Children's Social Networks and their Implications for Mental Health and Well-Being

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Signature: E. M. Williamson

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ABSTRACT

The convoy model of social relations examines social networks as complex and evolving support structures. The exploration of children's social convoys is in its early stages, with limited research investigating how social network characteristics are associated with children's mental health and well-being. The current study aimed to fill this gap by examining the composition of preadolescent South African children's social convoys, as well as the implications of various structural features for mental health and well-being. Cross-sectional data from 126 children aged 9- to 12-years-old from five schools across Cape Town and their parents were used in this study. The data were collected using standardised questionnaires and interviews. The findings revealed that children generally nominated parents, siblings, and often grandparents in their inner circles, and placed extended family members, friends, and professionals in the middle and outer circles of their social networks. Correlational and multiple regression analyses indicated that greater inner circle diversity had a positive association with both child- and parent-reported positive affect, and greater contact frequency with friends was negatively associated with total difficulties. Hierarchical multiple regression analyses showed that father absence from the inner circle was associated with more psychological difficulties and a poorer quality of life. Sibling and extended family member presence in the inner circle were associated with more child-reported positive affect, while grandparent presence was associated with more prosocial behaviour. Overall, the findings support both universal and culture-specific trends in children's social network composition, as well as the presence of relationships between specific structural features and mental health and well-being. It is recommended that interventions supporting children's mental health and well-being focus on fostering diverse inner circles by strengthening bonds with fathers and siblings as well as grandparents and extended family members.

Keywords: children, South Africa, convoy model, mental health, well-being

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CHAPTER 1: INTRODUCTION

The study of children's development has recently begun to step away from researching specific relationships, to examine children's development within a larger and more complex social network structure (Levitt, 2012). Children's social networks are defined as the structural arrangement of close and important individuals in a child's life, such as parents, siblings, grandparents, extended family members, peers, and other close relationships. While social relationships refer to individual interactions and bonds between people, social networks refer to the structure and pattern of these relationships, forming a complex and integrated system that extends beyond individual social relationships (Levitt, 2005). Existing literature on social relations in childhood generally focuses on specific relationships (such as parent-child relations, or grandparent-grandchild relations) and revolves around attachment theory (Ali, Letourneau & Benzies, 2021; Van Heerden & Wild, 2018; Wild, 2018). Whilst there is a wealth of literature examining these specific aspects of children's social relations, the pool of literature is fragmented and does not address the complex and integrated nature of social networks and their effects across the lifetime (Levitt, 2005; Levitt et al., 1993). The composition of children's social networks is therefore under-researched, and the implications of various patterns and structures for children's mental health, well-being, and quality of life are not yet clear, particularly in the South African context.

Although the concepts of mental health, well-being, and quality of life are closely related - each encompassing aspects of psychological, emotional, and social functioning - they are conceptually distinct. Children's mental health is a multifaceted concept that refers to a child's ability to manage their emotions, form optimal relationships, and cope with challenges and stresses (Kleintjes et al., 2022). It exists on a continuum consisting of both the absence of behavioural and emotional difficulties as well as the presence of positive

psychological functioning (Kleintjes et al., 2022). Well-being is understood as a child's subjective experience of psychological, emotional, and social coherence and stability, reflecting how fulfilled they feel in these areas (Kleintjes et al., 2022; Pollard & Lee, 2003). Quality of life is a broader concept that reflects children's perception and satisfaction with life in terms of physical health, social relationships, and psychological state (World Health Organisation, 2012; American Psychological Association, 2023).

The importance of social relationships and social support for children's mental health and well-being has been well established (Hombrados-Mendieta et al., 2012; Levitt et al., 2005). Children develop and maintain various social relationships across their childhood, including relationships with family members, peers, friends, and teachers (Manalel & Antonucci, 2020). These social bonds play a critical role in child development by providing social support (Kahn & Antonucci, 1980). Levitt et al. (2005) and Hombrados-Mendieta et al. (2012) emphasize the importance of social support based on the central role it plays in children's coping and development, as well as its association with mental health and well-being. Children's mental health and well-being, in turn plays a critical role in their quality of life, both in childhood and later in adulthood (Levitt et al., 2005). However, the mechanisms through which social support is provided within the social network have been understudied. By mapping out children's social networks as holistic structures through which social support is provided, we can better understand the nuances of social networks, social support and their implications for mental health and well-being.

The Convoy Model of Social Relations

The convoy model of social relations is a key theoretical framework through which to examine social networks across the lifetime (Kahn & Antonucci, 1980). Kahn and Antonucci (1980) proposed that social support is received and given within an evolving social network, or convoy, that consists of various members including family, friends, and peers. In this

model, originally developed for adults and later adapted for children, the social network is represented through a 3-part concentric circle design. The individual is placed at the centre, and network members fall within the concentric design based on level of closeness: close (outer circle), closer (middle circle), and closest (inner circle; Levitt et al., 1993). An individual nominates members of their social network that they are close to emotionally and/or who play an important role in their life, such as close family members, extended family members, peers, friends, and teachers (Levitt et al., 2005). The convoy model is an extension of attachment theory, examining the progression of the convoy structure from core attachment figures in early infancy to the complex and evolving social milieu across the life span (Levitt et al., 1993). The model aims to capture the complex evolution of social networks and the support they provide in different contexts and over time (Antonucci et al., 2019; Huysmans et al., 2021). The convoy model of social relations has been applied to studies of adults in South Africa, demonstrating its potential in the South African context (Harling et al., 2020; Koen et al., 2023). However, there is only one previous small-scale study (Van Heerden & Wild, 2018) that has examined children's social convoys in South Africa.

The convoy model's focus on the evolving and complex nature of social networks makes it particularly useful when examining children's social support systems as multifaceted structures. The framework allows for the mapping of social relationships across varying degrees of closeness, allowing researchers to extract a wealth of detailed information, such as network size, diversity, and composition. This capacity to map out entire network structures with a relatively simple procedure makes it a valuable tool for studying children's social networks. Applying this model to a South African context further enables the exploration of unique cultural patterns and features, addressing an important gap in the literature.

Motivation for the Present Study

Given the importance of understanding children's social networks and their implications for mental health and well-being, as well as the lack of literature on this topic, the current study aimed to provide foundational research on the composition and structural features of preadolescent South African children's social networks. Levitt (2012) highlights the importance of examining networks as holistic systems that have individual and contextual variations, necessitating culturally specific research. If the various aspects of social networks and their implications for mental health and well-being are better understood, therapeutic practice and interventions can be more targeted and informed.

Overview of the Present Study

The present study utilised a cross-sectional quantitative design in order to examine the composition and structural features of preadolescent South African children's social networks, and how these structural features are associated with mental health and well-being. Participants included 126 children aged 9- to 12-years-old, recruited from five schools across Cape Town. Of the 126 children, 99 had corresponding parent responses. Data were collected using social network mapping, and child-and parent-report questionnaires assessing mental health and well-being. Correlational, multiple, and hierarchical regression analyses were used to examine the associations between various structural features of children's social networks and mental health and well-being. The study aimed to provide foundational research on preadolescent South African children's social networks.

Structure of the Dissertation

This dissertation is comprised of six chapters. Chapter 1 introduces the research topic and outlines the theoretical framework. Chapter 2 provides a review of the relevant prior literature regarding children's social networks and their implications for mental health and well-being. Chapter 3 describes the study's methodology, including the study design, sample, measures, procedures and statistical analyses used. Chapter 4 reports the results of the

analyses. Chapter 5 discusses the findings, addresses the study's limitations, and provides directions for future research. Finally, Chapter 6 offers a summary of the findings and discusses their practical implications.

CHAPTER 2: LITERATURE REVIEW

Chapter 1 introduced the context for the current study, highlighting the need for a more holistic perspective on social networks and support, and outlined the theoretical framework that formed the foundation of this research. This chapter reviews the existing pool of literature on the composition of children's social networks based on the convoy model. It further explores the previous literature on the implications of various structural features of children's social networks for their mental health and well-being. Finally, the chapter examines the limitations of previous research and presents the aims and hypotheses of the current study.

The Composition of Children's Social Networks

Social networks can be conceptualised in terms of two primary dimensions: structural features, such as the size and diversity of social networks; and functional features, such as social support, conflict, and the quality of relationships (Levitt, 2012; Rueger et al., 2016). Children's social network composition refers to the different structural patterns and characteristics of an individual's network (Manalel & Antonucci, 2020). Over the lifetime, a number of shifts in the composition of social networks take place based on age, major life events, culture, and context (Wrzus et al., 2013).

Children's social network composition varies with age. Close family members are typically the most important members of children's social networks (Manalel & Antonucci, 2020). From infancy to preschool, children tend to receive most of their social support from immediate family members such as parents or caretakers, who generally fall in the inner circle of the convoy model's hierarchical concentric circle design (Levitt et al., 2005). In middle childhood, most children continue to nominate parents and siblings in the inner circle, with almost half including grandparents and other family members as well (Levitt et al., 2005). However, as they develop, children increasingly tend to rely on a broader range of

social network members such as friends, peers, teachers, and extended family members who tend to fall in the middle and outer circles (Hamilton, 2005; Levitt et al., 2005). Friends and other peers generally take on even greater importance in adolescence, when they appear in all the circles (Levitt et al., 1993).

These trends in the composition of children's social networks have largely been based on research with American populations, bringing into question their universal applicability (Levitt, 2005; Levitt et al., 1993; Manalel & Antonucci, 2020). Antonucci et al. (2004) used the convoy model to examine social relations in samples of people aged 8 to 93 years from the U.S. (N = 1703) and Japan (N = 1842) and noted both similarities and differences in convoy composition between the samples. For 8- to 12-year-olds, average nominations for the inner circle were the same for both countries (mother, father, sibling/s) but the average nominations for the middle and outer circle differed to some degree (Antonucci et al., 2004). In the middle circle, Japanese children generally nominated female and male friends, and a grandparent, whilst American children generally nominated a female friend and a grandparent or aunt (Antonucci et al., 2004). In the outer circle, Japanese children generally nominated another male friend, whilst American children generally nominated an aunt (Antonucci et al., 2004). In adolescence, close relationships remained fairly similar, with American children replacing grandmother/aunt with a male friend, and Japanese children adding a male friend (Antonucci et al., 2004). Levitt et al. (1993) utilised the convoy model to examine the social networks of 333 American children in Grades 1-2, 4-5, and 8-9, and similarly found that circle placement varied somewhat between different ethnic groups in the U.S. Children generally included close family members, but Hispanic American and African American children were more likely to include extended family members than Anglo/European American children (Levitt et al., 1993). These cross-cultural differences highlight the need for further exploration of support structures in the South African context where social

networks are shaped by higher rates of extended families, father absenteeism, and communal caregiving responsibilities (Hall & Mokomane, 2018; Terblanché-Greeff, 2022; Van den Berg et al., 2021).

Van Heerden and Wild (2018) used the convoy model to examine grandparent support in a sample of 120 South African children in grades 4 and 5 (roughly 9 to 11 years old) and found that most of these children nominated parents and siblings in the inner circle, similar to previous research. However, a large portion of South African children nominated grandparents in the inner circle, in contrast to American and Japanese samples (Antonucci et al., 2004; Van Heerden & Wild, 2018). Thus, the limited research on children's social network composition suggests that parents and siblings are generally nominated in the inner circle, but that the inclusion of grandparents in the inner circle varies across different cultural and ethnic groups. Van Heerden and Wild's (2018) small-scale study provides the only information available on the composition of children's social convoys in a South African sample.

Structural Features of Social Networks and Mental Health and Well-Being

The structural features of social networks include network size and diversity, the presence and absence of specific relationships in the inner circle, and the frequency of contact with specific relationship categories (Manalel & Antonucci, 2020). These selected structural features may have implications for mental health and well-being, although few studies have examined these associations in children.

Size

The size of children's social networks is potentially an important structural feature as it highlights the extent of perceived social support and social resources available to an individual (Hombrados-Mendieta et al., 2012). Little research exists on the typical size of social networks and the implications thereof, although the literature that does exist indicates that size fluctuates across the lifetime (Wrzus et al., 2013). Wrzus et al. (2013) found that

social network size generally increases over the life span, up until early adulthood. As children get older, their social networks tend to expand beyond their immediate family, with the addition of peers, friends, extended family members, and teachers (Levitt et al., 2005). Social network size can also differ within age groups and across cultures, with some individuals having larger networks than others (Antonucci et al., 2004). Manalel and Antonucci (2022) examined the social convoys of 193 children aged 8 to 12 years in the U.S. and found differences in social network size between racial groups, with White American children having slightly larger social networks than Black American children.

The existing literature on the implications of total network size is limited and contradictory. Rueger et al. (2016) differentiate between two aspects of social support: the functional aspect, which refers to the quality of support, and the structural aspect, which refers to the quantity of support (such as network size). Functional support has been shown to be more closely related to mental health in children than structural support (Chu et al., 2010). Rueger et al. (2016) conducted a meta-analysis of 341 studies examining the association between social support and mental health in childhood and found that children's perceptions of the quality of social support were more strongly related to mental health than the quantity of support (network size). Conversely, Manalel and Antonucci (2020) found that in a U.S. sample of 193 children aged 8- to 12-years-old, those with smaller social networks that consisted of only close family members reported fewer depressive symptoms than those with larger networks that consisted of extended family members and/or friends. Manalel and Antonucci (2020) suggested that this may be due to a lack of close family support in children with larger networks consisting of extended family and friends (Manalel & Antonucci, 2020). However, children with smaller networks consisting only of close family showed the greatest increase in depressive symptoms over time, suggesting that close and restricted family networks may be beneficial only in preadolescence (Manalel & Antonucci, 2020). This

indicates that network size may have some association with mental health and well-being, although functional aspects of social support may be more important. Furthermore, the importance of network size may differ based on age and culture.

The size of each of the three circles in the social convoy model can also differ between age groups and across culture. Antonucci et al. (2004) found that Japanese children aged 8- to 12 years nominated more people on average in the inner and middle circle than American children, and fewer people in the outer circle. Children aged 8- to 12 years also tend to nominate a greater number of people in the inner circle than teenagers and older adults, and fewer people in the middle and outer circles than older age groups (Antonucci et al., 2004). This ties in with previous research on the convoy model that suggests that the social convoy stems from core attachment figures in childhood (a greater number of close inner circle relations) and then develops into a more complex network over the lifespan (fewer inner circle relationships but a larger and more varied social network; Levitt et al., 1993). Levitt (2005) found that the total number of people in the inner circle showed little association with children's adjustment, further highlighting the limited importance of network size in association with mental health and well-being. The relationship between the size of children's social networks and their mental health and well-being has not yet been examined in a South African population.

Diversity

Another structural feature of children's social networks is the diversity of relationships that make up the social convoy. Throughout childhood, children develop a number of relationships that together form a greater social network or global network (Hombrados-Mendieta et al., 2012). Varying relationship categories are found within this global network (Manalel & Antonucci, 2020). For example, Van Heerden and Wild (2018) identified six relationship categories in their study with a similar sample to the present study:

parents, siblings, grandparents, friends, extended family (e.g., cousins, aunts, uncles), and professionals (e.g., teachers). The diversity of social networks can be traced by examining the different types of relationship categories and how they work together to create a social network.

Antonucci et al. (2014) used pattern-centred approaches to highlight a number of social network types in adults, such as restricted social networks that were limited to close family members and friends, family focused networks, friend focused networks, and more diverse social networks that included a broad range of extended family members, peers and friends. Levitt et al. (2005) identified similar social network types in children, namely, Close Family, Close Family/Friends, and Close/Extended Family, using cluster analysis of a diverse sample of 691 fourth- and sixth-grade American children. Children in the Close/Extended Family and Close Family/Friends groups were found to have more positive adjustment scores (for loneliness and self-concept) than that of the Close Family group, suggesting that a more diverse social network may be associated with better adjustment in children (Levitt et al., 2005). This may be of particular relevance in South Africa where extended family structures are common and child caregiving responsibilities are often shared (Hall & Mokomane, 2018; Terblanché-Greeff, 2022). However, Manalel and Antonucci (2020) obtained contrasting results, suggesting that close family networks were associated with fewer depressive symptoms than more varied networks, although this may be due to a lack of close family support in children with larger and more diverse networks. Levitt (2005) also specifically examined the diversity of inner circle relations in children's social networks and found a broader range of relationship categories in the inner circle to be beneficial for children's adjustment. Adjustment was more strongly related to diversity of the inner circle membership than the total number of people in the inner circle (Levitt, 2005).

Frequency of Contact

The frequency of contact with network members reflects how often individuals are in contact with members from their social network (Hill & Dunbar, 2003). Members of the social network who are closer to the individual are generally contacted more frequently (Hill & Dunbar, 2003). Children typically have the most contact with inner circle members such as immediate family members and less frequent contact with members in the outer circles (Levitt, 2005).

Frequency of contact with network members may have implications for mental health and well-being, as it relates to the amount of perceived social support available (Liu et al., 2018; Seepamore, 2016). Luna et al. (2020) used longitudinal data from 6 106 adults in Central and Eastern Europe to examine the association between frequency of contact with friends and family members and quality of life. They found that more frequent contact with family and friends improved quality of life by acting as a buffer for depressive symptoms. Similarly, Liu et al. (2018) examined the relationship between stress and social networks in a sample of 11 539 Canadian adults and found that frequency of contact with both friends and family members had positive associations with mental health. A study examining loneliness in adult populations similarly found that in-person contact with both friends and family members was associated with lower levels of loneliness (Luhmann & Hawkley, 2016). Although a thorough search was conducted, limited literature on the association between frequency of contact with network members and children's mental health and well-being was identified. However, Holder and Coleman (2009) reported that while the frequency of child-reported visits with friends was not significantly associated with their happiness, parents' estimates of how often their children visited friends were significantly associated with children's happiness.

The Presence or Absence of Specific Relationship Categories in the Inner Circle

Although there is limited literature on children's inner circle structure, research in Japan, the U.S. and South Africa has found that preadolescent children tend to nominate parents and siblings in the inner circle of their social networks (Antonucci et al., 2004; Van Heerden & Wild, 2018). Children tend to live with these immediate family members and develop close social and emotional ties with them (Levitt, 2005). In some contexts, many children also nominated grandparents in the inner circle of their social networks (Levitt, 2005; Van Heerden & Wild, 2018). The convoy model suggests that inner circle relationships should have the greatest impact on mental health and well-being as inner circle members are the closest and most important members of the social network (Antonucci & Akiyama, 1987). However, the specific contributions of different inner circle relationship categories have been under-researched.

Early research on children's social networks found that children sought out different relationships for different social provisions (Furman & Buhrmester, 1985). Furman and Buhrmester (1985) reported that parents were the most sought after for provisions of affection, affirmation of worth, and aid, followed by grandparents for affection and affirmation of worth. Teachers were turned to for aid, and friends for companionship (Furman & Buhrmester, 2985). Therefore, the presence or absence of specific relationship categories from the inner circle of children's social networks may have implications for their mental health and well-being (Levitt, 2005).

Levitt (2005) examined the presence of various network members in the inner circle and found that the presence of grandparents was associated with better adjustment across ethnicity and gender. Van Heerden and Wild (2018) similarly found that grandparent presence in the inner circle was associated with more prosocial behaviour (Van Heerden & Wild, 2018). Levitt (2005) also found that African American and Anglo/European American children that had an extended family member in the inner circle generally had better

adjustment scores. However, children who nominated a friend in the inner circle showed poorer adjustment. This may be due to the deviation from the normal trend observed in children's social networks, in which friends are typically only included in the inner circle from adolescence onwards (Levitt, 2005). The presence of friends in the inner circle in preadolescence may indicate that other support roles are not being filled and that friend presence is an attempt to compensate for this (Levitt, 2005).

The presence or absence of close family members such as parents from a child's inner circle can also have significant implications for children's adjustment (Levitt, 2005). Levitt (2005) reported that maternal presence in the inner circle showed stronger associations with the adjustment of Hispanic American and Anglo/European American children than that of African American children. Paternal presence in the inner circle was associated with better adjustment only in Hispanic American children (Levitt, 2005). Given that many South African children do not live with their biological fathers, exploring paternal presence and absence from children's inner circles is particularly important in this context (Van den Berg et al., 2021). Levitt (2005) also found that sibling presence in the inner circle was not related to adjustment. Levitt's (2005) findings suggest that specific relationship categories may have varying roles within the inner circle and these roles may differ across cultures. Further research on the specific contributions of each relationship category in children's lives could provide valuable insight into how different sources of support impact children's development and adjustment.

Limitations of Previous Research

Although the convoy model is a well-established framework that has been explored extensively in multiple studies, most of this research focuses on adults (Antonucci & Akiyama, 1987; Fuller, Ajrouch & Antonucci, 2020; Levitt, 2005). The little research that has been conducted with children is mostly centred around American populations and cannot be

applied universally due to cultural differences in children's social network structures (Levitt, 2005; Levitt et al., 1993; Manalel & Antonucci, 2020). South Africa has unique familial structures and societal norms that make culturally specific research necessary. In 2019, 64% of children in South Africa were living in an extended family household (parents and children, as well as additional members such as grandparents, aunts, uncles and cousins), and 42% were living with men who were not their biological fathers (Statistics South Africa, 2023; Van den Berg et al., 2021). Furthermore, the convoy model has not been widely used in South African populations, although its potential has been demonstrated in a small-scale study examining the grandparent-child relationship (Van Heerden & Wild, 2018). Further research is required to understand the role and function of specific relationship categories in children's social networks, as well as the way these relationships interact to provide a social support structure (Levitt, 2012). Research examining the composition of children's social convoys and its implications is in its early stages and requires further attention in order to understand the complex ways that children's social networks and support are associated with their mental health and well-being (Levitt, 2012).

Research Aims and Objectives

This study aimed to (a) describe the composition of preadolescent South African children's social networks, and (b) investigate whether specific structural features of children's networks are associated with their mental health (in the behavioural, emotional, and social domains), general quality of life, and well-being. These structural features included convoy size (the number of people within the convoy), inner circle diversity (the number of different relationship categories within the inner circle), the frequency of contact with network members for two broad categories: family and friends, and the presence or absence of specific relationship categories (e.g., mothers and fathers) within the inner circle. Based on previous literature, it was hypothesized that:

1. Children's social convoys will generally follow previously observed trends in composition, with parents, siblings and grandparents predominantly occupying the inner circle, and other extended family members, friends, peers and professionals primarily occupying the middle and outer circles.
2. Structural aspects of children's social networks will have implications for their mental health and well-being.
    a. There will be no significant relationship between network size and mental health and well-being.
    b. More diverse inner circles will be associated with better mental health and well-being.
    c. Children who have more frequent contact with family members and friends will have better mental health and well-being.
    d. The presence or absence of specific relationship categories in the inner circle will have implications for mental health and well-being.
        i. The absence of one or both parents from the inner circle will be associated with poorer mental health and well-being.
        ii. The presence or absence of siblings in the inner circle will have no association with mental health and well-being.
        iii. The presence of grandparents in the inner circle will be associated with better mental health and well-being.
        iv. The presence of extended family members in the inner circle will be associated with better mental health and well-being.
        v. The presence of friends in the inner circle will be associated with poorer mental health and well-being.

CHAPTER 3: METHOD

This chapter outlines the study's design, sample, procedures and statistical analyses. It details the sampling procedures, including sample size calculations, recruitment techniques, inclusion criteria and sample characteristics. The various measures used in the study are listed and described, followed by the data collection procedures. Finally, the statistical analysis techniques are discussed, including the handling of missing data and an investigation of the assumptions for linear regression.

Study Design

This study formed part of a larger research project at the University of Cape Town examining children's social networks and social support and their implications for mental health and well-being. The present study focused solely on structural aspects of children's social networks (e.g., network size and diversity), whilst the larger project will investigate whether selected network functions or processes (e.g., social support) are associated with children's mental health and well-being. This study utilised a correlational and cross-sectional design as it aimed to investigate the relationship between structural features of children's social networks and their mental health and well-being. A correlational design was appropriate for this study as it allowed for the investigation of the strengths and directions of naturally occurring relationships between the study variables (Curtis et al., 2016). The size and diversity of children's social networks, frequency of contact with both the family and friend categories, and the presence or absence of specific relationship categories in the inner circle made up the predictor variables, with various aspects of mental health and well-being as the outcome variables. The data were cross-sectional as they were obtained from the administration of various measures at a single time point, although the larger study is longitudinal.

Participants

Sample size calculation

In order to determine the minimum sample size, a power analysis was conducted with a small effect size ($f^2 = 0.13$) based on the work of Van Heerden and Wild (2018). Van Heerden and Wild (2018) examined the associations between grandparent support and children's psychological health using the convoy model in a South African sample of similarly aged children, making their study contextually and theoretically relevant. A minimum sample of 104 participants was calculated as being required for multiple regression with a 95% confidence level, a 0.13 effect size, six predictors and 80% power.

Sampling procedure

Approval from the Western Cape Education Department (WCED) was obtained to recruit participants from public schools. Participants were recruited through non-probability voluntary response sampling. A total of 25 public and private schools across Cape Town with varying socioeconomic statuses (SES) were contacted, of which three private schools and two public schools agreed to participate. The schools used in the study were located across various suburbs of Cape Town, ranging from lower-middle to upper class residential suburbs, historically mixed-income neighbourhoods, and modern mixed-use developments combining residential and commercial spaces, reflecting a broad range of socioeconomic contexts. The schools primarily catered to communities from lower-middle to upper SES, with school fees ranging from R10 000 per year to R110 000 per year. All children in grades 4 and 5 and their parents were invited to participate.

Post-hoc exclusion criteria

A total of 127 children were interviewed, and a total of 102 parent measures were returned. The data were captured and cleaned. Participants who were younger than 9 years old or older than 12 years old were excluded ($N = 1$). For the second aim of the study,

participants who did not identify as either male or female were excluded ($N = 2$) as the subgroup was too small for meaningful analysis (Burke et al., 2015).

Participant characteristics

For the first aim of this study, which relied solely on child reports, the total sample size was 126 participants. The mean age of the sample was 10.39 years ($SD = 0.78$), with 49% of the sample identifying as female, 48% as male, and 3% as something else. The racial composition of the sample was diverse, with the majority identifying as Black African (34%), followed by Coloured (29%), White (26%), Indian (4%), and Mixed (1%), while 6% preferred not to say. Although race and religion were not used in the data analyses in the present study, these variables were included in the demographic questionnaire as one aim of the larger project is to explore how social network structures and functions are affected by macro-level socio-economic and socio-cultural factors. Children's self-identification with various racial groups is reported here to enhance understanding of the sample and the potential generalisability of the results. In Cape Town, youth who self-identify with historically disadvantaged racial groups are at a greater risk of mental disorders (Das Munshi et al., 2016). The demographic characteristics of the first sample are shown in Table 1.

Table 1

Demographic characteristics of the full sample (N = 126)

Characteristic	*N*	%
Age		
9	18	14
10	46	37
11	57	45
12	5	4
Grade		
4	47	37
5	79	63
Gender		
Female	62	49
Male	60	48
Something Else	4	3
School		
Public	79	63
Private	47	37
Race		
Black African	43	34
Coloured	36	29
Indian	5	4
White	33	26
Mixed	1	1
Prefer not to say	8	6

Note. The "Mixed" race category was not included as a predefined option in the demographic questionnaire (Appendix A). It was recorded when a participant selected "If you do not fit any of the above, please tell us how you would describe yourself" and self-identified as "Mixed".

For the second aim of this study, which required both child and parent reports, the total sample size was 99 participants. This reduced sample reflects the number of children for whom parent-report measures were returned, with the reduced sample size being due to attrition. The mean age of the sample was 10.40 years (*SD* = 0.74), with 49% of the sample identifying as female and 51% as male. The demographic characteristics of the second

sample are shown in Table 2. A Welch's *t*-test was conducted to compare the mean age of children between the full and reduced samples. The results indicated that there was no significant difference between the samples, $t(215.02) = 0.15$, $p = .882$. Similarly, Fisher's exact tests were conducted to compare the distribution of grades, gender, school type, and race between the full and reduced sample. There were no statistically significant differences between the samples based on grade ($p = .782$), gender ($p = .893$), school type ($p = .783$), and race ($p = 1.00$). Thus, the two samples did not differ significantly from one another based on demographic characteristics.

Table 2

Demographic characteristics of the reduced sample (N = 99)

Characteristic	*N*	%
Age		
9	12	12
10	38	38
11	46	46
12	3	3
Grade		
4	35	35
5	64	65
Gender		
Female	50	51
Male	49	49
Something Else	0	0
School		
Public	60	61
Private	39	39
Race		
Black African	34	34
Coloured	27	27
Indian	4	4
White	28	28
Mixed	1	1
Prefer not to say	5	5

Note. The "Mixed" race category was not included as a predefined option in the demographic questionnaire (Appendix A). It was recorded when a participant selected "If you do not fit any of the above, please tell us how you would describe yourself" and self-identified as "Mixed".

Measures

Although this study falls under a larger project examining children's social networks and social support, only the measures relevant to this specific study are included below. I previously conducted a pilot study to test the feasibility of these measures with the target population and made suitable adjustments (Sader & Williamson, 2022). The data were

captured and stored on a secure web-based application called REDCap (Research Electronic Data Capture), which is used for creating and administering online questionnaires and surveys (Harris et al., 2009).

Demographic Information

Children were asked to provide basic demographic information, including their age, gender, school grade, home language, population group, religion and living arrangements (Appendix A). School type (private or public) was recorded in order to be used as a proxy for SES, with public schools' fees ranging from R10 000 to R15 000 per year. This range is below the national average for public primary school fees in South Africa in 2023, which was estimated to be approximately R24 408 per year (BusinessTech, 2023). Therefore, these schools were defined as lower-middle SES. In contrast, private schools' fees ranged from R70 000 to R110 000 per year and these schools were therefore defined as high SES. Parents were asked to provide information on their level of education, employment, and marital status (Appendix B).

Convoy Structure

The Children's Convoy Mapping Procedure (Levitt, 2005) was used to map out the structure of children's social networks (Appendix C). Children were provided with a diagram showing three concentric circles and asked to place stickers representing different network members nominated by the child in the different levels (Levitt et al., 1993). The inner circle represents "people who are the most close and important to you - people you love the most and who love you the most". The middle circle represents "people you really love or like, but not quite as much as the people in the first circle". The outer circle represents "people who are not as close as others but are still important - people you still really love or like, but not quite as much as the people in the middle circle". Further information on the nature of the relationship between network members and the child (e.g., parent, teacher) was then gathered

by asking the children to describe and/or label the relationship. The Children's Convoy Mapping Procedure has demonstrated very good test-retest reliability, with an overall mean interclass correlation coefficient (ICC) of .75 and an age-specific mean ICC of .72 for age 10 (Levitt et al., 1993). It has also been successfully applied in a similarly aged South African sample (Van Heerden & Wild, 2018).

This procedure was used to create predictor variables, including total size of social convoys, diversity of the inner circle, and presence or absence of specific relationship categories in the inner circle. Social network members were grouped into eight relationship categories: mothers, fathers, siblings, grandparents, extended family members, friends, professionals (e.g., teachers, coaches, nannies, au pairs) and adult friends (e.g., family friends, parents' friends, godparents, friends' parents; Van Heerden & Wild, 2018). Size was calculated by summing the number of network members nominated by each participant for the entire social network. Diversity was calculated by summing the number of different relationship categories in the inner circle. The presence or absence of specific relationship categories in the inner circle was assessed by creating a binary variable for each relationship category, indicating their presence or absence in the inner circle for each child.

Additionally, frequency of contact with the listed individuals was assessed using one question: "How often do you see this person?". A 6-point scale was used to record responses with 0 representing "never" and 5 representing "several times a day". Following Liu et al. (2018), where a single score was captured for frequency of contact with family, and a separate score for friends, frequency of contact scores was calculated by averaging face-to-face contact scores for family (containing the relationship categories of mother, father, siblings, grandparents, and extended family) and friends, as separate categories.

Mental Health and Well-Being

Strengths and Difficulties. The one-sided parent-report version of the Strengths and Difficulties Questionnaire for 4– to 17-year-olds (SDQ; Goodman, 1997; https://sdqinfo.org/) was used as a proxy for mental health. The questionnaire assesses 25 psychological traits using a 3-point Likert scale (ranging from 0 = "not true" to 2 = "certainly true"), with five reverse scored items. These 25 traits are divided into five subscales, namely, emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviour (Goodman, 2001). Four of these subscales were used to create a total difficulties score, calculated by summing items in the emotional symptoms, conduct problems, hyperactivity/inattention, and peer relationship problems subscales (He et al., 2013). The total difficulties score ranges from zero to 40, with higher scores indicating greater difficulties experienced by the children as reported by their parents. The prosocial behaviour subscale score was calculated by summing the prosocial items, and ranges from zero to 10 with higher scores indicating greater prosocial behaviour (He et al., 2013).

The SDQ is a commonly used research tool and has very good reliability, with good internal consistency (mean α = .73) and a mean test-retest reliability of .62 after 4-6 months (Goodman, 2001). Previous research with South African adolescents obtained acceptable alpha coefficients for the total difficulties scale (α = .70) and prosocial behaviour scale (α = .68; De Vries et al., 2017). The total difficulties subscale of the SDQ showed good internal consistency in the current study (α = .82), whilst the prosocial behaviour scale had a Cronbach's alpha coefficient of .58, slightly below the acceptable range. However, both subscales had average interitem correlation coefficients (AICs) within the recommended range of 0.15 and 0.50, as outlined by Clark and Watson (2019). Clark and Watson (2019) recommend the use of AICs over alpha coefficients as a measure of internal consistency for scales that assess a broad range of characteristics, as alpha coefficients are strongly

influenced by the number of items in the scale. The SDQ has also shown good validity, with higher total difficulties scores generally being associated with a greater risk for psychiatric disorders (Goodman, 2001). Goodman (2001) found that the SDQ has a specificity of about 95%, indicating good validity as a measure of child mental health. The SDQ is a well-established tool used for mental health screening and provides a brief, cost-effective and useful measure to assess psychopathology and adjustment of children (Goodman, 2001).

Positive and Negative Affect. The parent version of the 10-item Positive and Negative Affect Schedule for Children (PANAS-C; Ebesutani et al., 2012; Appendix D) as well as the child-report Definitional Positive and Negative Affect Schedule for Children (*d*PANAS-C; Smees et al., 2020; Appendix E) were used to assess the affective component of subjective well-being. The PANAS measures the extent to which children experience or are reported to experience both positive and negative emotions (over the previous week for the child-report scale and on average for the parent-report scale), thus providing insight into their emotional well-being. The *d*PANAS-C includes definitions for words that children may not understand (Smees et al., 2020). PANAS responses are scored using a 5-point Likert scale that ranges from 1 (“very slightly” or “not at all") to 5 (“extremely”). The PANAS produces two subscales reflecting positive affect (pleasurable engagement, enthusiasm, alertness) and negative affect (distress, lethargy, sadness), each with a score ranging from five to 25 (Crawford & Henry, 2004).

The PANAS short form has good internal consistency as well as divergent and discriminant validity (Ebesutani et al., 2012). Cronbach’s alpha coefficients for the positive affect scale were .86 for the child-report version and .85 for the parent-report version (Ebesutani et al., 2012). The negative affect scale child and parent versions had Cronbach’s alpha coefficients of .82 and .83 respectively (Ebesutani et al., 2012). The PANAS scales also had acceptable internal consistency in the current study (child-reported positive affect, α =

.75, child-reported negative affect, α = .68, parent-reported positive affect, α = .78, parent-reported negative affect, α = .76). Ebesutani et al. (2012) effectively demonstrated the divergent validity of the PANAS short form by examining the correlation between the positive and negative affect scales. In theory, these scales should have no or a slight negative correlation (Chorpita and Daleiden 2002; Clark and Watson 1991; Laurent et al., 1999). Ebesutani et al. (2012) reported a correlation of -.14 ($p < .01$) between the two scales, confirming the slight negative association and demonstrating divergent validity (Ebesutani et al., 2012). Additionally, they indicated that the PANAS short form accurately identified youths with anxiety and/or mood disorders and those without using Receiver Operating Characteristic (ROC) analyses (Ebesutani et al., 2012). Their results indicated that the Area Under the Curve (AUC) was greater than .70, which fell into the "fair" range, thus demonstrating fair discriminant validity of the short-form scales (Ebesutani et al., 2012). Although the current study used the 10-item version of the PANAS, the longer 30-item version of the PANAS-C has been applied to a sample of South African adolescents, providing evidence of its applicability in this context (Guse & Van Zyl, 2021).

Quality of Life. Children's quality of life was assessed using the KIDSCREEN-10 index (The KIDSCREEN Group Europe, 2006; Appendix F). The index consists of ten items that assess various aspects of physical, psychological, social and environmental well-being by asking children to report on how they have been feeling over the previous week on a 5-point Likert scale. This is a broad measure that aims to assess children's health by examining physical activity, mental health by examining depressive symptoms, sociability and enjoyment by assessing leisure and alone time, support and relationships by examining the relationship with parents/carers and peers, and lastly, cognitive capacity and school experience by examining satisfaction in an academic space (The KIDSCREEN Group Europe, 2006). Scores were totalled, after negatively worded items were recoded. These

scores were standardised into T scores using Rasch person parameters with higher T scores reflecting better quality of life (The KIDSCREEN Group Europe, 2006). Standardising the scores allows them to be interpreted, compared, and classified using norm data from the KIDSCREEN-10 manual (The KIDSCREEN Group Europe, 2006).

This measure has good internal consistency, with a Cronbach's alpha coefficient of .82, as well as good test-retest reliability, with an ICC coefficient of .70 (Ravens-Sieberer et al., 2010). The measure also had good internal consistency in the current study with a Cronbach's alpha coefficient of .74. Convergent validity was assessed and demonstrated by examining the correlations with other measures of mental health and well-being, namely the Paediatric Quality of Life Inventory (PedsQL; $r = .57$), the Youth Quality of Life Instrument-Surveillance Version scale (YQOL-S; $r = .61$) and the Child Health and Illness Profile-Adolescent Edition scale (CHIP-AE; $r = .63$; Ravens-Sieberer et al., 2010). This measure also showed good discriminant validity as participants with higher KIDSCREEN-10 scores were categorised as healthy/normal using the SDQ scale and healthier using the Children with Special Health Care Needs Screener scale (CSHCN) and had higher scores on the Family Affluence Scale (FAS; Ravens-Sieberer et al., 2010). The full, 52-item version of the KIDSCREEN has also been shown to have satisfactory construct validity and internal consistency in a sample of South African adolescents (Florence & Taliep, 2012).

Procedure

Ethical approval was obtained from an Ethics Review Committee of the University of Cape Town (Appendix G), and permission was obtained from the WCED (Appendix H) to conduct the study in public schools. The principals of selected public and private schools were contacted both via email and in-person (Appendix I) to request permission to conduct the study in their schools. After permission was granted from schools, informed consent forms were distributed to all Grade 4 and 5 learners to take home to their parents. Informed

consent was obtained from the participating children's parents (Appendix J), and assent was obtained from the children themselves at the onset of interviews (Appendix K). Data collection took place between August and October 2023, following the approval and consent procedures. Parents of participants were given hard copies of their questionnaires (basic demographic information, SDQ and PANAS-C) and asked to complete them in their own time. Written instructions were included with each questionnaire. Parents were asked to send the completed questionnaires back to the school with their child, where they were collected and then captured.

Children were interviewed in person by five researchers, including myself. Interviews took place on school premises (at the school's convenience) and took between 15 to 25 minutes. Interviews began with gathering basic demographic information (Appendix A), followed by the rest of the child-report measures. The Convoy Mapping Procedure and frequency of contact questions were administered on paper whilst the rest of the measures were created and captured on REDCap due to its functionality for managing research data and compliance with ethical data standards. Interviewers went through the remaining measures with the participant on a laptop or screen and captured the Convoy Mapping Procedure and frequency of contact data at the end of the interview on REDCap. Based on recommendations made by Ponizovsky-Bergelson et al. (2019), interviews were simple, and interviewers guided the participants through the questionnaires, filling in their answers and helping with understanding, definitions, and any confusion.

Data Analysis

The data were stored in a Microsoft Excel spreadsheet. R Studio version 2023.06.1 for Windows was used for data analysis. The analysis consisted of two sections. First, descriptive statistics were used to summarise the data. Second, correlational analyses using Pearson's correlation coefficient, multiple linear regression and hierarchical multiple regression

analyses were used to investigate the relationships between the predictor and outcome variables. Alpha was set at .05 for all analyses and the relevant assumptions were tested.

During data entry, I discovered that there were missing data points due to some items being inadvertently skipped in the measures. The parent-report measures, SDQ and PANAS, as well as the child-report KIDSCREEN measure contained randomly missing data points, which accounted for approximately 0.5% of the total data. Predictive mean matching imputation was used to impute the missing values. This method uses the existing data to predict the missing data points. Multiple imputed datasets were created, and the modal dataset was selected.

I addressed the first aim of the study, examining the composition of children's social networks, using descriptive statistics. Summary statistics including the frequency with which participants nominated each relationship category in each of the circles, the mean size of social networks, the mean number of network members nominated in each circle, the mean number of members in each relationship category and the number of relationship categories in each circle were calculated. Analysis of Variance (ANOVA) was used to further examine the variation in composition of children's social networks based on demographic characteristics (gender and SES).

The second aim of the study, investigating the relationship between structural features of children's social networks and their mental health and well-being, was analysed using Pearson's correlation coefficients and regression models. Pearson's correlation coefficients were used to investigate the correlations between social network size and mental health and well-being, inner circle diversity and mental health and well-being, and frequency of contact with network members and mental health and well-being. These associations were further investigated using multiple linear regression models. These models included each of the seven mental health and well-being outcome scales as a function of each of the predictor

variables, total size, inner circle diversity, and in person contact frequency with family and friends, as well as the demographic characteristics (gender and SES) as controls. Hierarchical multiple regression models were used to investigate whether the presence or absence of specific relationship categories (parents, siblings, grandparents, extended family members, and friends) in the inner circle had implications for mental health and well-being. The demographic variables of gender and SES (school type) were controlled for. All regression analyses examined the main effects of the predictor variables on the outcome variables. No interaction effects were examined in this study. Mother presence in the inner circle was not examined as the number of participants who did not have a mother present in the inner circle ($N = 3$) was too small to perform meaningful analyses (Burke et al, 2015). The control variables, gender and SES, were added in the first step of the hierarchical regression, followed by father and sibling presence, which were added in the second step. Grandparent and extended family presence were added in the third step, and friend presence in the fourth step. This was done in order to follow the general trend of importance from close family to extended family and then to friends (Levitt et al., 1993).

Assumptions for Multiple Linear Regression

Following the regression analysis, I examined whether the assumptions of multiple linear regression were met. Linearity was assessed by visually inspecting partial residual plots and the Residuals vs. Fitted plot (Imran & Akbar, 2020). Normality was evaluated using the Shapiro-Wilk test, as well as a visual inspection of the Q-Q plot and the histograms of residuals (Villasenor Alva & Estrada, 2009). Homoscedasticity was examined using the Breusch-Pagen Test, complemented by a visual inspection of the Residuals vs. Fitted plot (Koenker, 1981). Lastly, multicollinearity was assessed by calculating the variance inflation factor (VIF; Thompson et al., 2017). Several violations of the multiple linear regression assumptions of linearity, normality and homoscedasticity were discovered, whilst the assumption of multicollinearity was met.

Linearity. A visual inspection of the Residual vs. Fitted plots indicated that linearity was theoretically upheld; however, some models showed distinct clustering in the residuals which can indicate non-linearity (Martin, 2021). These clusters were further investigated and were found to be clustered based on the control variables, gender and/or SES, indicating that interactions between the predictor variables or missing variables was the likely cause of these clusters, rather than deviations from linearity. Models that showed clusters in their residuals based on gender and/or SES included total difficulties, prosocial behaviour, and parent-reported negative affect as a function of total size, as well as total difficulties and prosocial behaviour as a function of inner circle diversity. Additionally, prosocial behaviour and parent-and child-reported negative affect as a function of frequency of contact with family, and parent-reported positive and negative affect as a function of frequency of contact with friends showed issues with residual clustering based on gender and/or SES. Interaction terms between network size and both gender and SES were then added and improved the clustering; however, these terms were not statistically significant and did not improve model fit, with one exception (frequency of contact with friends and parent-reported positive affect). Based on this, interactions were excluded and not explored further in order to maintain parsimony and focus on the main effect. The partial residual plots were then visually inspected and indicated that the assumption of linearity was met. Therefore, whilst initially there may have been evidence of minor deviations from linearity, the residual clusters were due to missing interactions, and the assumption of linearity was upheld.

Normality. The assumption of normality was violated by all models, with the exception of those with the KIDSCREEN scale as the outcome variable. The outcome variables exhibited inherent skewness due to the nature of the variables. The SDQ Total Difficulties scale and parent- and child-reported negative affect scales were positively skewed, indicating a tendency toward lower scores. This outcome is expected, as these scales

tend to exhibit lower scores (Sanmartín et al., 2018; *Youthinmind*, 2013). The SDQ Prosocial Behaviour scale, the PANAS positive affect parent- and child-report scales were negatively skewed, indicating a tendency for higher scores. Again, this outcome is expected, as these scales generally yield higher scores (Sanmartín et al., 2018; *Youthinmind*, 2013). The KIDSCREEN scale was normally distributed due to the T score standardisation. The analysis of the normality of residuals mirrored this skewness. Log transformations were applied to positively skewed outcome variables (SDQ Total Difficulties scale, PANAS Negative Affect parent- and child-report scales) and the normality of residuals improved (Martin, 2021). Shapiro-Wilk tests confirmed this improvement with no models that included SDQ Total difficulties and both PANAS Negative Affect scales having significant test scores ($p > .05$).

Square transformations were applied to negatively skewed outcome variables (SDQ Prosocial Behaviour scale, PANAS Positive Affect parent- and child- report scales) and the normality of residuals improved (Lee, 2020). Shapiro-Wilk tests confirmed this improvement as most models including the PANAS Positive Affect scales did not have significant test scores ($p > .05$). The model investigating the association between parent-reported positive affect and contact frequency with friends yielded a significant Shapiro-Wilk test score ($p < .05$) despite the square transformation. However, an inspection of the histogram of residuals and Q-Q plot suggested that residuals were sufficiently normally distributed. Models with the SDQ Prosocial Behaviour scale as the outcome variable still yielded a significant Shapiro-Wilk test score ($p < .05$) after the square transformation, indicating the residuals were not normally distributed. An examination of the Q-Q plots suggested that the discrete nature of the scale, a 5-item Likert scale (ranging from zero to 10) may have impacted the Shapiro-Wilk test, which is sensitive to discrete data (Johnson & Wichern, 2007). The residuals were clustered in horizontal groups but still roughly followed the normal distribution line on the Q-Q plot. Therefore, the assumption of normality was sufficiently upheld.

Homoscedasticity. The assumption of homoscedasticity was violated in several models. Specifically, models examining the relationships between child-reported negative affect and total size, inner circle diversity, contact frequency with family, and contact frequency with friends showed significant Breusch-Pagen test scores ($p < .05$). Transformations did not resolve the heteroscedasticity present in the residuals. Further analysis of the Residuals vs. Fitted plots indicated that the residuals were clustered by gender, with males showing less variance than females. To address this issue, robust standard errors were computed and reported for these models (Mansournia et al., 2021). The hierarchical regression model with prosocial behaviour as the outcome variable also yielded a significant Breusch-Pagen test score ($p < .05$). Robust standard errors were computed and reported for this model. Reporting robust standard errors helps strengthen the reliability of the findings by accounting for heteroscedasticity in the residuals (Mansournia et al., 2021). Thus, the assumption of homoscedasticity was accounted for.

Multicollinearity. The assumption of multicollinearity was assessed using VIF scores, which measure the extent to which a predictor's variance is inflated due to multicollinearity. VIF scores were examined, and all scores fell within the acceptable range (VIF < 2). A VIF score less than 10 is generally accepted, although stricter thresholds are often recommended (Thompson et al., 2017). Given the low VIF scores observed, multicollinearity was not present in the current study.

CHAPTER 4: RESULTS

The results are presented in two sections. The first section addresses the first aim of the study: to describe the composition of preadolescent South African children's social networks. It also reports descriptive statistics for the key characteristics of children's social network composition. The second section addresses the second aim of the study: to investigate whether specific structural features of children's social networks are associated with their mental health and well-being. This section includes the descriptive statistics for the predictor and outcome variables, as well as the results of the correlational, multiple linear regression, and hierarchical multiple regression analyses.

Composition of Children's Social Networks

Placement of Relationship Categories Across the Convoy Model

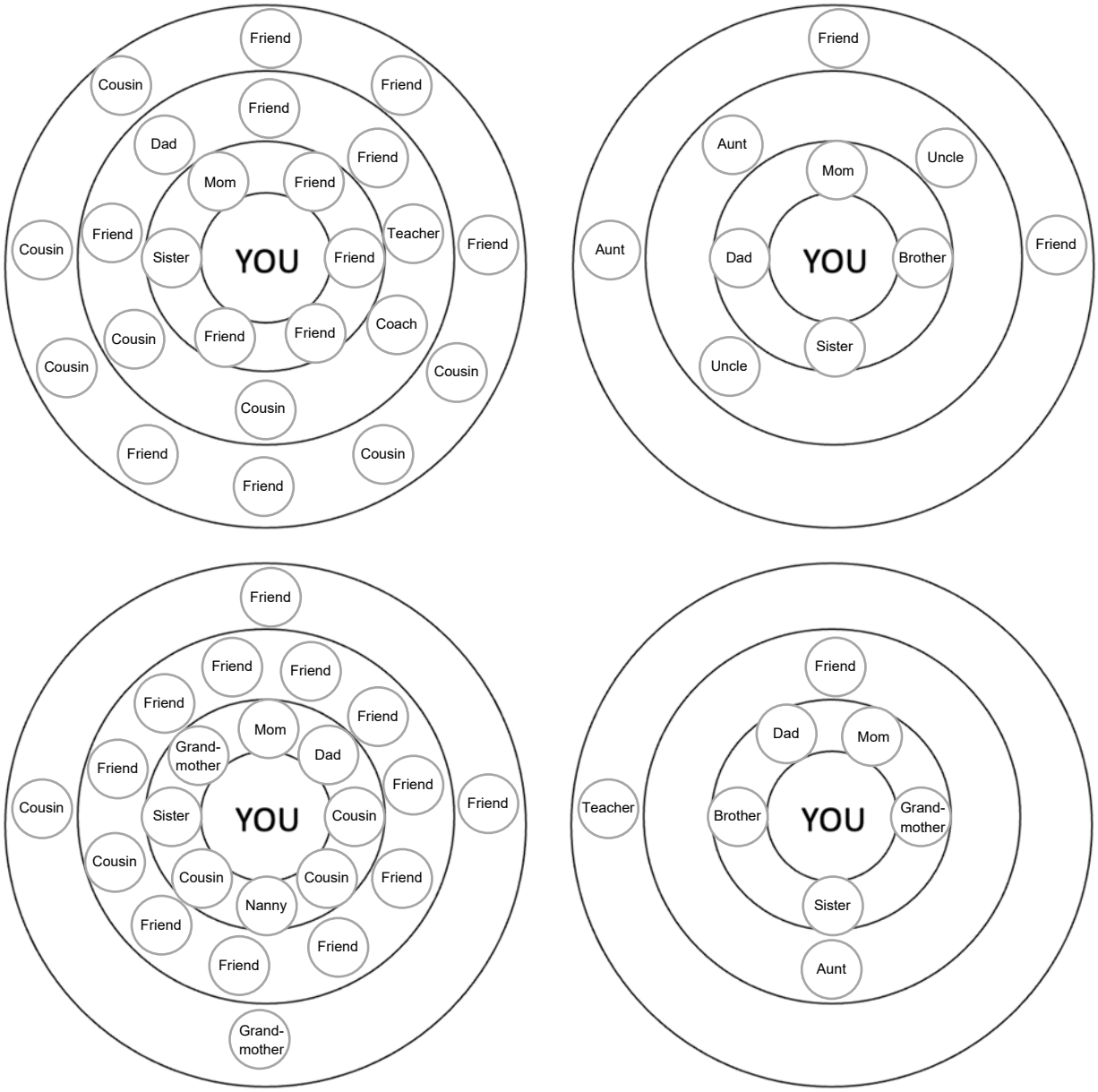
The placement of relationship categories across the convoy model's three circles is presented in Table 3. The counts in Table 3 indicate the number of participants who nominated members from each relationship category in the different circles of the convoy model. Participants could nominate multiple members from the same relationship category and place them in different circles (e.g., a grandmother in the inner circle, and a grandfather in the middle circle). Consequently, the sums of these counts can exceed the total sample size. As a result, each column is not mutually exclusive, and participants can contribute to the count sum of multiple columns. This provides a detailed overview of how different relationship categories are represented across children's social convoys. Figure 1 presents four examples of individual participants' completed convoy diagrams, illustrating how different relationship categories were placed across the three concentric circles. The two diagrams on the left of Figure 1 show more densely populated convoys, whilst the diagrams on the right represent smaller convoys.

The majority (95%) of participants included mothers in the inner circle, followed by 83% including fathers and 77% including siblings in the inner circle. This supports

Hypothesis 1, which predicted that parents and siblings would be included in the inner circle. However, grandparents were included in the inner circle less frequently than hypothesized, with 45% of participants including them in the inner circle and 34% in the middle circle. Extended family members, friends, professionals, and adult friends were spread across the circles, but were most commonly placed in the middle circle.

Figure 1

Examples of Completed Convoy Mapping Diagrams



Note. These are digitised versions of the original diagrams. The names of network members have been removed to maintain confidentiality.

Table 3

Placement of relationship categories in the convoy model (N = 126)

Relationship Category	Inner Circle	Middle Circle	Outer Circle	Absent
Mother	120	5	1	3
Father	104	12	5	6
Sibling	97	26	4	11
Grandparent	57	43	16	30
Extended Family	44	77	40	16
Friends	37	87	66	6
Professionals	15	27	20	62
Adult Friends	2	10	4	92

Note. Counts reflect the number of participants who included that relationship category in each circle, with each participant potentially contributing to multiple circles.

Descriptive statistics

The descriptive statistics for children's social network composition are presented in Table 4. The mean total size of children's social networks was 15.77 (*SD* = 7.49) members with a range from six to 41 members. The ANOVA results examining variations in total size of children's social networks based on gender and SES revealed no statistically significant differences in social network size between children who identified as male or female, F (2) = 0.47, p = .637, or between those attending private and public schools, F (1) = 2.74, p = .101.

The mean sizes of the inner and middle circles were similar, M = 6.1 (*SD* = 3.88) and M = 6.29 (*SD* = 3.61) members respectively, while the outer circle was smaller, M = 3.38 (*SD* = 3.19). ANOVA results indicated that there were no significant differences in inner circle size between genders, F (2) = 0.48, p = .622, or SES groups, F (1) = 0.83, p = .365. Similarly, there were no significant differences in middle circle size between children who identified as male or female, F (2) = 0.54, p = .582, or between those attending private and public schools, F (1) = 1.00, p = .320. Furthermore, no significant differences were found in outer circle size between children who identified as male or female, F (2) = 0.16, p = .852, or between those attending private and public schools, F (1) = 2.67, p = .105.

The mean number of relationship categories was 3.78 in the inner circle, 2.28 in the middle circle and 1.49 in the outer circle. Thus, the most diverse circle was the inner circle, followed by the middle circle and then the outer circle. ANOVA results indicated that there were no significant differences in inner circle relationship category count between genders, F (2) = 1.55, p = .217, or SES groups, F (1) = 0.06, p = .805. Similarly, there were no significant differences in middle circle relationship category count between genders, F (2) = 1.37, p = .259, and SES groups, F (1) = 0.12, p = .730, or in outer circle relationship category count between genders F (2) = 1.77, p = .175, and SES groups, F (1) = 0.81, p = .370.

Contact frequency with family and friends was calculated as an average across all relationships within the family and friend categories, with possible scores ranging from zero to 5. On average, children reported a high contact frequency with family (M = 3.41, SD = 0.80). Children reported an even higher average contact frequency with friends (M = 4.19, SD = 0.83).

The average number of nominations in each relationship category are also displayed in Table 4. On average, children nominated 1.02 mothers, 0.98 fathers, 1.68 siblings, 1.71 grandparents, 4.08 extended family members, and 5.13 friends in their social networks. This indicates that on average children included their mothers and fathers, one or two siblings, one or two grandparents, four extended family members and five friends in their social networks.

Table 4

Descriptive statistics for social network composition (N = 126)

	M	*SD*	Range
Total network size	15.77	7.49	6-41
Inner circle size	6.1	3.88	1-23
Middle circle size	6.29	3.61	0-21
Outer circle size	3.38	3.19	0-17
Relationship categories in the inner circle	3.78	1.15	1-7
Relationship categories in the middle circle	2.28	1.09	1-5
Relationship categories in the outer circle	1.49	0.80	0-4
Average in-person family contact [a]	3.41	0.80	1-5
Average in-person friend contact [a]	4.19	0.83	1-5
Mother count	1.02	0.30	0-3
Father count	0.98	0.27	0-2
Sibling count	1.68	1.07	0-6
Grandparent count	1.71	1.37	0-5
Extended family count	4.08	3.70	0-20
Friend count	5.13	4.02	0-20

Note. Six participants did not include friends in their social network; therefore, these participants were not included in the average in-person contact frequency with friends' calculations ($N = 117$).
[a] Scale ranges from 0-5.

Structural Features of Children's Social Networks and Mental Health and Well-Being

The second aim of the study was to investigate the relationship between specific structural features of children's social networks, including network size, inner circle diversity, contact frequency with both family and friends, and the presence or absence of specific relationships categories from the inner circle and mental health and well-being.

Descriptive Statistics

The descriptive statistics for the predictor and outcome variables for the smaller sample ($N = 99$) are presented in Table 5. Total network size had a mean of 16.35 ($SD = 7.56$) members, which was slightly higher than the larger sample. However, the results of a Welch *t*-test indicated that there was no statistically significant difference between the mean total network size of the two samples, $t(209.64) = -0.58$, $p = .565$. Inner circle diversity had a

mean of 3.80 (*SD* = 1.12), meaning that on average 3.8 different relationship categories were nominated in the inner circle. Average in-person contact frequency with family members and friends had means of 3.35 (SD = 0.74) and 4.19 (*SD* = 0.83) respectively, with five representing the highest possible frequency of contact. This suggests that, on average, participants were in frequent contact with family and friends, but that they interacted with friends more frequently than family members.

The mean PANAS Positive Affect scores indicated that parents reported higher levels of positive affect in their children, with a mean of 20.91 (*SD* = 2.97), compared to children's self-reported positive affect, with a mean of 18.81 (*SD* = 4.22). A Welch *t*-test indicated that this difference was significant, $t(175.99) = 4.05$, $p < .001$. In addition, the range of child-reported positive affect scores (6-25) extended lower than that of parent-reported positive affect scores (11-25). Conversely, the PANAS Negative Affect scores showed little disparity between parent and child-reports with parent-reported negative affect having a mean of 9.57 (*SD* = 3.60), and child-reported negative affect having a similar mean of 9.69 (*SD* = 3.67). A Welch *t*-test confirmed no significant difference, $t(195.93) = -0.23$, $p = .815$. Scores for both child- and parent-reported negative affect ranged from 5 to 21. For both parent and child-reports, more positive affect was reported than negative affect.

Table 5

Descriptive statistics for predictor and outcome variables (N = 99)

Variable	*M*	*SD*	Range
Total network size	16.35	7.56	6-41
Inner circle diversity [a]	3.80	1.12	1-7
Average in-person family contact [b]	3.35	0.74	1.67-5
Average in-person friend contact [b]	4.19	0.83	1.67-5
SDQ Total Difficulties [c]	14.99	6.20	5-33
SDQ Prosocial Behaviour [d]	8.55	1.63	3-10
PANAS Positive Affect Parent-report [e]	20.91	2.97	11-25
PANAS Negative Affect Parent-report [e]	9.57	3.60	5-21
PANAS Positive Affect Child-report [e]	18.81	4.22	6-25
PANAS Negative Affect Child-report [e]	9.69	3.67	5-21
KIDSCREEN Quality of Life [f]	49.12	8.13	29.97-66.86

Note. Six participants did not include friends in their social network; therefore, these participants were not included in the average in-person contact frequency with friends' calculations ($N = 93$). KIDSCREEN scores have been standardised to T values using Rasch person parameters.

[a] Scale ranges from 0-7.

[b] Scale ranges from 0-5

[c] Scale ranges from 0-40

[d] Scale ranges from 0-10

[e] Scale ranges from 5-25

[f] Scale ranges from 0–83.81

Table 6 shows the presence of the different relationship categories in the inner circle for the reduced sample ($N = 99$). Most participants placed their mothers in the inner circle (97%). Father presence in the inner circle was lower than mother presence, with 82% of the sample including fathers in the inner circle. Siblings were nominated in the inner circle by 75% of the sample, grandparents were nominated by 46% of the sample, extended family members by 34% of the sample and friends by 30% of the sample.

Table 6

Relationship category presence in the inner circle (N = 99)

Variable	*N*	%
Mother	96	97
Father	81	82
Sibling	74	75
Grandparent	46	46
Extended Family	34	34
Friend	30	30

Correlational Analyses

In order to examine the relationship between network size, inner circle diversity and contact frequency, and mental health and well-being, Pearson's correlation coefficients were calculated and are displayed in Table 7. Network size had very weak correlations with the outcome variables, none of which were statistically significant. This supports Hypothesis 2.a, which predicted that children's social network size would not have a significant relationship with mental health and well-being.

Inner circle diversity showed predominantly weak correlations with the outcome variables, with the exception of the PANAS Positive Affect parent-report, with which it had a significant, moderate positive correlation (r = .33), and the PANAS Positive Affect child-report, with which it had a significant, weak- to moderate positive correlation (r = .25). This partially supports Hypothesis 2.b, which predicted that more diverse inner circles would have a significant association with better mental health and well-being. However, the hypothesised association was only found with regard to positive affect.

In-person contact frequency with family members showed weak correlations with the outcome variables, none of which were significant. Similarly, in-person contact frequency with friends demonstrated weak correlations with the outcome variables, except for SDQ Total Difficulties, with which it showed a significant weak- to moderate negative correlation

(r = -.24). Hypothesis 2.c, which predicted that children who have more frequent contact with family members and friends will have better mental health and well-being, was only partially supported by the Pearson's correlation coefficients, as only one significant correlation emerged.

Table 7

Pearson's correlation coefficients for predictor and outcome variables (N = 99)

Variable	*r*	*p*
Network size		
SDQ Total Difficulties	.05	.604
SDQ Prosocial Behaviour	-.02	.851
PANAS Positive Affect Parent-report	.07	.482
PANAS Negative Affect Parent-report	.00	.973
PANAS Positive Affect Child-report	.10	.315
PANAS Negative Affect Child-report	.02	.817
KIDSCREEN Quality of Life	-.03	.774
Inner circle diversity		
SDQ Total Difficulties	-.02	.871
SDQ Prosocial Behaviour	.06	.585
PANAS Positive Affect Parent-report	.33***	< .001
PANAS Negative Affect Parent-report	-.17	.089
PANAS Positive Affect Child-report	.25*	.011
PANAS Negative Affect Child-report	.09	.355
KIDSCREEN Quality of Life	.10	.322
Average in-person contact frequency with family		
SDQ Total Difficulties	-.12	.249
SDQ Prosocial Behaviour	.01	.956
PANAS Positive Affect Parent-report	-.07	.472
PANAS Negative Affect Parent-report	.06	.543
PANAS Positive Affect Child-report	.11	.229
PANAS Negative Affect Child-report	.00	.982
KIDSCREEN Quality of Life	.05	.633
Average in-person contact frequency with friends		
SDQ Total Difficulties	-.24*	.021
SDQ Prosocial Behaviour	.11	.280
PANAS Positive Affect Parent-report	.01	.933
PANAS Negative Affect Parent-report	-.04	.727
PANAS Positive Affect Child-report	-.11	.304
PANAS Negative Affect Child-report	-.09	.399
KIDSCREEN Quality of Life	.03	.798

Note. Six participants did not include friends in their social network; therefore, these participants were not included in the average in-person contact frequency with friends' correlations ($N = 93$).
* p < .05,
**p < .01,
***p < .001.

Multiple Linear Regression Analyses

Multiple linear regression analyses were conducted in order to further examine the relationship between children's network size and mental health and well-being after controlling for gender and SES. The results are displayed in Table 8. Network size was not a significant predictor of any of the outcome variables. Although the model predicting SDQ Total Difficulties was significant, only gender and SES contributed significantly to the variance explained by the model. These findings support Hypothesis 2.a. which predicted that children's social network size would not have a significant relationship with mental health and well-being.

Table 8

Results of regression analyses with total network size as the predictor variable (N = 99)

Total Network Size							
Outcome Variable	R^2	Predictor Variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
SDQ Total Difficulties	.09*						
		Intercept	2.83***	1.11	2.62	3.04	< .001
		Total size	0.00	0.01	-0.01	0.01	.619
		Gender [a]	-0.18*	0.08	-0.34	-0.03	.020
		SES [b]	-0.19*	0.08	-0.35	-0.03	.019
SDQ Prosocial Behaviour	.03						
		Intercept	71.17***	7.02	57.24	85.10	< .001
		Total size	0.01	0.34	-0.66	0.68	.967
		Gender [a]	9.06	5.17	-1.20	19.32	.083
		SES [b]	-0.79	5.32	-11.36	9.77	.882
PANAS Positive Affect Parent-report	.08						
		Intercept	403.09***	32.62	338.33	467.85	< .001
		Total size	1.75	1.57	-1.36	4.87	.266
		Gender [a]	50.50*	24.02	2.81	98.19	.038
		SES [b]	-28.80	24.73	-77.89	20.30	.247
PANAS Negative Affect Parent-report	.07						
		Intercept	2.42***	0.09	2.25	2.60	< .001
		Total size	0.00	0.00	-0.01	0.01	.956
		Gender [a]	-0.12	0.07	-0.26	0.01	.063
		SES [b]	-0.15*	0.07	-0.29	-0.02	.025
PANAS Positive Affect Child-report	.05						
		Intercept	367.77***	40.78	286.82	448.73	< .001
		Total size	2.38	1.96	-1.51	6.27	.228
		Gender [a]	-21.06	30.03	-80.68	38.56	.485
		SES [b]	-62.66*	30.92	-124.03	-1.28	.046
PANAS Negative Affect Child-report	.02						
		Intercept	2.23***	0.09	2.05	2.41	< .001
		Total size	0.00	0.00	-0.01	0.01	.542
		Gender [a]	0.09	0.07	-0.04	0.22	.183
		SES [b]	-0.01	0.07	-0.15	0.12	.868

Total Network Size							
Outcome Variable	R^2	Predictor Variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
KIDSCREEN Quality of Life	.01						
		Intercept	50.75***	2.31	46.16	55.35	< .001
		Total size	-0.05	0.11	-0.27	0.17	.664
		Gender [a]	-0.65	1.70	-4.04	2.73	.703
		SES [b]	-1.29	1.75	-4.77	2.19	.465

Note. CI = confidence interval; *LL* = lower limit: *UL* = upper limit. Robust standard errors were used and are reported for the child-reported negative affect model only.
[a]0 = male, 1 = female
[b]0 = middle, 1 = high
* p < .05,
**p < .01,
***p < .001.

The results of the multiple linear regression analyses exploring the relationship between inner circle diversity and mental health and well-being are presented in Table 9. Consistent with the results of the correlational analyses, inner circle diversity emerged as a significant predictor of positive affect. Specifically, the model predicting parent-reported positive affect was significant (F (3) = 6.41, p = .001; R^2 = .17), with inner circle diversity and gender emerging as significant predictors. The beta coefficients indicated that more diverse inner circles and female gender were associated with greater positive affect. Similarly, the model predicting child-reported positive affect was significant (F (3) = 4.09, p = .009; R^2 = .11) and showed that greater diversity in the inner circle was associated with higher levels of child-reported positive affect. Inner circle diversity also emerged as a significant predictor of parent-reported negative affect, along with SES (F (3) = 3.86, p = .012; R^2 = .11). Specifically, more diverse inner circles and higher SES were associated with less parent-reported negative affect. These findings support Hypothesis 2.b, which predicted that a more diverse inner circle would be associated with better mental health and well-being.

Table 9

Results of regression analyses with inner circle diversity as the predictor variable (N = 99)

Inner Circle Diversity							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
SDQ Total Difficulties	.09*						
		Intercept	2.92***	0.14	2.64	3.02	< .001
		Inner diversity	-0.01	0.03	-0.08	0.05	.665
		Gender [a]	-0.19*	0.08	-0.34	-0.03	.019
		SES [b]	-0.19*	0.08	-0.34	-0.03	.022
SDQ Prosocial Behaviour	.04						
		Intercept	66.68***	9.56	47.71	85.66	< .001
		Inner diversity	1.26	2.26	-3.22	5.74	.579
		Gender [a]	8.93	5.15	-1.30	19.16	.086
		SES [b]	-0.79	5.27	-11.25	9.68	.882
PANAS Positive Affect Parent	.17*						
		Intercept	302.32***	42.22	218.50	360.28	< .001
		Inner diversity	34.41***	9.97	14.62	54.19	< .001
		Gender [a]	45.80*	22.77	0.60	90.99	.047
		SES [b]	-25.88	23.28	-72.10	20.33	.269
PANAS Negative Affect Parent	.11*						
		Intercept	2.64***	0.12	2.41	2.88	< .001
		Inner diversity	-0.06*	0.03	-0.11	0.00	.046
		Gender [a]	-0.12	0.06	-0.25	0.01	.068
		SES [b]	-0.15*	0.07	-0.28	-0.02	.023
PANAS Positive Affect Child	.11*						
		Intercept	268.75***	53.75	162.05	375.46	< .001
		Inner diversity	36.62**	12.69	11.43	61.81	.005
		Gender [a]	-26.55	28.98	-84.09	30.99	.362
		SES [b]	-58.54	29.64	-117.37	0.30	.051
PANAS Negative Affect Child	.03						
		Intercept	2.17***	0.12	1.93	2.42	< .001
		Inner diversity	0.03	0.03	-0.03	0.08	.342
		Gender [a]	0.08	0.07	-0.05	0.21	.206
		SES [b]	-0.01	0.07	-0.14	0.13	.923

Inner Circle Diversity							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
KIDSCREEN Quality of Life	.02						
		Intercept	46.86.***	3.14	40.63	53.09	< .001
		Inner diversity	0.83	0.74	-0.64	2.30	.265
		Gender [a]	-0.68	1.69	-4.04	2.68	.689
		SES [b]	-1.40	1.73	-4.77	2.19	.421

Note. CI = confidence interval; *LL* = lower limit: *UL* = upper limit. Robust standard errors were used and are reported for the child-reported negative affect model only.
[a]0 = male, 1 = female
[b]0 = middle, 1 = high
* p < .05,
**p < .01,
***p < .001.

Table 10 displays the results of the multiple linear regression analyses investigating the relationship between in-person contact frequency with family members and mental health and well-being. Contact frequency with family members was not a significant predictor of any of the outcome variables. These findings do not support Hypothesis 2.c, which predicted that more frequent in-person contact with family members would be associated with better mental health and well-being.

Table 10

Results of regression analyses with in-person family contact frequency as the predictor variable (N = 99)

In-Person Family Contact Frequency							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
SDQ Total Difficulties	.10*						
		Intercept	3.10***	0.19	2.73	3.47	< .001
		Contact frequency	-0.07	0.05	-0.17	0.03	.183
		Gender [a]	-0.20*	0.08	-0.35	-0.04	.012
		SES [b]	-0.19*	0.08	-0.34	-0.03	.019
SDQ Prosocial Behaviour	.04						
		Intercept	67.81***	12.57	42.96	92.86	< .001
		Contact frequency	1.01	3.41	-5.76	7.78	.768
		Gender [a]	9.22	5.19	-1.09	19.52	.079
		SES [b]	-0.74	5.28	-11.21	9.74	.890
PANAS Positive Affect Parent-report	.07						
		Intercept	463.88***	58.71	347.34	580.43	< .001
		Contact frequency	-9.48	15.93	-41.10	22.14	.553
		Gender [a]	47.22	24.24	-0.91	95.35	.054
		SES [b]	-25.58	24.65	-74.52	23.36	.302
PANAS Negative Affect Parent-report	.07						
		Intercept	2.35***	0.16	2.04	2.67	< .001
		Contact frequency	0.02	0.04	-0.07	0.11	.628
		Gender [a]	-0.12	0.07	-0.25	0.01	.071
		SES [b]	-0.15*	0.07	-0.29	-0.02	.025
PANAS Positive Affect Child-report	.04						
		Intercept	361.57***	73.37	205.91	497.22	< .001
		Contact frequency	15.79	19.91	-23.73	55.31	.430
		Gender [a]	-20.61	30.30	-80.75	39.54	.498
		SES [b]	-57.52	30.81	-118.68	3.65	.065
PANAS Negative Affect Child-report	.02						
		Intercept	2.23***	0.08	1.91	2.55	< .001
		Contact frequency	0.00	0.00	-.07	0.10	.754
		Gender [a]	0.09	0.07	-0.04	0.22	.186

In-Person Family Contact Frequency							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
KIDSCREEN Quality of Life	.01	SES [b]	-0.01	0.07	-0.14	0.13	.933
		Intercept	48.13***	4.14	39.90	56.35	< .001
		Contact frequency	0.54	1.12	-1.70	2.77	.634
		Gender [a]	-0.51	1.71	-3.91	2.88	.764
		SES [b]	-1.37	1.74	-4.82	2.09	.433

Note. CI = confidence interval; *LL* = lower limit: *UL* = upper limit. Robust standard errors were used and are reported for the child-reported negative affect model only.
[a]0 = male, 1 = female
[b]0 = middle, 1 = high
* p < .05,
**p < .01,
***p < .001.

The results of the multiple linear regression analyses examining the relationship between in-person contact frequency with friends and mental health and well-being are displayed in Table 11. Six participants were removed from these analyses as they did not nominate friends in their social network ($N = 93$). Consistent with the correlational analyses, contact frequency with friends was a significant predictor of the SDQ Total Difficulties score, along with gender and SES. The model was significant ($F(3) = 4.68$, $p = .004$; $R^2 = .14$), and the beta coefficients indicated that increased contact with friends was associated with lower SDQ Total Difficulties scores. Girls were reported to have lower SDQ Total Difficulties scores than boys, and lower-middle SES participants were reported to have higher SDQ Total Difficulties scores than high SES participants. These findings partially support Hypothesis 2.c, which predicted that more frequent in-person contact with friends would be associated with better mental health and well-being.

Table 11

Results of regression analyses with in-person friend contact frequency as the predictor variable (N = 93)

In-Person Friend Contact Frequency							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
SDQ Total Difficulties	.14**						
		Intercept	3.30***	0.21	2.88	3.71	< .001
		Contact frequency	-0.10*	0.05	-0.20	-0.01	.030
		Gender [a]	-0.20*	0.08	-0.36	-0.04	.015
		SES [b]	-0.17*	0.08	-0.33	-0.01	.038
SDQ Prosocial Behaviour	.05						
		Intercept	53.59***	13.74	26.28	80.90	< .001
		Contact frequency	4.24	3.12	-1.96	10.44	.178
		Gender [a]	9.04	5.28	-1.44	19.53	.090
		SES [b]	-1.82	5.38	-12.51	8.87	.736
PANAS Positive Affect Parent-report	.07						
		Intercept	425.43***	64.13	298.00	552.87	< .001
		Contact frequency	3.72	14.57	-25.22	32.66	.799
		Gender [a]	40.32	24.63	-8.61	89.25	.105
		SES [b]	-36.73	25.11	-86.62	13.16	.147
PANAS Negative Affect Parent-report	.08						
		Intercept	2.47***	0.18	2.11	2.83	< .001
		Contact frequency	-0.01	0.04	-0.09	0.07	.880
		Gender [a]	-0.15*	0.07	-0.29	-0.01	.033
		SES [b]	-0.16*	0.07	-0.30	-0.02	.026
PANAS Positive Affect Child-report	.05						
		Intercept	465.69***	79.50	307.72	623.65	< .001
		Contact frequency	-13.62	18.06	-49.50	22.26	.453
		Gender [a]	-29.58	30.53	-90.23	31.08	.335
		SES [b]	-55.72	31.12	-117.56	6.13	.077
PANAS Negative Affect Child-report	.02						
		Intercept	2.37***	0.18	2.02	2.72	< .001
		Contact frequency	-0.02	0.04	-0.10	0.06	.621

In-Person Friend Contact Frequency							
Outcome variable	R^2	Predictor variable	Estimate	*SE*	95% CI		*p*
					LL	*UL*	
KIDSCREEN Quality of Life	.01	Gender [a]	0.08	0.07	-0.05	0.22	.222
		SES [b]	-0.01	0.07	-0.15	0.15	.885
		Intercept	48.03***	4.54	39.02	57.05	< .001
		Contact frequency	0.43	1.03	-1.62	2.48	.679
		Gender [a]	-0.89	1.74	-4.36	2.57	.609
		SES [b]	-1.19	1.78	-4.72	2.34	.505

Note. Six participants did not include friends in their social network; therefore, these participants were not included in the average in-person contact frequency with friends' models (*N* = 93). Robust standard errors were used and are reported for the child-reported negative affect model only.
CI = confidence interval; *LL* = lower limit: *UL* = upper limit.
[a]0 = male, 1 = female
[b]0 = middle, 1 = high
* p < .05,
**p < .01,
***p < .001.

Hierarchical Multiple Regression Analyses

The associations between the presence/absence of specific relationship categories in the inner circle and children's mental health and well-being were investigated through hierarchical multiple regression. Table 12 presents the results of the hierarchical regression analysis predicting the SDQ Total Difficulties scores. Initially, the model included the control variables, gender and SES, which explained 9% of the variance in the SDQ Total Difficulties scores, F (2) = 4.58, p = .013. Both gender and SES were significant predictors of total difficulties. Female gender was associated with lower total difficulties scores than male gender. Lower-middle SES was associated with increased total difficulties scores compared to high SES. In the second step, father and sibling presence in the inner circle were introduced, F (4) = 3.56, p = .010. Father presence emerged as a significant predictor and the beta coefficient indicated that father presence in the inner circle was associated with lower total difficulties scores. However, sibling presence in the inner circle was not a significant

predictor and the amount of variance explained by the model did not increase significantly. Grandparent and extended family member presence were included in the third step; however, neither grandparent presence nor extended family member presence were significant predictors of total difficulties, and the amount of variance explained did not significantly increase. In the fourth step, friend presence was introduced, but it was not a significant predictor of total difficulties and did not significantly contribute to the amount of variance explained by the model. The final model explained 17% of the variance in total difficulties scores, with gender and SES remaining the only significant predictors. Although paternal presence emerged as a significant predictor of total difficulties in step 2, gender and SES emerged as the most robust predictors in the final step.

Table 12

Results of hierarchical multiple regression analysis predicting SDQ Total Difficulties score

		SDQ Total Difficulties Score			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		.09*			
	Gender [a]		-0.19*	0.08	-0.24
	SES [b]		-0.19*	0.08	-0.24
2		.04			
	Father Presence		-0.21*	0.10	-0.21
	Sibling Presence		-0.02	0.09	-0.02
3		.04			
	Grandparent Presence		-0.14	0.07	-0.19
	Extended Family Presence		0.06	0.08	0.07
4		.00			
	Friend Presence		0.07	0.09	0.08

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*$p < .05$
**$p < .01$
***$p < .001$.

Table 13 shows the results of the hierarchical regression analysis predicting the SDQ Prosocial Behaviour scores. The first and second steps included the control variables, gender and SES, and father and sibling presence respectively, although neither the predictors nor the models were statistically significant. Grandparent and extended family member presence in the inner circle were added in the third step, resulting in a significant 11% increase in the amount of variance explained, F (6) = 3.60, p = .003. Grandparent presence was a significant predictor of prosocial behaviour, whilst extended family presence was not. The beta coefficient indicated that grandparent presence in the inner circle was associated with increased prosocial behaviour scores. Friend presence in the inner circle was added in the fourth step but was not a significant predictor of prosocial behaviour. The final model explained 20% of the variance in SDQ Prosocial Behaviour Scores and grandparent presence in the inner circle emerged as a significant predictor of more prosocial behaviour.

Table 13

Results of hierarchical multiple regression analysis predicting SDQ Prosocial score

		SDQ Prosocial Behaviour Score			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		.03			
	Gender [a]		9.04	5.20	0.18
	SES [b]		-0.77	5.36	-0.02
2		.05			
	Father Presence		12.81	7.83	0.20
	Sibling Presence		3.48	5.71	0.06
3		.11*			
	Grandparent Presence		15.42**	4.64	0.31
	Extended Family Presence		-7.21	4.89	-0.14
4		.01			
	Friend Presence		-4.28	5.48	-0.08

Note. Robust standard errors were used and are reported for this model.
[a]0 = male, 1 = female; [b]0 = middle, 1 = high
*p < .05
**p < .01
***p < .001

The results of the hierarchical regression analysis predicting the PANAS Positive Affect score as reported by parents are displayed in Table 14. The first step included the control variables, gender and SES, and accounted for 6% of the variance, F (2) = 3.28, p = .042. Gender emerged as the only significant predictor, and the coefficient suggested that female gender was associated with higher positive affect scores than male gender. The results of the subsequent steps indicated that the presence of specific relationship categories in the inner circle did not play a significant role in predicting positive affect scores.

Table 14

Results of hierarchical multiple regression analysis predicting PANAS Positive Affect parent-report

		PANAS Positive Affect Parent-Report			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		0.06*			
	Gender [a]		48.84*	24.01	0.21
	SES [b]		-25.32	24.57	-0.10
2		0.05			
	Father Presence		41.33	30.57	0.13
	Sibling Presence		40.40	27.25	0.15
3		0.02			
	Grandparent Presence		13.44	23.16	0.06
	Extended Family Presence		30.82	24.73	0.12
4		0.03			
	Friend Presence		47.54	26.67	0.18

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*p < .05
**p < .01
***p < .001.

Table 15 displays the results of the hierarchical regression analysis predicting the PANAS Negative Affect parent-report scores. The first step included the control variables, gender and SES, and accounted for 7% of the variance, F (2) = 3.62, p = .031. SES emerged

as the only significant predictor, with lower SES being associated with higher negative affect scores. Subsequent steps indicated that the presence of specific relationship categories in the inner circle did not play a significant role in predicting negative affect scores.

Table 15

Results of hierarchical multiple regression analysis predicting PANAS Negative Affect parent-report

		PANAS Negative Affect Parent-Report			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		0.07*			
	Gender [a]		-0.12	0.07	-0.19
	SES [b]		-0.15*	0.07	-0.23
2		0.02			
	Father Presence		-0.06	0.08	-0.07
	Sibling Presence		-0.08	0.08	-0.11
3		0.01			
	Grandparent Presence		-0.07	0.06	-0.10
	Extended Family Presence		-0.04	0.07	-0.06
4		0.00			
	Friend Presence		-0.05	0.08	-0.08

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*$p < .05$
**$p < .01$
***$p < .001$.

The results of the hierarchical regression analysis predicting the PANAS Positive Affect child-report scores are shown in Table 16. The first step included the control variables, gender and SES, although neither emerged as significant predictors of positive affect. Father and sibling presence were added in the second step, resulting in a significant 6% increase in the amount of variance explained, $F(4) = 2.68$, $p = .036$. Sibling presence was a significant predictor and was associated with higher positive affect scores, while father presence was not a significant predictor. Grandparent and extended family member presence were added in the

third step, F (6) = 2.75, p = .017. Extended family presence was a significant predictor and was associated with higher positive affect scores, while grandparent presence was not a significant predictor. Friend presence was added in the fourth step but did not significantly contribute to the model's explanatory power. The final model explained 16% of the variance in child-reported positive affect scores and the presence of siblings and extended family members in the inner circle were found to be significantly associated with higher positive affect scores.

Table 16

Results of hierarchical multiple regression analysis predicting PANAS Positive Affect child-report

		PANAS Positive Affect Child-Report			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		0.04			
	Gender [a]		-23.31	30.05	-0.08
	SES [b]		-57.94	30.75	-0.19
2		0.06*			
	Father Presence		6.36	37.91	0.02
	Sibling Presence		85.35*	33.80	0.25
3		0.05			
	Grandparent Presence		-4.95	28.22	-0.02
	Extended Family Presence		69.82*	30.13	0.23
4		0.01			
	Friend Presence		-32.97	32.88	-0.10

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*p < .05
**p < .01
***p < .001.

Table 17 reports the results of the hierarchical regression analysis predicting PANAS Negative Affect child-report scores. Overall, neither the control variables nor the presence of

specific relationship categories in the inner circle played a significant role in predicting negative affect scores.

Table 17

Results of hierarchical multiple regression analysis predicting PANAS Negative Affect child-report

		PANAS Negative Affect Child-Report			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		0.02			
	Gender [a]		0.09	0.07	0.14
	SES [b]		-0.01	0.07	-0.01
2		0.03			
	Father Presence		-0.14	0.08	-0.17
	Sibling Presence		-0.03	0.08	-0.04
3		0.04			
	Grandparent Presence		0.13	0.06	0.20
	Extended Family Presence		0.00	0.07	0.01
4		0.02			
	Friend Presence		0.10	0.07	0.14

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*$p < .05$
**$p < .01$
***$p < .001$.

Table 18 shows the results of the hierarchical regression analysis predicting the KIDSCREEN Quality of Life score. The first step included gender and SES, although neither emerged as significant predictors. Father and sibling presence were added in the second step, resulting in a significant 7% increase in the amount of variance explained, F (4) = 1.99 p = .103. Father presence was a significant predictor and was associated with higher KIDSCREEN Quality of Life scores, while sibling presence was not a significant predictor. Subsequent steps, which included grandparent, extended family and friend presence in the inner circle, yielded no significant results. Overall, only father presence in the inner circle

emerged as a significant predictor of the KIDSCREEN Quality of Life score, with father presence being associated with higher scores.

Table 18

Results of hierarchical multiple regression analysis predicting KIDSCREEN Quality of Life

		KIDSCREEN Quality of Life			
Step	Variable	ΔR^2	B	*SE*(B)	β
1		0.01			
	Gender [a]		-0.61	1.69	-0.048
	SES [b]		-1.38	1.73	-0.08
2		0.07*			
	Father Presence		5.10*	2.13	0.24
	Sibling Presence		1.38	1.90	0.07
3		0.00			
	Grandparent Presence		0.94	1.63	0.6
	Extended Family Presence		-0.26	1.74	-0.02
4		0.01			
	Friend Presence		-1.60	1.90	-0.09

Note. [a]0 = male, 1 = female
[b]0 = middle, 1 = high
*$p < .05$
**$p < .01$
***$p < .001$.

Summary of Results

The children who participated in the current study typically nominated parents and siblings in their inner circle, with grandparents being the next most frequently nominated inner circle category. Extended family members, friends, professionals and adult friends were typically nominated in the middle and outer circles. This was consistent with Hypothesis 1. Children nominated an average of 15.77 (*SD* = 7.49) members in their social networks and individual circle size indicated a concentration of relationships around the centre of the social convoy, with fewer relationships on the periphery. Furthermore, children nominated approximately four different relationship categories in the inner circle, indicating a variety of close sources of support. These patterns did not vary significantly based on gender and SES.

The regression analyses revealed several significant results. Whilst the total size of children's social networks was not a significant predictor of mental health and well-being (consistent with Hypothesis 2.a.), inner circle diversity emerged as a significant predictor of both child- and parent-reported positive affect, as well as parent-reported negative affect. Children with a greater number of inner circle relationship categories tended to receive higher positive affect scores, and lower parent-reported negative affect scores, partially aligning with Hypothesis 2.b. Contrary to Hypothesis 2.c., frequency of contact with family members did not emerge as a significant predictor of mental health and well-being. However, children who had greater in-person contact frequency with friends were reported to have fewer total difficulties, showing partial support for Hypothesis 2.c.

The results of the hierarchical regression analyses also provided partial support for Hypothesis 2.d., which proposed that the presence or absence of specific relationship categories in the inner circle would have implications for mental health and well-being.

Hypothesis 2.d.i., which predicted that the absence of one or both parents from the inner circle would generally be associated with poorer mental health and well-being, was partially supported. Maternal absence was not explored as the number of participants who did not include mothers in the inner circle was too small to perform a meaningful analysis. Father absence from the inner circle was significantly associated with higher total difficulties scores and lower quality of life scores.

Hypothesis 2.d.ii., which predicted that the presence or absence of siblings in the inner circle would have no association with mental health and well-being, was not entirely supported by the data. Sibling presence emerged as a significant predictor of child-report scores of positive affect with sibling presence being associated with greater positive affect. However, the presence of siblings in the inner circle was not significantly associated with any other outcome variable.

Hypothesis 2.d.iii., which predicted that grandparent presence in the inner circle would be associated with better mental health, was partially supported. Grandparent presence in the inner circle was a significant predictor of prosocial behaviour scores, with grandparent presence being associated with more prosocial behaviour.

Hypothesis 2.d.iv., which predicted that the presence of extended family members in the inner circle would be associated with better mental health and well-being, was also partially supported. The presence of extended family members emerged as a significant predictor of child-reported positive affect scores, with extended family member presence being associated with greater positive affect.

Hypothesis 2.d.v., that the presence of friends in the inner circle would generally be associated with poorer mental health and well-being, was not supported by the data. Friend presence in the inner circle did not emerge as a significant predictor of any of the outcome variables.

CHAPTER 5: DISCUSSION

The current study aimed to explore the composition of preadolescent South African children's social networks. Based on the literature, it was hypothesised that the composition of children's social networks would generally follow previously observed trends, with parents, siblings, and often grandparents occupying the inner circle, followed by extended family members, friends and professionals occupying the middle and outer circles. The results showed support for Hypothesis 1.

The second broad aim was to explore the relationship between various structural features of children's social networks and their mental health and well-being. Hypothesis 2.a. predicted that children's social network size would have no relationship with mental health and well-being and was supported by the findings of the current study. Hypothesis 2.b. predicted that more diverse inner circles would be associated with better mental health and well-being, which was partially supported by the findings. Greater inner circle diversity was associated with more positive affect as reported by both parents and children, as well as less parent-reported negative affect. Hypothesis 2.c. predicted that greater frequency of contact with family and friends would be associated with better mental health and well-being. However, this was not supported by the results, with the exception that greater contact frequency with friends was associated with fewer total difficulties.

It was also hypothesized that the presence/absence of specific relationship categories from the inner circle would have a relationship with mental health and well-being. The absence of fathers from the inner circle was found to be associated with more total difficulties and lower quality of life, consistent with Hypothesis 2.d.i. The presence of siblings in the inner circle was found to be associated with more positive affect as reported by children themselves, contrary to Hypothesis 2.d.ii. Grandparent presence in the inner circle was found to be associated with more prosocial behaviour, in alignment with Hypothesis 2.d.iii. The

presence of extended family members in the inner circle emerged as a significant predictor of more child-reported positive affect, consistent with Hypothesis 2.d.iv. Lastly, friend presence in the inner circle did not emerge as a significant predictor of any measures of mental health and well-being used in the current study, contrary to Hypothesis 2.d.v.

Composition of Children's Social Networks

The results of the current study revealed that preadolescent South African children have relatively substantial social networks. The descriptive statistics showed that the mean total size of children's social networks (M = 15.77, SD = 7.49) was larger than that reported in previous literature. For example, Levitt et al. (1993) found that 10-year-old children in the United States had a mean network size of 13.09 (SD = 8.86). Similarly, Manalel and Antonucci (2022) reported that American children aged 10 had a mean total network size of 8.66; however, the number of nominations was capped at 20 members as less than 4% of their sample nominated more than 20 members. Additionally, network size did not vary based on gender or SES, indicating that preadolescent South African children had large social networks regardless of their gender or socioeconomic background.

This difference in network size to that of American children may reflect contextual or cultural differences, such as South Africa's more collectivist culture and the prevalence of extended households (Statistics South Africa, 2023; Terblanché-Greeff, 2022). Statistics South Africa (2023) reports that 32.3% of households were classified as extended households, which are made up of nuclear cores (parents and their children) and other family members such as grandparents, in-laws, uncles, aunts and cousins. However, the rate of children living in extended households is much higher, closer to 64% (Van den Berg et al., 2021). This prevalence of larger households that include additional members outside the core family unit could be a potential contributing factor to the differences in network size between South African and American children (Hall & Mokomane, 2018). Furthermore, South Africa

has often been described as having a collectivist culture, particularly within the African, Coloured and Indian groups (Adams et al., 2012; Terblanché-Greeff, 2022). The term *ubuntu* - "I am because we are" - is a core value of many South African communities and emphasizes the importance of collective engagement and mutual support (Dillard & Neal, 2020; Terblanché-Greeff, 2022; Willmore et al., 2023). Collectivism places a strong focus on family and community ties (Adams et al., 2012; Hamamura, 2012; Terblanché-Greeff, 2022). Similarly, the common phrase "it takes a village to raise a child", stems from an old African proverb that encapsulates a broader communal way of raising and caring for children that includes not only parents and siblings but also extended family members, teachers, neighbours, professionals and members of the community (Reupert et al., 2022). These innate cultural factors may provide some explanation for the larger number of members included in South African children's social networks, compared to their American counterparts.

Within the convoy model's concentric circle design, the size of each circle represents the number of people at different levels of closeness. The mean sizes of the inner and middle circles were similar, whilst the outer circle was considerably smaller. No variations in circle sizes were found based on gender or SES, suggesting the children nominated a similar number of people at each level of closeness across gender and social class. These findings are consistent with those of Levitt et al. (1993), who reported a similar pattern in the sizes of American children's inner, middle and outer circles. The larger inner and middle circle sizes suggest that there is a concentration of close and important relationships and fewer peripheral relationships in the social networks of preadolescent children. Children's social networks typically focus on close family relationships, prior to the shift that takes place in adolescence in favour of larger friend-focused networks (Levitt et al., 1993). Manalel and Antonucci (2022) used the convoy model to examine changes in composition over time and found that there was a significant decrease in close relationships in favour of an increase in peripheral

relationships from childhood (8- to 12-year-olds) to adulthood (21- to 26-year-olds). This underpins the evolving nature of social networks, particularly the prioritisation of close relationships in childhood, while peripheral relationships take on greater importance later in life.

The number of different relationship categories within each of the concentric circles refers to the diversity of each circle. The inner circle exhibited the highest level of diversity, with South African children nominating approximately four different relationship categories in this circle. In contrast, the middle and outer circles showed lower levels of diversity. Diverse inner circles translate to varying sources of support, which has been shown to be beneficial for children's adjustment (Levitt et al., 2005). These findings suggest that South African children tend to have a variety of close sources of support.

Inner Circle

The analysis of children's placement of network members in the various circles indicated that parents and siblings predominantly occupied the inner circle of the convoy, consistent with Hypothesis 1. Almost the entire sample (95%) nominated mothers in the inner circle, followed by fathers (83%) and then siblings (77%). These findings align with existing theory on children's social networks which suggests that close family members, such as parents and siblings, are typically the core members of children's social networks (Manalel & Antonucci, 2020). The results also corroborate previous research with U.S. and Japanese children aged 8-to-12 where the average nominations for the inner circle were mother, father and sibling/s (Antonucci et al., 2004). Levitt (2005) reported similar rates of mother (95.9%) and father (81.0%) inclusion in the inner circle of American children, although only 62.8% of them included siblings. The larger proportion of South African children nominating siblings in the inner circle may be due to differences in the average number of children per household, as South Africa has a higher rate of births per woman than the United States (Macrotrends,

2024). Overall, the pattern in inner circle nominations followed similar trends to that of American children.

Existing literature on the placement of grandparents in the convoy model's concentric circle design has shown varying results, with previous research indicating that grandparents are predominately nominated in either the inner or middle circles (Antonucci et al., 2004; Van Heerden & Wild, 2018). The current study found that grandparents were nominated in the inner circle by just under half the sample (45%). This was less than hypothesised based on previous research on a South African sample that indicated a greater rate of grandparent inclusion in the inner circle (66%; Van Heerden & Wild, 2018). This disparity may be due to differences in the participants, as the current study had a more socioeconomically diverse sample. Levitt (2005) reported a similar rate of grandparent inclusion in the inner circle by American children (47.9%) to the current study. Nevertheless, grandparents were the fourth largest nominated relationship category in the inner circle after mother, father and sibling/s, emphasising the importance of this relationship category within preadolescent children's social networks. The role of grandparents has become increasingly salient across the world, with grandparents playing significant roles in childcare, in financial, practical and emotional capacities (Buchanan & Rotkirch, 2018; Tan et al., 2009). Increasing life expectancies as well as a greater presence of parents, particularly mothers, in the workforce have provided children with the opportunity to form closer and more long-lasting relationships with their grandparents (Tan et al., 2009; Wild, 2018). Wild (2018) examined grandparent involvement in adolescence in a South African context and found that grandparents are often seen as caregivers and positive sources of support. The current study complements this with its high rate of grandparent inclusion in the inner circle of children's social networks, underscoring their close and important role in many pre-adolescent children's lives.

As children approach adolescence, their social networks start to differ from childhood norms. Previous literature indicates that during adolescence, there is a notable shift in network composition, with a greater reliance on relationships outside the immediate family, such as friends, peers, extended family members and teachers (Hamilton, 2005; Levitt et al., 2005). The current study focused on preadolescent children and captures the family-focused nature of children's social networks prior to these changes. However, some exceptions to previous trends in early childhood social network composition were observed, with extended family members and friends nominated in the inner circle by roughly one third of participants and professionals by 12% of participants. These findings may reflect the early stages of the transition to adolescence and the resultant social network changes that generally occur. Alternatively, these findings could be due to an over-reliance on relationships such as friends or professionals in the place of core support roles, which has been shown to have adverse effects (Levitt, 2005). However, these deviations from previously observed trends may reflect cultural norms and beliefs that are prevalent in South Africa. As previously mentioned, the prevalence of extended households and a collectivist culture means that many South African children are raised in community (Hall & Mokomane, 2018; Terblanché-Greeff, 2022). This collectivist attitude as well as the importance of extended families in South Africa may offer some explanation for the differences in inner circle composition in comparison to the U.S. These findings underscore the nuanced nature of children's social networks, specifically in preadolescence as the transition to adolescence begins, and highlight the need for further longitudinal research on the evolving patterns of children's social networks.

Middle and Outer Circles

Consistent with Hypothesis 1, extended family members, friends, professionals and adult friends were predominantly nominated in the middle circle. This reflects their important but less central role in preadolescent children's social networks. Friends, professionals and

adult friends were most frequently nominated in the middle circle, followed by the outer circle, whilst extended family members were most frequently nominated in the middle circle, followed by the inner circle. This highlights the more important role of family members in preadolescent children's social networks, over that of friends, professionals and adult friends. This aligns with existing literature that suggests that relationships outside the family tend to take on a more peripheral role in childhood (Levitt et al., 2005). Additionally, existing literature posits that friends begin to take on greater importance only in adolescence, which is consistent with these findings where friends fell more on the periphery (Levitt et al., 1993). Professionals and adult friends fell largely in the middle and outer circles, emphasising their important but peripheral roles in children's social networks. Further longitudinal research is needed to track the evolving nature of children's social networks across childhood and how the importance of these relationship categories shifts throughout the network over time.

Structural Features of Children's Social Networks and Mental Health and Well-Being

The results of the analyses examining the relationships between various structural features of children's social networks and several measures of mental health and well-being will be discussed below. The current study examined four structural features, including total network size, inner circle diversity, contact frequency with network members and the presence/absence of specific relationship categories from the inner circle. This second section of the study utilized data reported by both children and parents, resulting in a decrease in sample size due to lower response rates from parents. The current study used seven measures of mental health and well-being, namely the SDQ Total Difficulties scale, the SDQ Prosocial Behaviour scale, the PANAS Positive Affect scale and Negative Affect scale as reported by both parents and children, as well as the KIDSCREEN Quality of Life scale.

There is no established normative SDQ data for a South African sample; however, the mean SDQ Total Difficulties score of 14.99 was considerably higher than that of American

children aged 8- to 10-years-old (*M* = 7.20, *SD* = 5.80), U.K. children aged 5- to 15-years-old (*M* = 8.40, *SD* = 5.80) and Japanese children aged 10- to 12-years-old (*M* = 7.10, *SD* = 4.90; *Youthinmind*, 2013). However, cross-country comparisons of the SDQ may not accurately reflect the prevalence of psychiatric disorders, as the relationship between SDQ indicators and disorder rates can vary significantly between populations (De Vries et al., 2018; Goodman et al., 2012). De Vries et al. (2018), who similarly reported a higher mean total difficulties score in South African adolescents compared to their U.K. counterparts, suggest that a possible explanation for this discrepancy may be cultural and contextual differences, as opposed to a bio-psychosocial explanation.

The mean SDQ Prosocial Behaviour score of 8.55 was higher than the mean prosocial score reported in a previous South African study (*M* = 6.66, *SD* = 2.25; Van Heerden & Wild, 2018), as well as higher than Japanese norms for children aged 10- to 12-years-old (*M* = 6.20, *SD* = 2.20; *Youthinmind*, 2013). However, the mean prosocial behaviour score was similar to that of American children aged 8- to 10-years-old (*M* = 8.80, *SD* = 1.70), and U.K. children aged 5- to 15-years-old (*M* = 8.60, *SD* = 1.60). As previously mentioned, cross-country comparisons should be made with caution as SDQ subscale scores can vary greatly between populations, often with little impact on the overall conclusions (De Vries et al., 2018; Goodman et al., 2012).

The current study utilised both parent and child report versions of the PANAS. The results of this study showed a discrepancy between parent and child reported positive affect, with parents reporting significantly higher levels of positive affect than children, whilst parent- and child-reported negative affect showed little disparity. The differences in positive affect suggest that parents may have a more optimistic view of their children's emotional well-being or happiness than children's self-perceptions. The shared perception of negative affect speaks to a consistency in the recognition of negative emotions. Furthermore, these

differences stress the importance of multiple perspectives when assessing children's mental health and well-being. While there is no established normative data for the 10-item PANAS short-form used in the current study, comparative data can be examined from related research. Sanmartín et al. (2018) examined positive and negative affect using the PANAS short-form in Spanish children aged 8- to 11-years-old. The mean positive affect reported by Spanish children fell between the child- and parent-reported positive affect in the current study (Sanmartín et al., 2018). Spanish children reported slightly less negative affect than both child- and parent-reported negative affect found in the current study (Sanmartín et al., 2018). However, South African children's positive and negative affect scores did not differ greatly from the Spanish means.

The current study found that participants reported a moderate level of health-related quality of life. The mean score for health-related quality of life (49.12) was lower than the Dutch normative data for children aged 8- to 11-years-old (M = 58.10, SD = 11.20), suggesting a poorer quality of life. However, it was similar to the U.K. normative data (M = 50.33, SD = 9.30; The KIDSCREEN Group Europe, 2006).

Social Network Size

The current study found that children's social network size had no relationship with any measure of mental health and well-being used in this study. This is consistent with Hypothesis 2.a. which predicted that children's social network size would have no association with mental health and well-being. These results support previous research which found that the size of children's social network was not related to well-being (Chu et al., 2019).

The absence of significant relationships between children's social network size and mental health and well-being may be due to the quality of close relationships being more important than the quantity of relationships. The number of network members does not necessarily translate to perceived social support, as a few supportive relationships can be as

beneficial as many relationships (Chu et al., 2019). In fact, Manalel and Antonucci (2020) found that children with smaller, family-focused social networks had fewer depressive symptoms than children with larger, extended family networks. Manalel and Antonucci (2020) suggested that this may be due to a lack of close family support in children with larger, extended family networks. This further highlights the importance of the quality of relationships or the presence of specific relationships, rather than the size of children's social networks, in relation to mental health and well-being. Thus, the findings of the current study highlight the need for a focus on functional aspects of social support, such as the quality of relationships, rather than the sheer size of children's social networks.

Inner Circle Diversity

Inner circle diversity was significantly associated with both positive and negative affect. Parent-reported positive affect showed a moderate association with inner circle diversity, while child-reported positive affect demonstrated a weak association, indicating a slightly less impactful (but still statistically significant) relationship. Although the correlational analyses did not find a significant relationship between parent-reported negative affect and inner circle diversity, the regression analyses revealed a significant association with a small effect size after controlling for gender and SES. These findings are somewhat consistent with Hypothesis 2.b., which posited that more diverse inner circles would be associated with better mental health and well-being.

The current study's findings regarding positive affect and inner circle diversity are consistent with previous literature that indicates that more diverse inner circles are beneficial for children's psychosocial adjustment (Levitt et al., 2005). Levitt et al. (2005) also found that diversity of the inner circle was more strongly related to adjustment than the total size of the inner circle. This association is also supported by studies on adult populations, which have found positive relationships between diverse social profiles or diverse social interactions

and positive affect (Cohen & Lemay, 2007; Collins et al., 2022). Collins et al. (2022) suggest that a possible reason for the positive association between diverse social profiles and well-being may be the increased access to varying sources of social support. Different types of social support, such as emotional, financial, instrumental and informational support, are often provided by different members of the social network (and, more specifically, by different relationship categories; Collins et al., 2022). A diverse inner circle may therefore provide varied sources of social support, which in turn may provide various types of support that are necessary for well-being. This is of particular relevance in the South African context where children's social networks are often influenced by prevailing cultures of collectivism and *ubuntu* (Dillard & Neal, 2020; Terblanché-Greeff, 2022; Willmore et al., 2023). The presence of multiple relationship categories in the inner circle, and its association with higher levels of positive affect may reflect the embedded cultural practices of shared child-rearing and support. Savahl et al. (2023) examined the subjective well-being of 7 428 South African children aged 10- to 12-years-old and reported high levels of subjective well-being despite the ongoing sociohistorical challenges, possibly due to the protective effects of multiple sources of support. These findings suggests that inner circle diversity may play a vital role in children's subjective well-being within this context.

The association between negative affect and inner circle diversity is less clear. Although Levitt (2005) found that more diverse inner circles are beneficial for children's psychosocial adjustment, negative affect was not specifically examined. Collins et al. (2020) found that the relationship between diverse social profiles and less negative emotion in adults fell just short of reaching statistical significance ($p = .06$). However, in their lagged regression analyses, a more diverse social profile was significantly associated with having fewer negative emotions the following week. Conversely, Cohen and Lemay (2007) found no significant association between diverse social interactions and negative affect. Further

research is therefore required to ascertain the true nature of the relationship between inner circle diversity and negative affect in children.

No significant relationship was found between inner circle diversity and the SDQ Prosocial Behaviour scale or the SDQ Total Difficulties scale. This contrasts with Levitt's (2005) findings, which indicated a significant association between children's adjustment and inner circle diversity. However, this discrepancy may be attributed to differences in the measures used to assess adjustment between the studies. Levitt (2005) created a composite adjustment index that included measures of loneliness, depression and self-concept. This highlights a need for more specific or standardised measures when examining social networks and their implications for mental health and well-being.

In-person Family Contact Frequency

The current study found no significant association between in-person contact frequency with family members and any measure of mental health and well-being used in this study. Hypothesis 2.c predicted that more frequent in-person contact with family members would be associated with better mental health and well-being; however, this was not supported by the findings. Various studies examining adult populations have found that greater face-to-face contact with family members is beneficial for mental health and well-being (Liu et al., 2018; Luhmann & Hawkley, 2016; Luna et al., 2020). It was hypothesized that a similar relationship would be present in children; however, the results of the current study did not support this.

The discrepancy in contact frequency's association with mental health and well-being between adults and children could be attributed to the structure of children's daily lives and their dependence on adults. Children's dependent status typically ensures that they are in frequent contact with members of their social network, particularly those who occupy their inner circle, as these are often members of the children's household such as parents,

caretakers, and siblings (Levitt, 2005). This constant state of high contact frequency may make it difficult to measure meaningful variations in contact frequency. In contrast, adult populations are independent and therefore more intentional about maintaining contact with network members, making variations in contact frequency more pronounced. The current study's sample exhibited a relatively high mean contact frequency with family members (M = 3.35) and a relatively low standard deviation (SD = 0.74). These descriptive statistics suggest that most children had frequent contact with family members, resulting in limited variability in scores. Consequently, measuring contact frequency in children may not capture meaningful variations in this variable.

Furthermore, in children's social networks, frequency of contact may capture the quantity of support more than the quality. Research on adult populations often uses contact frequency as a proxy for both quality and quantity of support, despite the differences between these aspects of social support (Rueger et al., 2016; Liu et al., 2018; Luhmann & Hawkley, 2016). In adult populations, contact frequency captures intentional efforts to provide or receive support, providing an indication of the quality and quantity of support. In children, this intentional element is less prominent due to children's dependence on adults. Therefore, while contact frequency may be a useful measure of support quality and quantity in adult populations, its effectiveness as a measure of support quality in children may be limited.

In-person Friend Contact Frequency

The analysis of in-person contact frequency with friends indicated that contact frequency had a moderate and significant association with only one measure of mental health and well-being: total difficulties. Specifically, children who reported more frequent contact with friends were reported by their parents to have fewer total behavioural and emotional difficulties. This provides partial support for Hypothesis 2.c., which predicted that more

frequent in-person contact with friends would be associated with better mental health and well-being.

There is limited research on the implications of the frequency of contact with network members in children. However, a number of studies focusing on adult populations have found that increased contact with friends is associated with lower levels of loneliness, improved quality of life, and improved general mental health, including fewer depressive symptoms (Liu et al., 2018; Luhmann & Hawkley, 2016; Luna et al., 2020). Luhmann and Hawkley (2016) suggest that the association between greater frequency of contact with friends and lower levels of loneliness may be attributable to the universal human need for connection and belonging. A greater number of interactions may therefore have a positive effect on individuals (Luna et al. 2020).

The more general literature on friendships in childhood and their implications for mental health and well-being emphasizes the importance of good quality friendships (Diaconu-Gherasim et al., 2022; Goswami, 2012; Holder & Coleman, 2009; Lempinen et al., 2018). Diaconu-Gherasim et al. (2023) found that children who reported poor friendship quality experienced poorer life satisfaction and more depressive symptoms. Furthermore, Lempinen et al. (2018) reported that loneliness in children was associated with emotional and conduct problems, hyperactivity and psychiatric symptoms. In contrast, peer relatedness and acceptance, more friends, and higher-quality friendships are associated with better mental health and well-being in 10- to 12-year-olds (Gempp & González-Carrasco, 2021; Waldrip et al., 2008).

Similar to the lack of association found between in-person contact frequency with family members, the daily structure of children's lives may provide some explanation for the lack of a significant association between the frequency of contact with friends and the other measures of mental health and well-being used in this study. Children reported a high mean

contact frequency with friends ($M = 4.19$). This was higher than the mean contact frequency with family members and there was limited variation in scores ($SD = 0.83$). This is likely due to the constant presence of friends at school, resulting in a high contact frequency for almost all friends nominated in the social network. The limited variability in scores may have rendered contact frequency a less meaningful measure of childhood friendship quality. Further research on contact frequency with friends in children is needed to ascertain the relevance of this variable to child populations.

Presence/Absence of Specific Relationship Categories from the Inner Circle

The inner circle of the convoy model refers to the relationships that are most close and important to children. The presence or absence of specific relationship categories in the inner circle therefore reflects relationship quality; absence from the inner circle is not necessarily the same as absence from children's lives entirely. Previous literature examining the implications of the presence or absence of specific relationship categories from the inner circle of the convoy model is limited for both adult and child populations. However, Levitt's (2005) study with American children emphasized the importance of examining the unique contributions of specific relationship categories to children's adjustment, as well as the presence of cultural differences. The current study therefore aimed to examine the associations between specific relationship categories presence in the inner circle and mental health and well-being in a South African sample of preadolescent children.

Paternal Absence. The absence of a father from the inner circle of children's convoys was found to be a significant predictor of greater total difficulties and a poorer quality of life, with both models demonstrating small to moderate effect sizes. These findings support Hypothesis 2.d.i., which predicted that the absence of one or both parents from the inner circle would be associated with poorer mental health and well-being.

These findings are consistent with previous literature that highlights the importance of paternal presence in the inner circle as well as the quality of father-child relationships. Levitt (2005) found that paternal presence in the inner circle was an important predictor of good adjustment in Hispanic-American children. However, this association was not observed in Anglo/European and African American children (Levitt, 2005). Levitt (2005) attributes this discrepancy to a greater acceptance of divorce and father absence within the latter communities. In South Africa, many children do not live with their biological fathers (Van den Berg et al., 2021). Nevertheless, 95% of the children who participated in the current study included fathers in their social networks. Furthermore, the results suggest that children who included fathers amongst their closest and most important relationships tended to show better mental health and well-being.

The importance of fathers' presence and involvement in children's lives has been researched far more extensively than the quality of father-child relationships (Adamsons, 2013). Nevertheless, there is evidence that father-child closeness predicts psychological well-being and fewer emotional and behavioural problems in children (Yang et al., 2024). Existing literature highlights the importance of good quality father-child relationships (Malmberg & Flouri, 2011). For example, Yang et al. (2024) found that children aged 9 who reported close father-child relationships were reported by their primary caregivers to have significantly fewer externalising symptoms, as well as fewer internalising and externalising symptoms at age 15. This aligns with the current study's findings, which can be used to help advocate for the importance of close father-child relationships and to guide and support parenting programmes and interventions.

Sibling Presence. Sibling presence in the inner circle was identified as a significant predictor of child-reported positive affect, substantially improving the model's explanatory power (with a small to moderate effect size). Contrary to Hypothesis 2.d.ii., which predicted

that sibling presence in the inner circle would have no association with mental health and well-being, the results indicated that children who included siblings in the inner circle reported experiencing significantly more positive emotions. However, this association was not observed for parent-reported positive affect. This discrepancy highlights the subjective nature of well-being as well as the importance of utilising multiple perspectives when assessing well-being.

Previous research examining the presence of siblings in the inner circle found no association between sibling presence and adjustment, although these disparate results may be attributed to differences in the samples and the measures used in the studies (Levitt, 2005). In a study that examined positive well-being and its association with both structural and functional features of sibling relationships in adolescents, no association was reported between sibling structure (e.g., the number of siblings) and positive well-being (Vogt Yuan, 2009). However, Vogt Yuan (2009) did identify a positive association between the quality of sibling relationships (time spent with siblings and feelings of love for siblings) and positive well-being. These results suggest that fostering close and warm sibling relationships may be beneficial for children's emotional well-being, specifically in relation to positive affect.

Grandparent Presence. Grandparent presence in the inner circle was associated with significantly higher prosocial behaviour scores and substantially improved the model's ability to account for variations in prosocial behaviour. The effect size was moderate. This finding provides partial support for Hypothesis 2.d.iii., which predicted that grandparent presence in the inner circle would be associated with better mental health and well-being.

The findings of the current study contribute to an extensive body of literature that has identified an association between grandparent involvement and more prosocial behaviour across multiple countries and ethnicities, including Israel, the U.K., the U.S, and South Africa (Attar-Schwartz & Buchanan, 2018; Attar-Schwartz et al., 2009; Attar-Schwartz & Khoury-

Kassabri, 2016; Flouri et al., 2010; Van Heerden & Wild, 2018; Wild, 2018, Yorgason et al., 2011). Attar-Schwartz and Khoury-Kassabri (2016) suggest that a possible reason for this association is the transference and internalisation of values and norms from grandparents, who can be seen as mentors or role models. Another possible explanation suggested by Yorgason et al. (2011) is that frequent contact with adults outside the core family, such as grandparents, may contribute to the development of important socioemotional skills, which are crucial for prosocial development. Assisting grandparents with errands or chores and engaging in a positive relationship may contribute to the development of empathy and other prosocial skills (Cherlin & Furstenberg, 1986; Yorgason et al., 2011). Furthermore, Levitt's (2005) study found that children who included a grandparent in the inner circle of their social network were better adjusted than those who did not. These findings, along with existing literature, suggest that close grandparent-grandchild relationships have the potential to be an important factor in children's emotional health, particularly regarding prosocial behaviour.

Extended Family Member Presence. Extended family member presence in the inner circle was identified as a significant predictor of more child-reported positive affect (with a small to moderate effect size), although it did not significantly improve the model's ability to account for variations in positive affect. This finding provides partial support for Hypothesis 2.d.iv., which predicted that the presence of extended family members in the inner circle would be associated with better mental health and well-being. However, no significant association was found between the presence of extended family members in the inner circle and any of the other measures of mental health and well-being, including parent-reported positive affect.

The findings of the current study partially align with previous literature. Levitt (2005) reported that African American and Anglo/European American children who included an extended family member in their inner circle had higher adjustment scores, although this was

not the case for Hispanic-American children. However, positive affect is not a comprehensive predictor of mental health and well-being in children. Thus, further research is needed to further examine this relationship and explore potential mediating factors.

Friend Presence. Friend presence in the inner circle did not emerge as a significant predictor of any measure of mental health and well-being used in the current study. This contrasts with Hypothesis 2.d.v., which predicted that the presence of friends in the inner circle would be associated with poorer mental health and well-being. Previous research indicates that the presence of friends in the inner circle is generally associated with poorer adjustment (Levitt, 2005). Levitt (2005) suggests that friend presence in the inner circle is nonnormative for preadolescent children and that this may be an attempt to compensate for the absence of normal preadolescent inner circle support. However, this relationship was not identified in the current study.

A possible explanation for this is differences between the samples. Levitt (2005) reported that 12% of children included friends in the inner circle. However, the current study found the inclusion of friends to be much greater (30%). This suggests that the inclusion of friends in the inner circle may be more normative for preadolescent South African children than is the case for American children. It is possible that these higher rates of friend inclusion indicate the early stages of the developmental transition into adolescence and the resultant social network changes that typically occur. Friends typically take on a more salient role in adolescence and their presence in the inner circle becomes increasingly normative. This shift could provide a possible explanation for the lack of association between friend presence in the inner circle and mental health and well-being in the current sample.

Limitations and Directions for Future Research

Despite the contributions the current study makes to the growing body of literature examining children's social networks, there are a number of limitations that should be

considered when interpreting the findings. Firstly, the current study had a relatively small sample size, and made use of non-probability, non-proportionate sampling, limiting the generalisability of the findings. Furthermore, the study was conducted in a single city, further restricting the extent to which findings can be extended to the broader population. Future research should prioritise larger, proportionate, and representative samples from multiple regions, in order to improve the generalisability of the findings.

Secondly, the study made use of self-reported data, which can present a number of potential challenges. Children may have had difficulties recalling information correctly, responding honestly, and engaging in the level of introspection required of the measures. For example, children often found it difficult to recall important members of their social networks unprompted, sometimes leaving out typically included relationship categories altogether. Furthermore, self-reported data often leads to issues with social desirability, where participants attempt to give answers that make them look good or that will be viewed favourably by others (Rosenman et al., 2011). These issues were managed by assessing multiple perspectives as well as guiding children through the questionnaires.

Although the current study used a broad array of measures in order to capture various aspects of mental health and well-being, it did not focus on specific mental health and well-being outcomes. Previous literature has examined specific aspects of mental health and well-being, such as loneliness, internalizing and externalising symptoms, and depressive symptoms (Levitt et al., 2005; Manalel & Antonucci, 2020). Broader measures often assess a variety of symptoms, which can result in more nuanced relationships being overlooked. More targeted measures could provide a clearer understanding of the relationships between social network structures and specific mental health and well-being outcomes. Future research should, therefore, examine specific symptomologies that are prevalent in children such as anxiety or depressive symptoms.

The current study focused on the structural aspects of children's social networks, rather than their functional features, such as the provision of social support. While investigating the structural features of social networks is essential, it is equally important to examine their functional aspects. Palkovitz (2019), in his discussion on father involvement and the father-child relationship, emphasizes the importance of considering the quality of relationships. Similarly, Bryant (2012) and Levitt (2012) highlight the need to investigate the nuanced functions of network members, both positive and negative. Although assessing the provision of social support falls under the broader aims of the larger study, it remains outside the scope of the current research. Nonetheless, functional aspects of social networks, including negative aspects of close relationships, require further investigation.

Lastly, although the current study falls part of a larger longitudinal study, this initial phase utilised a cross-sectional design. This makes it inappropriate to draw conclusions about causal relationships between structural features of social networks and mental health and well-being. While structural features of social networks may lead to better mental health and well-being, the direction of these associations cannot be confirmed. It is also possible that children with poor mental health and well-being may cause people to withdraw or avoid them, impacting structural features of their social networks. Future research should adopt a longitudinal approach in order to understand potential causal links between these variables. Furthermore, longitudinal research examining the composition of children's networks would allow for the observation of changes that occur with age.

CHAPTER 6: CONCLUSION

The convoy model provides a detailed and dynamic lens through which to examine social networks, positing that these units are evolving structures that change across the lifetime and vary with context. South Africa's diverse range of societal and familial norms, such as high rates of extended family structures and father absenteeism, demand further culturally specific research. The current study aimed to fill this gap in the literature by applying the convoy model to a sample of preadolescent South African children.

The current study revealed that the social networks of South African children tend to follow previously observed trends in composition, with parents and siblings occupying the inner circle. In addition, close to half of children included grandparents in the inner circle, highlighting the important role of grandparents in children's lives. Extended family members, friends, professionals, and adult friends primarily occupied the middle and outer circles, aligning with existing literature. Although South African children tended to nominate more members in their social networks than their American counterparts, their convoys followed previously observed trends with a concentration of relationships in the inner and middle circles, and fewer peripheral relationships. South African children also nominated a diverse range of inner circle relationships, indicating the presence of varied sources of close support. These results contribute to a growing body of literature examining children's social networks and highlight a need for further longitudinal research to examine how social networks evolve over time.

The current study also examined the implications of various structural features of children's social networks for their mental health and well-being. Consistent with previous literature, children's social network size did not exhibit a significant relationship with mental health and well-being. However, inner circle diversity emerged as a significant predictor of both child- and parent-reported positive affect and parent-reported negative affect,

highlighting a link between having a diverse range of close support sources and the experience of more positive emotions and fewer negative emotions. This is consistent with existing literature that identified a similar positive relationship between inner circle diversity and children's adjustment (Levitt et al., 2005).

In-person contact frequency with family members across the entire network showed no significant association with any measures of mental health and well-being. This may, however, be due to limited variability in contact frequency scores. More in-person contact frequency with friends was significantly associated with fewer total difficulties. However, contact with friends was not associated with any other measure of mental health and well-being. The frequency of children's contact with members of their social network requires further exploration to ascertain its usefulness as a predictor of mental health and well-being.

The analysis examining the presence or absence of specific relationship categories from the inner circle suggested that different types of relationships may make unique contributions to specific aspects of mental health and well-being. This is consistent with early research on children's social networks that found that children sought different provisions from different relationships (Furman & Buhrmester, 1985). Maternal absence was not investigated due to the very small number of participants who did not include mothers in their inner circles. However, children who did not place fathers in their inner circle tended to show more total difficulties and to report a poorer quality of life. Grandparent inclusion in the inner circle followed previously observed trends, with grandparent presence being associated with higher prosocial behaviour scores. The presence of siblings and extended family members in the inner circle was associated with greater self-reported positive affect. In contrast to previously observed trends, the presence of friends in the inner circle showed no significant association with any measures of mental health and well-being. This may be due to the

inclusion of friends in the inner circle being more common in this sample than was the case in previous literature.

These findings underscore the importance of examining children's social networks as multifaceted systems with various structural features having implications for mental health and well-being. The results provide a foundation for examining general trends and individual differences in preadolescent South African children's social network composition. In addition, they highlight important associations between various structural features of social networks – such as inner circle diversity, contact frequency with friends, and the presence or absence of key relationships – and children's mental health and well-being. Social networks are complex, integrated systems, in which these structural features interact with functional features – such as social support, relationship quality, and conflict – to influence children's mental health and well-being. Although the current study did not examine how these features of children's social networks interact with one another, the findings highlight the importance of moving beyond individual relationships to examine how holistic structural features of networks are linked to mental health and well-being.

Furthermore, this research provides a starting point for future research that can add to knowledge of children's development and help improve therapeutic practice and parenting programmes. For example, the findings of the current study, along with previous literature, suggest that professionals should consider the impacts of the broader social network in relation to children's mental health and well-being, and not simply focus on the nuclear family (Levitt, 2005; Van Heerden & Wild, 2018). Interventions aimed at improving children's well-being should focus on fostering a diverse inner circle by improving the quality and variety of close relationships. The results provide further insight into the roles of specific relationships within the social network, such as that of fathers, siblings, grandparents, and extended family members. Targeted interventions can therefore be designed and

implemented based on these unique associations, such as the expansion of parenting programs to include grandparents (Kirby & Sanders, 2014; Smith & Wild, 2019). More broadly, the findings of the study could serve to guide social policies, programmes, and practitioners in adopting holistic and culturally relevant approaches when addressing children's mental health and well-being. Greater recognition and support of diverse network structures and the importance of specific relationships is needed in order to effectively leverage these insights. Overall, this research highlights the significance of understanding the structural features of children's social networks and the potential impacts these relationships may have on children's mental health and well-being.

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APPENDIX A

Demographic Information Questions (Child report)

1. How old are you? (Please circle one only)

   9

   10

   11

   Other ……

2. Do you think of yourself as a…. (Please circle one only)

   Girl

   Boy

   Something else (Some people don't feel like they are a boy or a girl)

3. What grade are you in? (Please circle one only)

   Grade 4

   Grade 5

4. What language(s) do you speak at home? (You can circle as many as you need to)

   English

   Afrikaans

   isiXhosa

   isiZulu

   If you do not speak any of these languages at home, please tell us what language(s) you speak

   …….

5. Are you… (Please circle one only)

   Black African

   Coloured

   Indian

   White

   If you do not fit any of the above, please tell us how you would describe yourself

   .....

   I don't want to answer this question

6. What is your religion? (Please circle one only)

   Christian

   Hindu

   Jewish

Muslim

No religion

If you do not fit any of the above, please tell us what your religion is

……..

7. Who do you live with at home? (You can circle as many people as you need to)

Mother

Father

Stepfather or your mother's partner

Stepmother or your father's partner

Grandmother(s)

Grandfather(s)

Aunt(s)

Uncle(s)

Sister(s)

Brother(s)

Or someone else. Please tell us their relationship to you (e.g., foster mother, friend)

.....

APPENDIX B

Demographic Information Form (Parent report)

Please answer these questions by circling the answers that describe you the best.

1. What is your highest level of education?
   Primary
   Some secondary
   Grade 12 or equivalent
   Higher Certificate or Diploma
   Bachelor's degree
   Postgraduate degree
   Other (Please specify) …….

2. What is your employment status?
   Unemployed
   Part-time employed
   Full-time employed
   Other (Please specify) …….

3. What is your marital status?
   Single
   Married
   Divorced
   Widowed
   Remarried
   Other (Please specify) .....

APPENDIX C

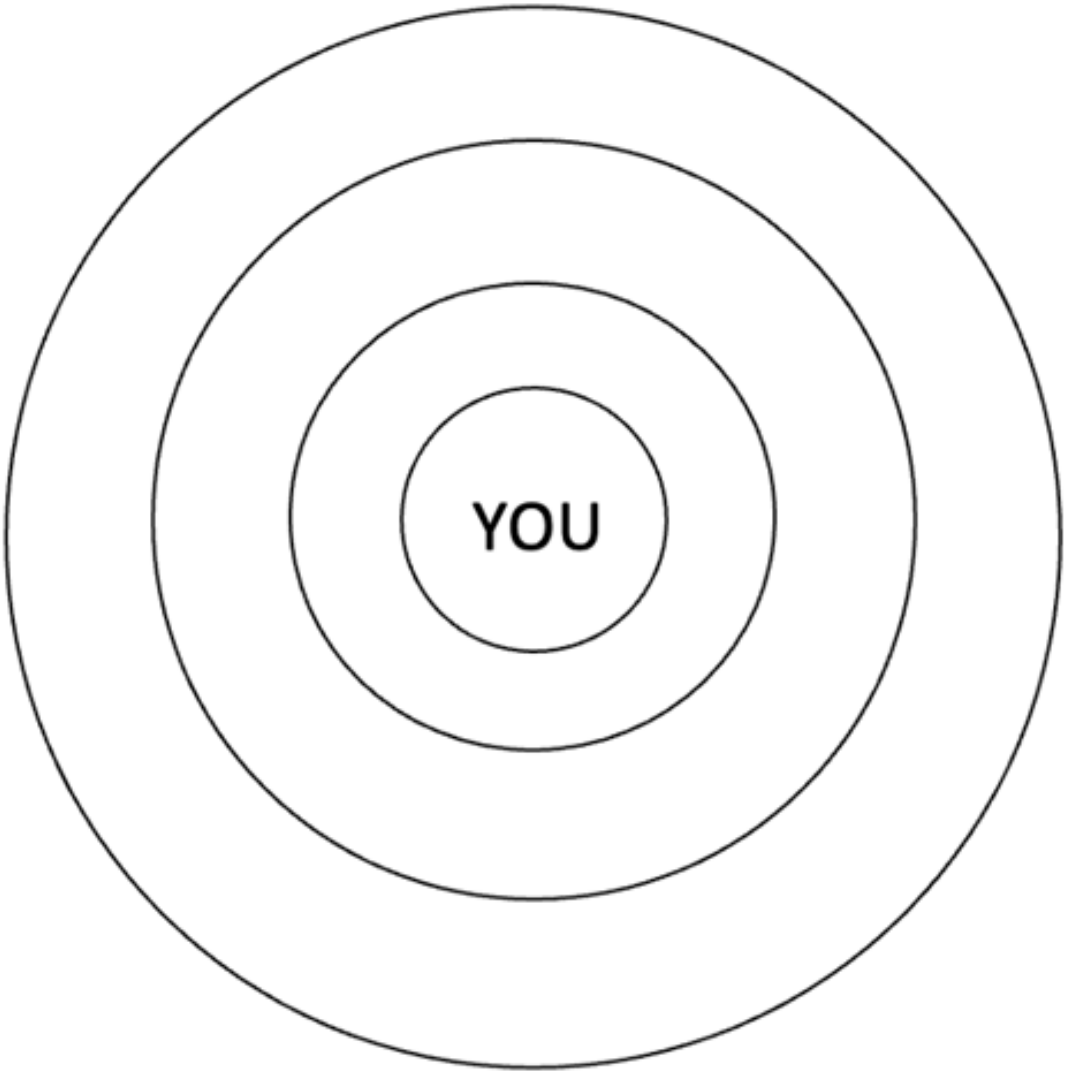
Children's Convoy Mapping Procedure (Child report)

This is a picture with 3 circles. ***You*** are in the centre of the circles, so we are going to write you name on a sticker and put it in the middle of the picture.

We are first going to look at the inner circle closest to you. Think about the people who are the most close and important to you - people you love the most and who love you the most. You can tell us who those people are and we will write them down on a sticker and you can place the sticker in the inner circle.

Second, we look at the middle circle. You are still in the middle of the circle. But now we would like you to think about the people who are still important but not quite as close to you - people you really love or like, but not quite as much as the people in the first circle. You can tell us who those people are, and we will write their names down on a sticker and you can place the stickers in the middle circle.

Finally, we look at the third and outer circle. Now, we want you to think about other people who are still important but not as close to you as the others – people you still really love or like, but not quite as much as the people in the middle circle. You can tell us who those people are, and we will write their names on a sticker, and you can place the sticker in the outer circle.


YOU

APPENDIX D

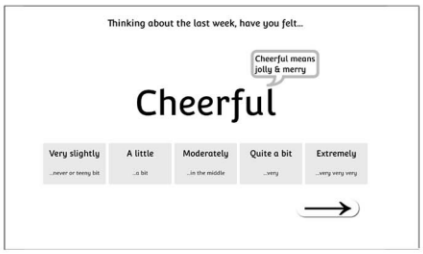
PANAS-C: Positive and Negative Affect Schedule for Children (Parent report)

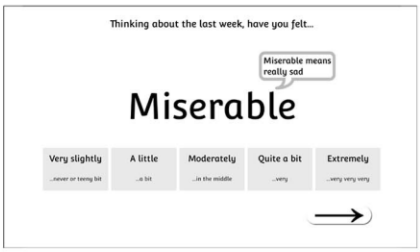
We are interested in some of the ways your child feels, on the average. The following is a list of words that describe different feelings and emotions. Please read each item and then circle the appropriate number to indicate to what extent your child generally feels this way—that is, how he/she feels on the average.

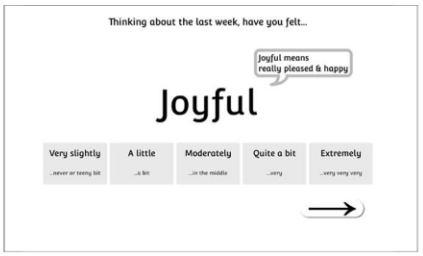
		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
1.	1. Joyful	1	2	3	4	5
2.	Miserable	1	2	3	4	5
3.	Cheerful	1	2	3	4	5
4.	Mad	1	2	3	4	5
5.	Happy	1	2	3	4	5
6.	Afraid	1	2	3	4	5
7.	Lively	1	2	3	4	5
8.	Scared	1	2	3	4	5
9.	Proud	1	2	3	4	5
10.	Sad	1	2	3	4	5

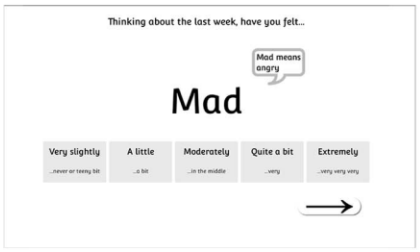
APPENDIX E

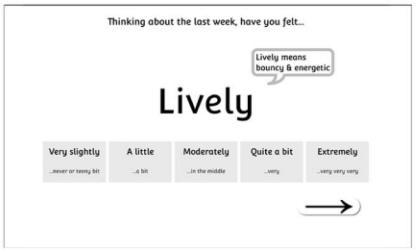
*d*PANAS-C: Definitional Positive and Negative Affect Schedule for Children (Child report)











APPENDIX F

KIDSCREEN-10 Index

In this questionnaire we would like to know how you are and how you feel.

Together we will go through each question carefully. You can think about what answer comes to your mind first. Then, after you've thought of your answer, you can choose the box that matches your answer best and cross it.

Remember, this is not a test so there are no wrong answers.

Do you have a long-term disability, illness or medical condition?

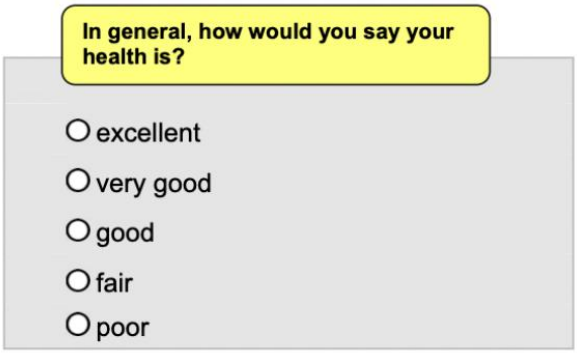
○ No

○ Yes Which one? _____

About Your Health

Thinking about the last week...

1.	Have you felt fit and well?	not at all ○	slightly ○	moderately ○	very ○	extremely ○
2.	Have you felt full of energy?	never ○	seldom ○	quite often ○	very often ○	always ○
3.	Have you felt sad?	never ○	seldom ○	quite often ○	very often ○	always ○
4.	Have you felt lonely?	never ○	seldom ○	quite often ○	very often ○	always ○
5.	Have you had enough time for yourself?	never ○	seldom ○	quite often ○	very often ○	always ○
6.	Have you been able to do the things that you want to do in your free time?	never ○	seldom ○	quite often ○	very often ○	always ○
7.	Have your parent(s) treated you fairly?	never ○	seldom ○	quite often ○	very often ○	always ○
8.	Have you had fun with your friends?	never ○	seldom ○	quite often ○	very often ○	always ○
9.	Have you got on well at school?	not at all ○	slightly ○	moderately ○	very ○	extremely ○
10.	Have you been able to pay attention?	never ○	seldom ○	quite often ○	very often ○	always ○


In general, how would you say your health is?
excellent
very good
good
fair
poor

APPENDIX G

Ethics Approval Letter for the Current Study

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3417
Fax No. (021) 650 4104

24 April 2023

Lauren Wild
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Lauren

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for the amendment of your study, *Children's Social Networks and Social Support: Implications for Mental Health and Well-Being.* The reference number is PSY2022-036.

I wish you all the best for your study.

Yours sincerely

Maxine Spedding
Acting Chair: Ethics Review Committee

APPENDIX H

WCED Approval

Western Cape Government
Education

Directorate: Research

meshack.kanzi@westerncape.gov.za
Tel: +27 021 467 2350
Fax: 086 590 2282
Private Bag x9114, Cape Town, 8000
wcec.wcape.gov.za

REFERENCE: 16375E04C00006A-20230424
ENQUIRIES: Mr M Kanzi

Mrs Lauren Wild
Department of Psychology
University of Cape Town
Cape Town
7701

Dear Lauren Wild,

RESEARCH PROPOSAL: CHILDREN'S SOCIAL NETWORKS AND SOCIAL SUPPORT: IMPLICATIONS FOR MENTAL HEALTH AND WELL-BEING.

Your application to conduct the above-mentioned research in schools in the Western Cape has been approved subject to the following conditions:

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Educators' programmes are not to be interrupted.
5. The Study is to be conducted from **13 June 2023 till 31 March 2024.**
6. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
7. Should you wish to extend the period of your survey, please contact Mr M Kanzi at the contact numbers above quoting the reference number.
8. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
9. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
10. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
11. The Department receives a copy of the completed report/dissertation/thesis addressed to:

The Director: Research Services
Western Cape Education Department
Private Bag X9114
CAPE TOWN
8000

We wish you success in your research.

Kind regards,
Meshack Kanzi
Directorate: Research
DATE: 13 June 2023

APPENDIX I

Letter to Principals

(Insert Date)
Mr/Mrs (Insert Principal's name)
(Insert School)
(Insert Address)

Permission to Conduct Research Study

We are researchers from the Psychology Department at UCT and are writing to request permission to conduct a research study at your school. The study is titled "Children's Social Networks and Social Support: Implications for Mental Health and Well-Being". It has been approved by a Research Ethics Committee at the University of Cape Town and by the Western Cape Education Department.

We hope that you will allow us to recruit around 40 children in Grades 4 and 5 to complete an interview and a set of short questionnaires and tasks. The parents of these children will also be asked to complete a few short questionnaires at their convenience, and to return these electronically. Children who volunteer to take part in our study will require written consent from their parents, and will also be asked to sign assent forms themselves in-person at the start of the interview.

If you grant us your approval, we will interview children in-person, in a quiet setting on school premises (e.g., a classroom or library). Interviews will take place at the convenience of the school and children. The interview process should not take longer than 20 minutes. The information provided by the children and their parents will remain confidential at all times. No costs will be incurred by the school or participants.

The results of this research are expected to shed light on the implications of social support for children's mental health and well-being. Your approval to conduct this study within your school will be greatly appreciated. We will call you in a few days to address any queries or concerns you might have and will be happy to arrange to meet with you in-person if you

would like more information about the study. You may also contact us on the email addresses provided below.

If you agree, kindly sign below and return the signed form by replying to this email. Alternatively, you may attach a letter of permission on your school's letterhead to your reply, acknowledging your consent and permission for our research to be conducted in your school.

Yours sincerely

Ms Elizabeth Willamson (Master's student)
Email: WLLELI022@myuct.ac.za

Associate Professor Lauren Wild (Supervisor)
Email: Lauren.Wild@uct.ac.za

Approved by:

_____ (*name and position*)

Signed at _____on this_____of_____20_____

APPENDIX J

Parent/Guardian Informed Consent

Dear Parent

Researchers from the Psychology Department of the University of Cape Town would like to invite you and your child to participate in a research study. The study is titled "Children's Social Networks and Social Support: Implications for Mental Health and Well-Being".

This consent form will give you information about the study to help you decide whether you want to participate and give the researchers permission to invite your child to participate. Please read this form and ask any questions you have before deciding if you want to be in the study and if you will allow us to invite your child to be in the study.

Purpose: This study aims to (a) investigate how children's relationships with parents, siblings, grandparents, friends, and others provide support to the child, and (b) to examine how these relationships affect children's mental health and well-being.

Requirements:

To be eligible to participate in this research study, you must be the parent or legal guardian of a child participating in the study.

Procedure:

Parent: Should you choose to participate in this study, you will be required to complete a few short questionnaires about your child's mental health and answer several questions about your experience of answering these questionnaires. Participation in this study will require approximately ten to fifteen minutes of your time.

Child: If your child chooses to participate in this study, they will take part in an interview and complete some questionnaires at school. Your child will be asked to provide answers to a series of questions related to their relationships with parents, siblings, friends and others and their mental health and well-being. Participation in this study will require approximately 10 to 15 minutes of your child's time.

Risks:

The researchers do not foresee any risks to you or your child from involvement in this study. Should any of the questions make you or your child feel uncomfortable, support will be provided to your child by the school's counsellor (if available) and you and your child will be provided with referral options for support.

Benefits:

There are no direct benefits for you or your child for participating in this study. However, it may be an interesting experience for your child to learn about research and to think about their relationships with those who are closest to them.

Confidentiality:

All data will be stored in a secure location accessible only to the researchers. You and your child will be identified in the research records by a code name or number. The results of this research will be presented in a report to the Psychology Department of the University of Cape Town and may be published in academic journals. The interviews with the children will not be audio- or video-recorded. Their responses will be recorded in writing. Your child's data will not be shared at any point during or after the study. When the results of this research are reported, no information will be included that would reveal your or your child's identity. You and your child will remain anonymous.

There is one exception to confidentiality we need to make you aware of. In certain research studies, it is our ethical responsibility to report situations of child abuse, child neglect, or any life-threatening situation to appropriate authorities. If your child mentions during the interview that they are being hurt by someone, the relevant school authorities will be notified, and school protocol followed. However, we are not seeking this type of information in our study, nor will you be asked questions about these issues.

Voluntary participation:

Participation by you and your child in this study is completely voluntary.

Parent: You have the right to choose not to participate and this choice will not result in any negative consequences for you or your child. If you choose to participate in this study, you are free to withdraw your participation at any time. If you choose to participate in this study, you are free to leave out any questions you do not wish to answer.

Child: You may choose not to allow your child to take part in the study or may choose for your child to leave the study at any time. Deciding not to allow your child to participate, or later deciding to remove your child from the study will not result in any penalty to you or your child and will not affect your or your child's relationship with the school.

Further questions:
If you have any questions about this research study, you may contact the following researchers:

Elizabeth Williamson (Master's student): WLLELI022@myuct.ac.za
Assoc. Prof. Lauren Wild (Supervisor)**:** Lauren.Wild@uct.ac.za

If you have any questions regarding your rights as a study participant or complaints about the study, you are welcome to contact the Department of Psychology Research Ethics Committee via Rosalind Adams: **rosalind.adams@uct.ac.za**

Giving of consent

I have read this consent form and I understand what is being requested of me and my child as a participant in this study. I freely consent to participate and provide consent for the researchers to invite my child to participate. I have been given satisfactory answers to my questions. I have also been offered copies of this consent form.

_____

Name of Child (Printed)

_____ _____

Signature of Parent/Guardian (Signed) **Date**

_____ _____

Signature of Researcher (Signed) **Date**

APPENDIX K

Assent Form

Hello! We are doing a research study about your relationships with people like your family, friends, and teachers, and how these relationships affect you. A research study is a way to learn more about something. If you decide that you want to be part of this study, you will be asked to fill in a few questionnaires and answer some of our questions. It could take around 15 minutes.

There are some things about this study you should know. You will have to answer questions about yourself. For example, we will ask you questions about your feelings and questions about your relationships with other people such as your mother. You may also feel a little uncomfortable talking about yourself.

When you answer questions, we will write down what you say. We will not record you. We will not tell your parents, teachers, or friends anything you tell us. If you tell us that someone is hurting you, we will tell someone who looks after children and you will be taken care of and protected.

You must know that not everyone who takes part in this study will benefit. A benefit means that something good happens to you. We think some benefits of participating might be your being able to learn about research or think about those who are closest to you.

When we are finished with this study, we will write a short report about what was learned. This report will not include your name or that you were in the study.

Your parents know about the study too and have told us that you can take part if you want to. You do not have to be in this study if you do not want to be. It is completely fine if you do not want to be in the study. If you decide to stop after we begin, that's also okay. If you want to leave out any questions, that's okay too.

If you want to be in this study, you are allowed to ask us any questions along the way. Do you have any questions for us now?

If you are happy to be part of this study, please write your name.

<u>If you do not want to be part of this study, you must not write your name.</u>

I, _____, want to be in this research study.

(Write your name here)

Researcher's Signature _____ Date _____

APPENDIX L

Referral Sources for Parents

Dear Parent

Thank you for participating in our research study.

If you experienced any uncomfortable feelings when completing the questionnaires about your child or are interested in resources on parents' or children's mental health, well-being or social support, here are a few potentially valuable resources for you to check out.

1. **Western Cape Government: Mental Health and Your Child**
   This is a general website with a number of different resources for mental health assistance and awareness. Visit https://www.westerncape.gov.za/general-publication/mental-health-and-your-child for more information.
2. **UNICEF South Africa**
   Provides tips to equip parents, caregivers, and communities to take proactive steps towards caring for children's mental wellbeing. Visit https://www.unicef.org/coronavirus/covid-19-parenting-tips#7 for more information.
3. **Child Mind Institute**
   What parents can do when kids struggle with social skills. For more information, visit https://childmind.org/article/kids-who-need-a-little-help-to-make-friends/

APPENDIX M

Childline Contact Details

You've completed the study!

Well done to you and thank you for participating in our research study.

If you had any uncomfortable feelings when answering some of the questionnaires, here are the contact details for **Childline South Africa.** This is a place that helps children discuss problems and dangers in a safe way.

If you ever need help, you can call the number 116. You can call them from any phone at any time for free. They will help you.

If you're able to use the internet and you need more information, you can check out their website https://www.childlinesa.org.za/

APPENDIX N

Protocol for Reporting Child Maltreatment

STEP 1: PLEASE NOTE THE FOLLOWING:

- Should a child disclose any instances of abuse or maltreatment note the following in interacting and responding to the child:
    - Acknowledge what the child has said whilst remaining calm.
    - Reassure the child and show that you believe what they are saying.
    - Reaffirm that they are not in any way to blame for what has happened.
    - Provide support without assuming the role of counsellor or investigator.
    - Assure the child that you will be getting help, and that other adults will need to be involved, without promising that everything will be alright.
    - Reinforce that it was a good thing they told you.
- Take note of the following
    - Everything the child tells you.
    - Child's name, address, and telephone number.
    - Parent's or guardian's name and telephone numbers.
    - Reasons for concern, any documentation of indicators and any relevant statements made by the child.

STEP 2:

- Follow the school protocol (NB: Indemnity form) and inform the designated personnel at the school immediately.
- Should the school not have a suitable protocol in place, any concerns should be reported immediately to Lauren Wild on 073 679 1673.

STEP 3:

- Should the school not have a protocol in place, Prof. Wild will decide, in consultation with the school principal, whether the researchers' concerns are reportable.
- Child maltreatment will be reported to the Cape Town Child Welfare Society. In the case of serious abuse (current sexual abuse or where the child is at immediate risk of harm), a report may also be made to the police.

Contact details:

Cape Town Child Welfare Society

- Ph: 021 6383127
- Email: information@helpkids.org.za

APPENDIX O

Summary List of Measures

Child Measures

1. Demographic Information Questions
2. Children's Convoy Mapping Procedure
3. Information on nature of relationship of nominated network members
4. Frequency of Contact Questions
5. *d*PANAS-C
6. KIDSCREEN-10

Parent Measures

1. Demographic Information Questions
2. SDQ
3. PANAS-C

APPENDIX P

Ethics Approval Letter for Pilot Study

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3417
Fax No. (021) 650 4104

22 August 2022

Uzma Sader and Elizabeth Williamson
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Uzma and Elizabeth

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your study, *The Feasibility of Instruments used to Measure Children's Social Networks and Social Support, and their Implications for Mental Health and Well-Being.* The reference number is PSY2022-036.

I wish you all the best for your study.

Yours sincerely

Chair: Ethics Review Committee