adoptive parents
- ☐ Lived with foster parents
- ☐ Other – please

specify: _____

–

–

– _____

10. Growing up, which best represents the relationship between your biological parents? Please tick one:

- ☐ Married to each other / In a long-term relationship with each other
- ☐ They were divorced
- ☐ They were separated
- ☐ They never married

☐ I did not know my biological parents

☐ Other – please

specify: _____

11. Growing up, between the ages of 0-11, who is the person in your life who acted most like a mother to you (not including your sister). Please tick one:

☐ Biological Mother

☐ Adoptive Mother

☐ Stepmother

☐ Foster Mother

☐ Partner/friend of parent who lives in household

☐ Grandmother (including step/half/adopted)

☐ Aunt (including step/half/adopted)

☐ No One

☐ Other – Please

Specify: _____

12. Growing up, between the ages of 0-11, who is the person in your life who acted most like a father to you (not including your brother). Please tick one:

☐ Biological Father

☐ Adoptive Father

☐ Stepfather

☐ Foster Father

☐ Partner/friend of parent who lives in household

☐ Grandfather (including step/half/adopted)

☐ Uncle (including step/half/adopted)

☐ No One

☐ Other – Please

Specify: _____

The following information is requested on your relationship length and commitment (please skip if not applicable):

How long have you been (or were you) in your relationship? o Years: o Months:

Your Partner's Age:

Is your relationship with your partner (please tick one box):

- ☐ Open (casual relationship - partners are free to date and have relationships with other people)
- ☐ Closed (partners are in a committed relationship involving exclusivity) o

Section 1: Tell us about your relationship with your mother

Please answer all questions with regards to your relationship with your mother or the person who you feel most acted as your mother between the ages of 0-11 years. If no one acted as your mother, please skip this section.

	Almost Never or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
My mother respected my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt my mother did a good job as my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wished I had a different mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother accepted me as I was.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Does Sibling Attachment Mediate the Effects of Parental Attachment on Future Romantic Relationships?

I liked to get my mother's point of view on things I was concerned about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt it was no use letting my feelings show around my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother could tell when I was upset about something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking over my problems with my mother made me feel ashamed or foolish.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother expected too much from me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got upset easily around my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got upset a lot more than my mother knew about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When we discussed things, my mother cared about my point of view.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother trusted my judgment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother had her own problems, so I didn't bother her with mine.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother helped me to understand myself better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I told my mother about my problems and troubles.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt angry with my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't get much attention from my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Does Sibling Attachment Mediate the Effects of Parental Attachment on Future Romantic Relationships?

My mother helped me to talk about my difficulties.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother understood me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was angry about something, my mother tried to be understanding.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trusted my mother.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mother didn't understand what I was going through those days	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could count on my mother when I need to get something off my chest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my mother knew something was bothering me, she asked me about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 2: Tell us about your relationship with your father

Please answer all questions with regards to your relationship with your father or the person who you feel most acted as your father between the ages of 0-11 years. If no one acted as your father, please skip this section.

	Almost Never or Never	True	Not Very Often True	Sometimes True	Often True	Almost Always or Always
My father respected my feelings.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt my father did a good job as my father.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wished I had a different father.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father accepted me as I was.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I liked to get my father's point of view on things I was concerned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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about

I felt it was no use letting my feelings show around my father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father could tell when I was upset about something	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Talking over my problems with my father made me feel ashamed or foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father expected too much from me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got upset easily around my father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got upset a lot more than my father knew about	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When we discussed things, my father cared about my point of view	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father trusted my judgment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father had his own problems, so I didn't bother him with mine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father helped me to understand myself better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I told my father about my problems and troubles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt angry with my father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I didn't get much attention from my father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father helped me talk about my	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

difficulties

My father understood me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was angry about something, my father tried to be understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I trusted my father	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My father didn't understand what I was going through those days	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could count on my father when I needed to get something off my chest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my father knew something was bothering me, he asked me about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 3: Tell us about your relationship with your sibling

Please answer all questions with regards to your relationship with your sibling between the ages of 0-11 years. If you have more than one sibling, please choose the sibling who is closest in age to you. If you do not have a sibling, please skip this section.

	Almost Never or Never True	Not Very Often True	Sometimes True	Often True	Almost Always or Always True
I liked to get my sibling's point of view on things I was concerned about.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling could tell when I was upset about something.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When we discussed things, my sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

cared about my point of view

Talking over my problems with my sibling made me feel ashamed or foolish	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I wished I had a different sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling understood me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling encouraged me to talk about my difficulties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling accepted me as I was	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt the need to be in touch with my sibling more often	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling didn't understand what I was going through those days	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt alone or apart when I was with my sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling listened to what I had to say	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt my sibling was a good sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling was fairly easy to talk to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I was angry about something, my sibling tried to be understanding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling helped me to understand myself better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling cared about how I was feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I felt angry with my sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I could count on my sibling when I needed to get something off my chest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I Trusted my sibling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My sibling respected my feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I got upset a lot more than my sibling knew about	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It seemed as if my sibling was irritated with me for no reason	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I could tell my sibling about my troubles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If my sibling knew something was bothering me, they asked me about it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Section 4: Questions about your romantic relationship

Please read each statement and circle the answer which is best suited to your relationship with your partner.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
I'm afraid that I will lose my partner's love	1	2	3	4	5	6	7
I often worry that my partner will not want to stay with me	1	2	3	4	5	6	7
I often worry that my partner doesn't really love me	1	2	3	4	5	6	7
I worry that romantic partners won't care about me as much as I care about them	1	2	3	4	5	6	7
I often wish that my partner's feelings for me were as strong as my feelings for him or her	1	2	3	4	5	6	7
I worry a lot about my relationships	1	2	3	4	5	6	7

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When my partner is out of sight, I worry that he or she might become interested in someone else	1	2	3	4	5	6	7
When I show my feelings for romantic partners, I'm afraid they will not feel the same about me	1	2	3	4	5	6	7
I rarely worry about my partner leaving	1	2	3	4	5	6	7
My romantic partner makes me doubt myself	1	2	3	4	5	6	7
I do not often worry about being abandoned	1	2	3	4	5	6	7
I find that my partner(s) don't want to get as close as I would like	1	2	3	4	5	6	7
Sometimes romantic partners change their feelings about me for no apparent reason	1	2	3	4	5	6	7
My desires to be very close sometimes scares people away	1	2	3	4	5	6	7
I'm afraid that once a romantic partner gets to know me, they won't like who I really am	1	2	3	4	5	6	7
It makes me mad that I don't get the affection and support I need from my	1	2	3	4	5	6	7

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partner							
I worry that I won't	1	2	3	4	5	6	7
measure up to other people							
My partner only seems to	1	2	3	4	5	6	7
notice me when I'm angry							
I prefer not to show a	1	2	3	4	5	6	7
partner how I feel deep							
down							
I feel comfortable sharing	1	2	3	4	5	6	7
my private thoughts and							
feelings with my partner							
I find it difficult to allow	1	2	3	4	5	6	7
myself to depend on							
romantic partners							
I am very comfortable	1	2	3	4	5	6	7
being close to romantic							
partners							
I don't feel comfortable	1	2	3	4	5	6	7
opening up to romantic							
partners							
I get uncomfortable when	1	2	3	4	5	6	7
a romantic partner wants to							
be very close							
I find it relatively easy to	1	2	3	4	5	6	7
get close to my partner							
It's not difficult for me to	1	2	3	4	5	6	7
get close to my partner							
I usually discuss my	1	2	3	4	5	6	7
problems and concerns							
with my partner							
It helps to turn to my	1	2	3	4	5	6	7

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romantic partner in times of need							
I tell my partner just about everything	1	2	3	4	5	6	7
I talk things over with my partner	1	2	3	4	5	6	7
I am nervous when partners get too close to me	1	2	3	4	5	6	7
I feel comfortable depending on romantic partners	1	2	3	4	5	6	7
I find it easy to depend on romantic partners	1	2	3	4	5	6	7
It's easy for me to be affectionate with my partners	1	2	3	4	5	6	7
My partner really understands me and my needs	1	2	3	4	5	6	7

You have reached the end of the survey. Thank you for your time and participation.

Appendix C: Ethics Approval



Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

16 June 2021

Jason Landon
Faculty of Health and Environmental Sciences

Dear Jason

Re Ethics Application: **21/163 Does parental attachment or sibling attachment (closest in age) have the greatest influence an individual's romantic relationship?**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 16 June 2024.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any enquiries please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: rajijhghs@gmail.com