

**Young Children's Social Connections: Characteristics of Social
Networks and Types of Support**

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

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December 2016

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To my husband Isaac, my son Ian, and my parents, whom I love more than anything.

Acknowledgements

I would like to express my sincere appreciation to my professor, Dr. Hillary Fouts, for her dedicated support, enthusiastic supervision, and great patience during this Ph.D. research. Her observations and comments throughout this work were very beneficial for the accomplishment of this dissertation project. I thank Dr. Mary Jane Moran for her encouragement, especially during difficult times, and for her insightful thoughts about the implications of my findings on children's development. I extend my gratitude to Dr. Elizabeth Johnson for her valuable comments throughout the dissertation and for the respect, reassurance, and support that she always expressed toward my work. Finally, my endless gratitude to Dr. Terri Combs-Orme for her valuable suggestions, critical comments, and encouragement to improve various aspects of this dissertation. She has been an example of life and professionalism, becoming not only a mentor, but also a good friend.

Special thanks to Dan and Rosalie, who welcomed us as part of their family, and to my network of friends for their optimistic companionship during this journey, making this an enjoyable experience.

Finally, my deepest gratitude to Daniel and Mireya, my parents, and Daniel and Javier, my brothers, who often made me feel that the distances do not matter when true and strong ties of love are found in the family. To my husband Isaac and my son Ian, whose continuous encouragement, support, and love have been a fundamental pillar through these years.

Abstract

Most researchers agree about the importance of having a rich network of relationships and adequate support system. However, a limited number of studies have focused on young children's social support networks or have examined the role that culture plays in shaping these relationships. This dissertation includes three manuscripts that address distinct aspects of children's social support networks, guided by Bronfenbrenner's Bioecological perspective. The objectives of the first manuscript are twofold. First, a systematic literature review was conducted to determine the current state of knowledge related to children's social support networks. The results from this review revealed that further examination of these constructs is needed among informal/less bounded settings and less industrialized societies. Second, a novel framework for the study of children's social support networks is proposed. This framework provides an ecological view of children's social support networks and recognizes the unique characteristics of families that may moderate the structure and functionality of children's social networks.

The second and third manuscripts examine the social support networks of young children from four different ethnic groups (Kamba, Kikuyu, Luo, and Maasai) in an informal urban settlement in Kenya. In the second manuscript, a qualitative and quantitative description of the various types of support available to children in this context is provided. Different forms of the same support were identified in the qualitative observations. While emotional, informational, instrumental, and material types of support were more often provided by adults, child social partners were usually the greatest sources of social/companionship. Among adults, mothers were the greatest source of each type of support observed. Ethnic group differences in the amount of support received from adult social partners were identified between Luo and Maasai. The third manuscript focuses on the structure of children's social networks, including the total size, types

of interactions, and the strength and density of different types of relationships. Results indicated that larger networks do not necessarily imply that more highly involved people are available for children. Ethnic group differences related to children's social network size revealed that Maasai children tended to have larger social networks compared to the other ethnic groups.

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Chapter I. Introduction

Introduction

Humans are social beings. From birth, connections are made with different social partners. Relatives, non-relatives, adults, and peers, are all significant people in children's lives and provide different types of support. At first, the survival of an infant depends on a relationship with a caregiver (Bowlby, 1988; Eibl-Eibesfeldt, 1989), and therefore, the family becomes the first and most important component of a child's social world and a critical source of social support (Clark-Lempers, Lempers, & Ho, 1991; East & Rook, 1992; Furman & Buhrmester, 1985). Later on, social experiences include significant others beyond the family such as close friends, classmates, non-relative adults, coworkers, and eventually a romantic companion. This web of social relationships surrounding the individual is known as a social network (Cochran & Niego, 2002), whose primary function is to facilitate the interchange of resources or social support (Belle, 1989).

Even though the concepts of social network and social support are usually employed to address the influence that personal relationships have on social development, these two terms are not synonymous (Pavri & Monda-Amaya, 2001). Indeed, they emphasize different aspects of an individual's social relationships. While social network refers to the structure of a person's social relationships, including its size, density, the strength of the relationships, and the diversity of people within the network in terms of gender, age, and degree of association between them (Acock & Hurlbert, 1993); the concept of social support refers to the supportive functions that are performed by different network members, the type of support provided (e.g., instrumental, material, emotional, informational), and the way by which recipients of the social support feel valued, loved, and connected (i.e., psychological state of the individual) (Cohen, 2004; House, Landis, & Umberson, 1988; Thoits, 1995). A thorough understanding of these two concepts is

particularly important considering the impact that a social network has on an individual's well-being through the provision of social support (Cohen, 2004; Henderson, 1977; House et al., 1988; Thoits, 1995). In fact, social support plays a fundamental role not only in children's social-emotional developmental, but also on the development of peer relationships, language vocabulary, and academic paths for young children (Bost, Cielinski, Newell, & Vaughn, 1994; Bost, Vaughn, Washington, Cielinski, & Bradbard, 1998; Franco & Levitt, 1997; Larkina & Bauer, 2010; Mashburn, 2008; Slykerman et al., 2005). However, research on the effects of social networks and social support on well-being has been primarily focused on adults and adolescents rather than children. Therefore, an effort to empirically and conceptually expand our understanding of young children's social networks and social support is warranted.

Furthermore, children's social experiences may vary vastly from one culture to another; indeed, social support differs among cultures not only on the amount but also in the type of support that children receive (Belle, 1989). Consequently, considering potential cross-cultural differences can illuminate distinctive characteristics of children's social network and social support that may otherwise be overlooked. In this regard, this dissertation aimed to expand knowledge about children's social networks and social support by examining: a) current research related to young children's social networks and social support, and providing a novel framework to study children's networks; b) the characteristics of children's social networks and potential differences among four ethnic groups; and c) the types of support young children receive, the sources of support, and the potential differences among four ethnic groups. Each of these topics was addressed in separate chapters, and each chapter was written as an independent manuscript to be submitted for publication in a peer-reviewed journal. Thus, each chapter has its own methods, results, discussions, and list of references.

The objectives of the first manuscript (Chapter II) were twofold. First, this chapter was designed to provide a description of the current state of knowledge with respect to children's social support networks by systematically reviewing empirical research related to children's social networks and support systems. The second objective of this chapter was to propose a novel framework to study children's social support networks and stimulate research by highlighting various avenues for future research. This proposed model was informed by the literature reviewed in Chapter II as well as the larger literature on social support network among adults and older children.

The second and third manuscripts (Chapters III and IV) were aimed at exploring and providing a description of children's social network and the types of supports available to them in the context of an impoverished informal urban settlement in Kenya. Poverty has been identified as one of the primary detrimental factors confronted by young children (Evans, 2004) and has been associated with a wide range of negative effects on the physical and mental well-being of children (Cicchetti & Curtis, 2015). It is necessary then to understand the extent to which social networks and social support may attenuate the negative impact that living in these ecological conditions have on children's development. In this regard, the second manuscript (Chapter III) is focused on examining the characteristics of children's social networks, while the third manuscript (Chapter IV) is focused on examining the sources and types of social support available to children, all within an impoverished environment. Since these studies were conducted in a highly ethnically diverse setting (KNBS, 2010), the purpose of the second and third manuscripts, goes beyond a mere description of children's networks and support systems, to include the potential commonalities and dissimilarities in the structure of their networks and

the types and sources of social support among four different ethnic groups (Kamba, Kikuyu, Luo, and Maasai) that share the same ecological circumstances.

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Chapter II. Children's Social Networks and Social Support: A Systematic Literature Review

Abstract

From birth, linkages are made with different social partners, which constitute our social network. Relatives, non-relatives, adults, and peers, are all significant people in children's lives and provide different types of support. Most researchers agree about the relative importance of having a rich network of relationships and adequate support system. However, a limited number of studies have focused on young children's social support networks or have examined the role that culture plays in shaping these relationships. In this manuscript, the literature on children's social networks and support systems was systematically reviewed from two major electronic databases, between 1970 and 2015. All the studies included in this review, examined children's social interactions and support systems in formal/bounded systems (classroom, home, laboratory), reaffirming the difficulty of conducting this type research in less bounded systems and the need for future research that examines children's network members in less formal settings. In addition, guided by Bronfenbrenner's bioecological perspective, a heuristic model was proposed for the study of young children's social support systems across cultures. The model proposed four interactional contexts (direct family, extended family, childcare and/or preschool, and neighbor and/or community) that contains network members that maintain either a horizontal or vertical relationship with the focal child and are potential sources of support. It is proposed that the strength/existence of the social ties between the child and a social partner may vary as a function of certain moderating factors (i.e., family structure, caregivers' health status, social class, ethnicity, and cultural beliefs).

Introduction

The concept of social network emphasizes the linkages between individuals and other people, and describes the way these linkages serve as conduits for diverse resources (Phillipson,

Allan, & Morgan, 2004). Multiple types of resources are obtained from different relationships formed across the individual's lifespan; parents or primary caregivers are seen as the first and most important source of support for infants, since children's survival depends on how their basic needs are met. Later on, social provisions are obtained from a diverse cast of members in an individual's social network. The intricate interchange an individual experiences with other network members, the types of social support received, and the feelings of social competence and worthiness form the individual's social world (Belle, 1989; Phillipson et al., 2004). Thus, the importance of studying the particular characteristics of a person's social support network (structure, components, and resources exchanged) in order to obtain a complete understanding of his/her social experiences has been recognized by researchers (Pavri & Monda-Amaya, 2001; Vaux, 1988). Considering the large body of empirical research addressing young children's social experiences (Bugental & Grusec, 2006), it seems inconsistent that only a small portion of studies have focused specifically on children's social networks and types of social support obtained through different network members.

A large number of studies have demonstrated that social relationships influence individuals' well-being, primarily via the provision of social support (Cohen, 2004; Henderson, 1977; House, Landis, & Umberson, 1988; Thoits, 1995). In fact, characteristics of social networks among adults have been found to be strongly correlated with physical and mental health outcomes and mortality rates (Berkman, 1984; Leavy, 1983). Also, these characteristics may influence the way people cope and adapt to stressful life changes, because each person's confidence in his/her ability to cope with stressful situations is boosted by his/her knowledge of having the necessary assistance available to them within their social networks (Cohen & Syme, 1985; Gottlieb, 1981). Although the study of social networks and social support provides a

robust approach to understand how social relationships impact an individual's well-being, this type of research has been mainly focused on adults rather than children. In fact, social networks and social support research on very young children is scanty, which may reflect methodological limitations in assessing young children's social networks. For example, questionnaires and interviews are the main methods used to assess social network and social support (Belle, 1989), which are more suited to the capacities of adults. Further, using parent reports to gather information about the children's social networks is problematic because it may not capture all the forms of support involved in the children's social network. Another methodological issue relates to the difficulty in conceptually describing how the different types of support look for children in particular (Wolchik, Beals, & Sandler, 1989). In some cases, children's social networks have been implicitly viewed as an extension of their parents' social networks (Belle, 1989), perhaps underestimating the richness of children's own social networks, which may include people such as siblings, relatives, nonrelatives adults, peers, school personnel, and members from the community. Lastly, young children's social experiences tend to occur in less formally organized systems (e.g., visiting relatives, having playmate dates, interactions with peers living in the same neighborhood). Thus, unless the interest of the research is to look at children's social experiences in a bounded system like the classroom, their network boundaries may be less clearly defined.

Objectives of this Study

The study of social networks and social support can provide a more complete view of children's social experiences and how they may influence children's well-being, yet social support networks have been studied far more frequently among adults and adolescents than young children. Therefore, the aims of this paper are to: a) conduct a systematic examination of the literature to determine the current state of knowledge related to children's social networks

and social support and b) propose a unique framework to study this construct among young children across cultures, which in turn, will illuminate various avenues for future research in this area.

Methods

Search Strategy

In order to access primary studies focusing on children's social networks and social support, two major electronic databases were explored: Web of Science and PsycINFO. Searches were conducted using Boolean ANDs and ORs operators, with a combination of relevant keywords in English and Spanish. To access studies published in English, the following search strings were attempted in the title and abstract: ("social networks" OR "social support" OR "social contacts") AND ("children"). Similarly, to access studies published in Spanish, the following combination of search strings were used: ("redes sociales" OR "recursos sociales") AND ("niños"). Duplicates were removed by hand and the titles and abstract of all the identified articles were reviewed to assess their relevance with the topic.

Inclusion and Exclusion Criteria

After the first selection of articles, each potential primary study was evaluated based on an inclusion and exclusion criteria. The inclusion criteria included: a) peer-reviewed articles published in English or Spanish between January, 1970 and December, 2015, b) sample consisting of children aged 6 or younger, and c) components of social network and/or social support clearly stated. Studies were excluded if: a) articles were not peer-reviewed, b) the terms of social network or social support were not explicitly assessed, and c) work was published as a book, book chapter, review, or commentary. One aim of this review was to focus on the characteristics of social networks and support systems of children that have less exposure to

socially bounded systems (e.g., classroom setting). Even though in the U.S. and other highly industrialized societies children start attending school at the age of 5, in many societies children do not enter the school system until they are 6 years old or older. Thus, this age criterion was chosen to capture an international perspective of these constructs.

There were no restrictions on the type of study design (i.e., quantitative, qualitative, mixed method). The cited literature of each primary study that met the inclusion criteria was examined to find relevant work that was not captured through the main search strategy.

The information extracted from each article included was tabulated into three summary tables: 1) primary studies focusing on social networks, 2) primary studies focusing on social support, and 3) studies that include both terms in their analyses (refer to Tables 1, 2 and 3 in Appendix A for details).

Results

Selection of Primary Studies

The search conducted through the electronic databases yielded more than 11,400 records, from which 572 were retrieved for further examination based on the screening of titles and abstracts. After the removal of duplicates and the application of the inclusion and exclusion criteria, a total of 30 primary studies remained valid for inclusion. In addition to the electronic database search, an examination of the cited literature of the remaining studies yielded two extra studies satisfying the inclusion criteria, leading to a total of 32 primary studies included in the present review. The details of the study selection process are displayed in Figure 1.

Description of Primary Studies

Out of the 32 primary studies, 20 focused on children's social networks, four assessed children's social support, and eight studies focused on children's social network as well as the

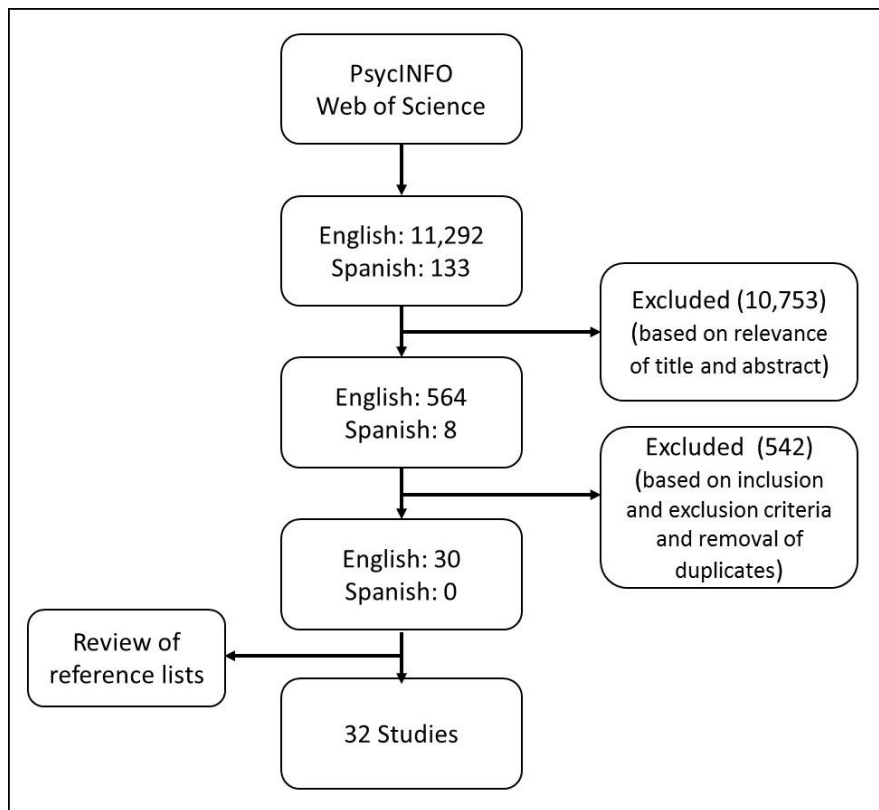


Figure 1. *Flow Chart of Literature Search Process.*
Adapted from Moher, Liberati, Tetzlaff, and Altman (2009)

types and/or sources of social support provided to them. The included studies were published between 1987 and September, 2015. Of the 32 studies reviewed, 19 studies were conducted in the US, three were conducted in The Netherlands, two in Portugal, two in Japan, one in Australia, one in France, one in Italy, and one in Turkey. In one of the studies the participants resided in the US and Puerto Rico, and in another study the participants resided in the US and Canada.

Regarding the studies focusing on children's social networks, the number of children in each study (i.e., sample size) varied from 10 to 1162, and their ages ranged from eight to 72 months. Most of the studies had a relatively even sample of girls and boys; only one study focused exclusively on the social networks of boys (Guralnick, 1997). In most studies, data were collected in school classroom settings, and only four studies included out-of-classroom network members. Regarding the methods of data collection, most studies used behavioral observations of the children as the main method, four studies used sociometric ratings and/or nominations to determine children's social networks (e.g., using classmates' photographs, children were asked with whom they would like to play with), one study involved interviewing mothers and children about children's social connections and compared their reports, and 3 studies relied solely on mothers' reports of their children's social networks (Table 1, Appendix A).

Of the four studies that focused exclusively on children's social support, the sample sizes ranged from 35 to 1052, and the children's ages ranged from 2 to 5 years. The samples of the studies were relatively evenly distributed between girls and boys and generally lacked ethnic diversity. Three studies were conducted in homes and one study included data collected in the school classroom setting. To assess children's social support, two studies used social support

scales that were completed by parents, one study used child observations, and in another study the families were videotaped playing a board game (Table 2, Appendix A).

Concerning the studies focusing on children's social networks and social support, the number of children included in each study varied from 10 to 185 children, and their ages ranged from 1 to 5 years and in only two of the eight studies the sample was ethnically diverse. Only one of the studies assessed children's social support networks in the classroom setting; all the rest examined these constructs across children's various microsystems (i.e., the children's immediate interactional settings). Most studies employed interviews as the main method of data collection. Specifically, in four studies children as well as parents were interviewed, in two studies only the children were interviewed, and in one study only mothers were interviewed. In the remaining study, infants' behaviors toward their mothers and to other network members were observed during free-play situations and a modified strange situation (Levitt, Guacci, & Coffman, 1993). A summary of the specific setting details for these eight studies is provided in Table 3, Appendix A.

Themes of the Literature Review

Five themes were apparent in this literature review: i) child's characteristics and preferences, ii) mothers' vs. children's reports and maternal influences, iii) developmental outcomes, iv) benefits of social support, and v) sources and types of support.

Children's characteristics and preferences. The majority of studies fall into this theme (n=17). Ten of the 17 studies found gender differences in the way children structured their social networks. In general, children tended to form gender segregated ties (Barbu, 2003; Daniel, Santos, Peceguina, & Vaughn, 2013; Feiring & Lewis, 1987; Johnson et al., 1997; Martin et al., 2013) as early as 3 years of age. As children grew older, their contacts with peers increased and

their social networks tended to include more non-kin members than kin members; though, boys tended to show this trend earlier than girls (Feiring & Lewis, 1987). Moreover, girls' support networks included more female members, while boys mentioned more male members (Bost, 1995). Also, girls reported larger social networks than boys did and they were more likely to feel loved by their networks' members than were boys (Bost, Cielinski, Newell, & Vaughn, 1994). Children's gender also influenced their participation in social groups. In general, boys tended to form social groups characterized by disruptive behaviors, while girls tended to participate in groups with more affiliative behaviors (Fujisawa, Kutsukake, & Hasegawa, 2009; Vespo, Kerns, & O'Connor, 1996). Moreover, boys and girls made use of the classroom space to socialize in different ways. For example, while boys used specific spaces of the classroom to either participate in social interactions or engage in solitary play, girls' social or solitary behaviors seemed to occur all over the classroom (Torrens & Griffin, 2013).

Some studies also found that the structure of children's network changed as a function of children's age. For instance, children's preference for same-gender groups became more apparent as they aged (Barbu, 2003; Daniel et al., 2013; Feiring & Lewis, 1987; Johnson et al., 1997). Children's social networks also increased in density (Fujisawa et al., 2009; Santos, Daniel, Fernandes, & Vaughn, 2015; Schaefer, Light, Fabes, Hanish, & Martin, 2010; Vespo et al., 1996) and became more stable and well-organized over time (Barbu, 2003; Johnson et al., 1997). Moreover, developmental delays and aggressive behaviors may also influence children's social networks' structures. Children with developmental delays were more likely to have a smaller peer social networks and they played less frequently with other children than their typically developing counterparts (Guralnick, 1997). Even though some social and emotional indices of externalizing behaviors in children were negatively related to social breadth (i.e.,

interacting with a relatively small number of peers over time) (Hanish, Martin, Fabes, & Barcelo, 2008), children who expressed more aggression tended to have a central position in their social groups (Farver, 1996). Moreover, children who were disruptive or aggressive seemed to play stabilizing roles in network structures characterized by affiliative behaviors (Fujisawa, Kutsukake, & Hasegawa, 2008). Overall, children preferred to socialize with peers with a similar behavior style, social competence, and interactional style (Brighi, Mazzanti, Guarini, & Sansavini, 2015; Farver, 1996; Martin et al., 2013).

Mothers' vs. children's reports and maternal influences. Mothers tended to name more network members (Bost, 1995), more extended family, and more non-kin adults than did children (Franco & Levitt, 1997), whereas children tended to identify more peers than adults in their support networks, compared to the mothers' reports (Franco & Levitt, 1997). Feiring and Lewis (1987) suggested that mothers were a reliable source of information regarding children's network members. In that study, no statistically significant differences were found in the number of friends and relatives between mothers' and children's reports. Even though children tended to name more friends than relatives, their reports were not substantially different from their mothers' reports. Also, mothers and children tended to name more same-gender friends than opposite-gender friends. Baumgartner, Burnett, DiCarlo, and Buchanan (2012) found that while mothers' and children's reports tended to agree on who comprised children's support networks, there was less agreement about the extent to which network members supported different developmental areas for children. For example, adults tended to focus mostly on cognitive sources of support, while children tended to focus more on sources of physical and creative support.

Regarding maternal influences in the characteristics of children's social networks, mothers' socializing goals for their children seemed to influence the social structure of their children's networks in terms of frequency of contacts and the characteristics of the network members, which was especially true for younger children (Miller & Harwood, 2001). For instance, mothers who expressed socializing goals consistent with a more individualistic orientation placed greater emphasis on developing their children's self-reliance and fulfilling their personal potential than creating strong interpersonal connections. In contrast, mothers with more sociocentric goals emphasized the development of positive interpersonal behaviors on their children, creating more instances for them to interact and form social ties with other people, particularly with extended family members. At the same time, young children's opportunities to interact with peers were strongly influenced by the accessibility of similar-age children in the family's social networks. Thompson (2001) found that most of the children's peer contacts emerged from the family social network (e.g., same-age relatives and children of family friends), and fewer contacts resulted from children's participation in preschools or other organized activities.

Developmental outcomes. Children's social network characteristics were associated with different aspects of children's interpersonal relations and psychological adjustment at school (van den Oord & Rispens, 1999; van den Oord, Rispens, Goudena, & Vermande, 2000). For instance, higher density in children's networks was associated with fewer behavioral problems (as reported by teachers) and higher levels of prosocial behaviors (van den Oord & Rispens, 1999). Moreover, the number of relatives living in the home was negatively associated with children's externalizing and internalizing behaviors, since relatives were potential sources of social support for children (Miller, VanZomeran-Dohm, Howell, Hunter, & Graham-

Bermann, 2014). Another study found that the number of male members in girls' social networks was positively associated with peer acceptance (Bost, 1995). Also, perceived closeness to network members and the frequency of emotional and recreational types of support were also positively correlated with peer acceptance (Bost, 1995).

Benefits of social support. Baydar et al. (2014) found that children's language development was positively associated with maternal warmth and responsiveness when maternal depression symptoms were low. At the same time, support available from extended family and neighbors served as a buffer of the negative effects that high levels of depression symptoms potentially had on children's language development. Moreover, parental support coming from parents and peers was associated with children's school adjustment (Taylor & Machida, 1994). For example, parental support in the form of involvement in school was positively associated with children's behaviors in the classroom (e.g., asking questions, attentiveness to classroom instructions, prosocial skills, etc.) and, to a smaller degree, with an increment in learning skills at the end of the school year. Support from peers was reciprocally associated with children's social competence. Lastly, children's engagement in physical activities was positively associated with maternal and paternal support for physical activity.

Sources and types of social support. Children's social support networks included parents, siblings, extended family members, friends, and teachers (Baumgartner et al., 2012; Franco & Levitt, 1997). Some children also included pets (Baumgartner et al., 2012) and imaginary friends in their support systems. Parents were considered the main source of instrumental support, sick care, and reassurance (Franco & Levitt, 1997; Gleason, 2002). Even though infants' attachment behaviors were primarily directed to mothers and they were the main source of security for infants, other network members also appeared to be a source of this type of

support for infants in stressful situations (Levitt et al., 1993). While siblings were identified as a source of conflict, friends were seen as a source of instrumental, companionship, and recreational types of support (Gleason, 2002). For some children, imaginary friends were considered as sources of nurturance and companionship in the same way peers were (Gleason, 2002). In one study, children reported that “maintenance” support (i.e., basic child-care activities) was the most frequent type of support available to them, followed by recreation and nurturance (Bost et al., 1994; Bost, Vaughn, Boston, Kazura, & O'Neal, 2004). Family members were the most important source of support, even when non-kin peers were the largest membership category (Bost et al., 1994).

An integral understanding of children’s social experiences and the role they play in the children’s well-being requires the consideration of both, the structure and the functionality of children’s social networks. The contributions made by the studies included in this review further advance our understanding of children’s social support networks, and confirm the importance of having a rich social network that functions as a support system for children. Most studies included in this review considered the influence of children’s biological characteristics (age, gender, and developmental delays) on the structure and characteristics of their social support networks. Moreover, some studies not only examined children’s social networks and social support across various microsystems (e.g. family, school, friends), but also focused on how the macrosystem (e.g., maternal cultural beliefs) impacts children’s social networks, supporting the adequacy of using a bioecological perspective as a framework to study this construct.

On the other hand, findings from this literature review confirm that the study of social networks among young children (i.e., under 6 years old) is still quite limited. Furthermore, most studies focused on more immediate relationships rather than distal ones, and most were

conducted either in the US or in other industrialized countries. Given these limitations, we propose the following heuristic model, which is intended to stimulate research by highlighting various interactional settings (i.e., distal and more immediate) that comprise children's networks. Because of the limitations in the scope of the studies focused on young children, the model is informed by the larger literature on social networks among older children and adults as well as from the current literature review.

Proposed Heuristic Model of Young Children's Social Support Networks

Fundamentals of the proposed model

Children's social networks are comprised of members of their parents' social networks as well as people that are not necessarily part of these networks (e.g., peers or personnel at childcare). One of the most important functions of social networks is the provision of social support. All members of children's social networks can potentially be sources of various types of support for the children. Young children tend to form vertical relationships with adults, since they are more skillful, knowledgeable, and powerful than children. These types of relationships influence the child directly and indirectly by serving as sources of different types of resources, helping them to master interpersonal skills, serving as role models, providing feedback for behavior, and facilitating the acquisition of desirable behavior. According to Bandura's (1977) social learning theory, children learn through the imitation and observation of others. Thus, by observing the interchange of resources among networks members, children learn their role as a member of their own social network.

Interactions with peers tend to be quite different from interactions with adults. For instance, while adults usually guide, direct, and control the interactions, peers are often relatively equal in terms of (a) their social skills, (b) their capacity to formulate and accomplish their goals,

and (c) the degree of their socializations (Ladd, 2005), making their interactions more horizontal. Peer relationships provide a measuring tool for children to assess their self-efficacy, that is, children's growing sense of ability to master challenges and accomplish their goals (Rubin, et al., 2005). By comparing themselves with other children and competing with them, they can evaluate and judge their physical, social, and cognitive competencies, helping them to gain a more realistic sense of self (Rubin, Bukowski, & Laursen, 2009).

Children create social ties with adults and peers in both formal and informal contexts and they can be described in terms of structure and function. Examining connections in terms of size (i.e., number of contacts) and strength (i.e., frequency and duration of the contact) can help to describe the structural characteristics of the network. On the other hand, describing the functional aspects of the social network highlights the provision of support and the degree of influence that they exert on children, which in turn can have a direct or indirect impact. For instance, while an aunt may directly influence a child's development through the provision of material support (e.g., food, clothes), another member of the extended family may exert less direct influence on child's development through the provision of social support to parents. Social network analysis allows researchers to map the interactions that develop between the child and other individuals and examine how these interactions influence young children's development by drawing attention to the flow of tangible and nontangible resources enacted in and across different interactional contexts. However, the results from the present literature review reveal that researchers focused on specific aspects of the children's social support networks and very few studies included more distal relationships (Bost et al., 1994; Franco & Levitt, 1997; Levitt et al., 1993). Guided by Bronfenbrenner's bioecological perspective (Bronfenbrenner & Morris,

2006), and the social network and social support literature, the following heuristic model (Figure 2) is proposed here to study young children's social support networks across cultures.

Interactional Contexts

It is crucial to study children's social networks and support systems in conjunction with characteristics of the ecological context in which they live. The model proposed here is based on the assumptions of Bronfenbrenner's bioecological perspective, which posits that children's social networks are influenced by different environmental characteristics as well as the characteristics of the developing person, resulting in social networks with different forms and functions (Bronfenbrenner & Morris, 2006). In the model proposed here, the members of the child support network arise from different interactional contexts and provide different types and degrees of support to the child depending on moderating factors such as family structure, caregivers' health status, social class, ethnicity, and cultural beliefs. The interactional contexts considered are: the direct family, the extended family, the childcare and/or preschool, and the neighbor and/or community. These contexts and the moderating factors considered in the proposed model are discussed in the subsequent paragraphs.

Direct family. The meaningful aspects of the interaction between a primary caregiver and infant are well known. The survival of the infant depends on his/her relationship with an adult who is willing to assume his/her care (Bowlby, 1988). Thus, for the human infant, a social relationship with a caring adult is fundamental (Eibl-Eibesfeldt, 1989). Perhaps due to the mother's unique biological relationship with the infant (Schorer, 2000), she has occupied a special place in the literature concerning children's well-being. Due to their vulnerability, young children are highly reliant on their parents to satisfy their emotional and physical needs. Even though parents appear to be the most frequent and direct source of different types of

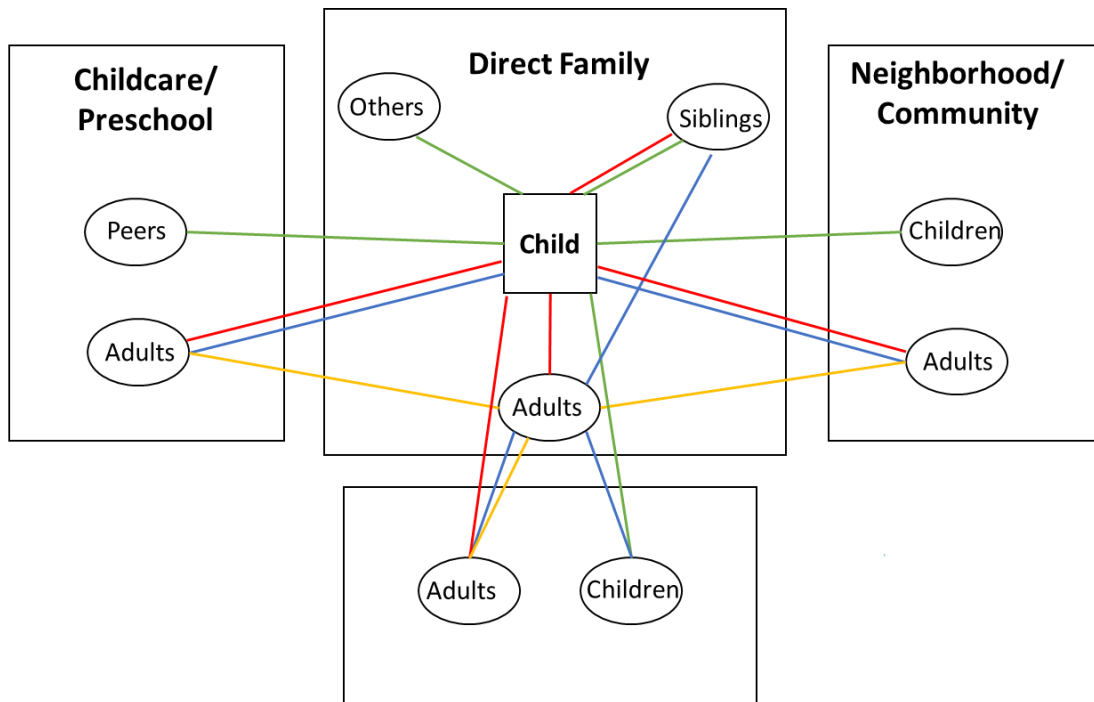


Figure 2. *Heuristic Model of Young Children's Social Support Networks.*

Notes. Interactional contexts are represented in separate boxes containing network members that maintain either a horizontal or vertical relationship with the focal child. Social ties that are represented with lines and colors indicate the most salient type of support provided by the network member as suggested by the social support literature (red: emotional support, green: social/companionship support, orange: instructional/advice support, blue: instrumental support).

* The strength/existence of the social ties represented may vary as a function of certain moderating factors (i.e., family structure, caregivers' health status, social class, ethnicity, and cultural beliefs).

support (emotional, social, instrumental, informational, and material), they are also expected to be the major source of emotional support and instrumental support for children (Bost et al., 1994; Gamble & Woulbroun, 1995; Gleason, 2002). Siblings are also potential direct sources of different types of support. Since children tend to spend considerable time in face-to-face interactions with siblings (Dunn, 1993), it is proposed that siblings are a great source of social/companionship support for children. At the same time, very young children are potential sources of emotional support to their younger sibling (Buhrmester & Furman, 1990; Dirks, Persram, Recchia, & Howe, 2015; Howe & Ross, 1990; Sawyer et al., 2002). In many African, Polynesian, and Hispanic cultures, older siblings are often caregivers of younger siblings e.g. Henry, Morelli, and Tronick (2005). Moreover, as suggested by Gleason (2002), for some young children, imaginary friends and pets (referred to as “others” in the model) are also considered to be important sources of emotional and social/companion support. Thus, they should be also considered as possible sources of support for young children.

Extended family. Although there is vast evidence of the significant and lasting effect that parents have on children’s growth, this arguably Western-centric view of the family, neglects the kinship responsibilities that are present in some families, particularly within minority ethnic groups and in non-western countries. Adults within this interactional context can potentially provide children, directly and indirectly, with different types of social support. Indirectly, adult family members may impact children’s lives by assuming caregiver functions and/or providing parents with informational/advice support that might affect their childrearing practices (Cochran & Niego, 2002). Relative children (e.g., cousins) can also provide children with different types of support, especially social support (Bost, Vaughn, Washington, Cielinski, & Bradbard, 1998; Cochran & Riley, 1990). Similar to siblings, in some cultures relative

children also provide support to children's parents by assuming alloparenting functions and helping in household activities (Henry et al., 2005; Ivey, 2000; Kermoian & Leiderman, 1986).

Childcare/ Preschool. It is well known that the formation of positive relationships in the classroom setting is highly important for children's academic success. For example, children's relationships with teachers and peers have been associated with academic motivation and social and emotional adjustment (Hughes & Kwok, 2007; Wentzel, 1999). When children attend structured settings like childcare or preschools, they spend most of their time in direct interactions with peers. Thus, peers in the classroom setting are expected to be a great source of social/companionship support. Moreover, some scholars have suggested that children, particularly infants and toddlers, may perceive teachers as a security figure, serving a similar function to the relationship formed between the parent and the child (Howes, Matheson, & Hamilton, 1994). It appears that children who experience supportive relationships with their teachers use them as a secure base to explore the school environment (Howes, Phillipsen, & Peisner-Feinberg, 2000). Thus, teachers may be sources of informational/instructional as well as emotional support. Teachers might also indirectly influence children through the provision of informational support to parents that might influence their childrearing practices.

Neighborhood/ Community. Children's access to adults and peers (e.g., neighbors, parents' friends and their children, church members and their children) within the broader communities and neighborhoods may vary considerably across cultures. Nonrelative adults can potentially provide children with different types of support. It is proposed here that adult friends that maintain a close relationship with children's parents are likely to provide children with emotional support, perhaps motivated by the relationships that they have with one or both parents of the child. In contrast, even though nonrelative adult paid caregivers (e.g., childcare

providers) may be a source of emotional and social support, the most salient type of support provided by them would likely be instrumental support. Through arranged playdates, participation in social groups (e.g., church), and attending social events with parents, children may have access to other children who may serve as a great source of social/companionship support (Ladd & Golter, 1988).

Moderating factors. As with most social phenomena, social support networks are dynamically changing in response to variations in family structure, caregivers' health status, social class, ethnicity, and cultural beliefs.

It is proposed here that the characteristics of the family structure such as single-parenting, dual earner families, and large families will impact the structure and function of the children's social networks. For instance, the absence of another adult in the family may decrease the size of children networks and the quantity of some types of support directed to them (Cochran & Riley, 1990). Due to the economic challenges of being the sole provider of the family, single parents may favor the provision of some types of support (e.g., material) over others (e.g., instructional, informational, emotional). In the same way, in large families, when both parents work they may not have the time to provide their children with the same amount of support that children in two-parents families where only one parent works receive. In addition, the number of siblings may be negatively associated with social support from parents (Coleman, 1988), as the higher the number of siblings, the more diluted the amount of support available for each child. It is important to consider the age difference, sex, and birth order of the siblings, since in some cultural groups older siblings, particularly sisters, might act as caregivers to younger siblings (Sawyer et al., 2002). Caregiver's health status may also moderate the amount of resources available to the child. Children of mentally and/or physically ill parents, may suffer from lack of

adequate social support, since ill parents may be unable to fully satisfy the child's support needs or the available resources may be directed to assist the ill parent (Aldridge & Becker, 2003; Duncan, Reder, Reder, McClure, & Jolley, 2000; Elgar, Mills, McGrath, Waschbusch, & Brownridge, 2007). It is in situations like this when the structure and functionality of the children's social network plays a major role in the children's lives. For instance, the presence of network members outside the direct family who are willing to assist the child may ameliorate the impact that an ill parent may have on the child's support needs.

Even though extended family may be a great source of support for children, the strength of the relationships with them (i.e., frequency of contact) might moderate the flow of tangible and intangible resources. Furthermore, it has been suggested that the role of the extended family is more salient in some ethnic groups than others (e.g., Latino, African Americans) (McLoyd, Hill, & Dodge, 2005; Miller & Harwood, 2001). Thus, family ethnicity is another factor that may potentially moderate the resources available to the child and family. Parental behaviors and childcare practices are highly influenced by cultural beliefs (Super & Harkness, 2002), and so, if there is a cultural discontinuity or discrepancy on culturally based childrearing practices between parents and other network members, parents might not convey the offered support (e.g., advice related to parenting) to their children. While it has been suggested that the direct and extended family are children's main support providers (e.g. Bost et al., 1994), it is important to consider that all members in the children's social networks are potential sources of various types of support and merit attention.

Conclusions

This article has systematically reviewed the literature on children's social networks and social support from two major electronic databases, providing a further understanding of this

topic and recommendations for future research. The search strategy allowed us to capture a large number of studies, since it included two languages and a search range of 45 years. However, it was not intended to formally appraise the quality of the studies included in this review, but rather to summarize the current state of knowledge regarding young children's social support networks. As expected, the data for the majority of the social network studies were collected in classroom settings, reaffirming the difficulty of conducting this type research in less bounded systems and the need for future research that examines children's network members from different social settings. All the studies included in this review, examined children's social interactions and support systems in formal/bounded systems (classroom, home, laboratory). Thus, further research is needed to observe children's social networks and support systems in less formal settings and in less industrialized societies where much of young children's interactions may occur in a more "opportunistic" manner (e.g., participation in mixed-age groups in the neighborhood or community).

The heuristic model proposed in this article provides an ecological view of children's social support networks, and is intended to promote various new avenues for future research in this area. In addition, it may serve as a lens to pinpoint different moderating factors that may affect the structure and function of young children's social networks. This model attempts to stimulate research on social networks among young children by drawing attention to components of their social networks (i.e., more distal interactional contexts and moderating factors) that have often been neglected. Each interactional context proposed in this model offers opportunities for specific research questions, for example, ethnic differences in the amount of social support provided by extended family or how these ethnic differences are moderated by other family characteristics. This model recognizes the unique characteristics of families that may moderate

children's support systems and their social networks, making this model a potential tool to be used in social interventions. For example, with this model, intervention programs that help children and their families to build and/or increase their social resources may be able to identify children who are at risk of being socially "disadvantaged" in terms of support availability and children with limited/small social networks. The use of this model in the social work practice could help professionals to identify children who may have unsatisfied social support needs due to unique family characteristics. It is our hope that this proposed model will inspire future research to better understand the characteristics of the support coming from more distant social ties and to provide a deeper understanding on how the moderating factors shape children's support network.

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Chapter III. Types of Support Provided to Children through their Social Networks in an Informal Urban Settlement of Kenya

Abstract

An individual's social network plays an important role in shaping his/her developmental trajectory, mainly through the provision of social support. The term *social support* emphasizes the types of support available and the psychological state of the recipient (feeling valued, connected, and cared for), and can be broadly defined as the tangible and intangible resources available via an individual's social connections. This manuscript provides a qualitative and quantitative description of the social support systems available to a group of children from four different ethnic groups (Kamba, Kikuyu, Luo, and Maasai) residing in an informal urban settlement in Kenya. Different forms of the same support were identified in the qualitative observations, which were provided by child or adult social partners or both. Descriptive information also revealed that emotional, informational, instrumental, and material support were more often provided by adults, while children were usually the greatest source of social/companionship for the focal children in this study. Regarding the types of support received, boys received markedly more informational support than girls. Also, ethnic group differences in the amount of support received from adult social partners were identified between Luo and Maasai. The importance of children's support systems in the context of poverty as well as implications for practice and future research are discussed.

Introduction

Individuals develop relationships with many people throughout their life. Parents, siblings, relatives, non-relatives, teachers, friends, coworkers, and peers not only constitute a web of social relations (social network), but also play an important role in shaping an individual's developmental trajectory, mainly through the provision of social support. The support provided by these relationships can have a significant impact on an individual's

psychological well-being, adjustment, and their ability to cope with acute or chronic stress (Cohen & Syme, 1985; Werner & Smith, 1982). The term *social support* emphasizes the types of support available and the psychological state of the recipient (feeling valued, connected, and cared for), and can be broadly defined as the tangible and intangible resources available via an individual's social connections (Cohen, 2004; House, Landis, & Umberson, 1988; Thoits, 1995). Each form of social support provides individuals with different experiences that impact their development and their own position in the social system (Belle, 1989). The provision of social support in children's lives has been shown to be important due to the positive impact on children's academic and socio-emotional development (Bost, 1995; Franco & Levitt, 1997; Larkina & Bauer, 2010; Mashburn, 2008; Slykerman et al., 2005).

Several types and forms of support have been identified in the social support literature (Cochran & Brassard, 1979; Cohen & Wills, 1985; Cutrona & Russell, 1990; House, 1981; Robinson & Garber, 1995), and all of them are highly correlated with each other. The present study includes five types of supportive resources that have been commonly used in research and encompass several 'molecular' types of support. The first type is *social support*, and can be defined as the opportunities that someone has to interact, share activities with another person, participate in group activities, and have a companion, which in turn promote feelings of belonging (Cohen & Syme, 1985). Secondly, *emotional support* includes types of support that make people feel loved, valued and cared for, such as expressions of caring (e.g., kissing, hugging), acknowledging feelings or emotions through actions or verbal expressions (McLoyd & Smith, 2002). Third, the types of support that are provided in the form of tangible assistance are called *material support* (e.g., food, clothing) (Cohen & Syme, 1985). Fourth, *instrumental support* refers to the concrete help received to perform an activity or solve practical problems

(House, 1981). Lastly, *instructional/advice support* includes any kind of guidance/advice that is helpful for performing a task or to cope with difficulties (Cochran & Niego, 2002). Research examining social support from a social network perspective suggests that people tend to seek emotional, social, instrumental, and instructional support more frequently from network members with whom they are more emotionally invested and who are also more willing to provide those types of social support (Granovetter, 1983). For instance, children and adolescents tend to perceive their families as the most important providers of social support (Clark-Lempers, Lempers, & Ho, 1991; East & Rook, 1992; Furman & Buhrmester, 1985). However, peers can also be an important source of instrumental and instructional support (Belle, 1989; Hogan & Tudge, 1999). Therefore, it is important to examine potential sources of support outside the family system.

Importance of Social Resources in the Context of Poverty

Social support can take different forms depending on the environmental circumstances in which individuals and their support network are living. For example, allomaternal care (i.e., care provided by people other than the mother), seems to be an adaptive strategy to the demands of the environment, especially in contexts with high levels of child mortality (Hrdy, 2007; Smaldino, Newson, Schank, & Richerson, 2013). Furthermore, parenting strategies appear to be influenced by parents' perceptions of risk in the environment in which they live (LeVine, 1977, 2004). Thus, it is important to try to understand the different forms of social support experienced by children in conjunction with the environmental circumstances in which they and their network members live, and the fit between the support and the context. This is especially relevant in the context of poverty, given that infants and toddlers are the most susceptible age group to the negative consequences of living in harsh environmental conditions (Evans, 2004).

It has been well established that living in poverty has a wide range of negative effects on children's well-being (Cicchetti & Curtis, 2015). Children living in poverty are not only at increased risk of having low birth weight, but also poor nutrition during childhood due to inadequate food consumption, and being exposed to environmental contaminants (Bradley & Corwyn, 2002; Evans, 2004; Leventhal & Brooks-Gunn, 2000). Moreover, living in poverty has been associated with a wide range of emotional problems among children, including depression, low self-esteem, and feelings of anxiety (Bradley & Corwyn, 2002; Evans, 2004; Leventhal & Brooks-Gunn, 2000; Magnuson & Votruba-Drzal, 2008). It is estimated that over 60% of the residents in Nairobi, Kenya's capital city, live in extreme poverty conditions and reside in congested slums, which use only a small fraction (about 5%) of the available residential land (APHRC, 2002; Matrix Development Consultants., 1993). The poor environmental, housing, and living conditions of slums expose residents to highly stressful events, resulting in lower survival chances for adults and children (APHRC, 2002; Ndugwa & Zulu, 2008). Moreover, the high adult mortality rates, partially due to prevalence of HIV/AIDS in slums, have increased the numbers of orphaned children. Reports from UNICEF (2006) have shown that Kenya has approximately 2.3 million orphaned children, of which approximately 46% are considered AIDS orphans. Since vulnerability increases when there is an unbalanced state between environmental demands and types of support provided, knowledge about different forms of support available for children in this impoverished context will be valuable information that could help current efforts to positively impact the development of children living in these high risk contexts.

One characteristic of informal urban settlements in Kenya is the high number of distinct ethnic groups (KNBS, 2010) sharing similar ecological circumstances, which provides an opportunity for examining potential ethnic variations in the form of support available to children

within one context. The findings of a study examining the characteristics of social support of a group of Aluyia children in Kenya revealed that they were required to seek and offer assistance within the context of a large and hierarchical network, who worked together in different tasks (Weisner, 1989). The same study also revealed that children were more frequently the source of support than mothers and fathers, even when adults were in close proximity and available to provide support (Weisner, 1989). Just as child rearing takes culture-specific forms (e.g., children's developmental niche) (Super & Harkness, 2002), it is likely that dimensions of social support vary across cultures. Indeed, studies have shown that the amount and type of social support received by adults depend on a person's ethnicity (Belle, 1989). However, little is known about how culture may impact the types of social support that young children receive.

Theoretical Framework and Objectives of this Study

The present work is guided by a bioecological perspective (Bronfenbrenner & Morris, 2006). Bronfenbrenner's bioecological perspective suggests that factors outside the family and other immediate settings impact an individual's development and need to be considered (Bronfenbrenner, 1986). Thus, the form that children's social support takes might be influenced by events and environmental circumstances in which they live, as well as personal characteristics.

The present study was conducted in an informal urban settlement (a.k.a., slum) located on the outskirts of Nairobi. At least fifteen different ethnic groups reside in this community, and four groups, in particular, were included in this study (Kamba, Kikuyu, Luo, and Maasai). The main purpose of this study is to provide a description of the types of direct support that children receive in this setting. Also, in this study we examine commonalities and dissimilarities in the types and sources of children's social support among four ethnic groups (Kamba, Kikuyu, Luo,

Maasai) that share the same ecological circumstances. Thus, the following research questions are explored:

- 1) What types of support are most prevalent in children's social support networks in an informal urban settlement in Kenya?
- 2) Who are the main sources of support for these children?
 - a. What are the characteristics of the types of support provided for each source?
- 3) Are the types of support provided to children (through their social networks) different among ethnic groups? If so, to what extent and how do they vary?

Although network members (sources of support) are expected to provide an array of different types of support to children, more specific predictions about the proportions of the types and the sources of support provided to this group of children are unwarranted, since there is no previous research conducted in similar settings (i.e., informal urban settlements). Moreover, each culture has their own beliefs about young children's needs and what types of support are more important. Thus, variation in the sources and types of support provided to children across ethnic groups is expected. However, more specific predictions about these variations are unwarranted, since there is not in-depth research on children's social experiences or rearing practices among these ethnic groups.

Methods

The present study is a secondary analysis of data that were collected as part of a larger study, in which the primary purpose was to examine cultural and individual variations in the caregiving practices of young children within a context of an informal urban settlement. All procedures and measurements for this research project were approved by the university's Institutional Review Board (IRB).

Participants

58 focal children from four different ethnic groups participated in this study. Specifically, 16 Kamba children (8 boys, and 8 girls) with an average age of 3.69, 11 Kikuyu children (5 boys, 6 girls) with an average age of 3.09, 16 Luo children (8 boys, 8 girls) with an average age of 3.12, and 15 Maasai children (5 boys and 10 girls) with an average age of 3.27 and their families participated in this study. Mothers were reported as the primary caregiver for most children (53 children), followed by grandmothers (3 children), an aunt (1 child), and a father (1 child). Regarding fathers' presence in the households, 10 children did not have a father who resided in the same household, 12 children had a father who stayed only temporarily in the household (e.g., left for work for long periods of time), 30 children had a father who worked during the day and stayed at home at nights, and six children had a father who was present during the day and night, because they were either unemployed, worked occasionally, or worked from home (e.g. owned a shop next door, kept livestock). The average household size of the sample was 5 people and on average focal children had 2 siblings living in the same household.

Ethnographic background of ethnic groups.

Maasai. The Maasai are a Maa-speaking and predominantly semi-nomadic pastoralist group, who are spread over southern Kenya and northern Tanzania. The Maasai are patrilineal and to some extent practice polygyny (Spencer, 1996). Collectivism is highly valued, and behaviors such as generosity, mutual respect, and cooperation are rewarded (Talk, 1995). Among Maasai people, kinship terminology is broadly defined and there is a general preference to address others in the community as family members (Spencer, 1996). There are marked gender differences in the way children are socialized; while girls are socialized to accept the authority of

their future husbands and male elders, boys are expected to develop a strong sense of loyalty for their peer group (Spencer, 1996).

Luo. The Luo mostly live in western Kenya, mainly in the adjacent parts of Uganda and Tanzania. Their native language is called Dholuo. In rural areas, their economy is based on agriculture, breeding animals, and fishing (Herbich, 2011). The Luo are patrilineal, with women and children remaining as members of their father's lineage after marriage (Cooper, 2012). Kin relationships occupy an important role in the social and political structure of Luo communities, and mother, grandmother, and older siblings typically share the responsibility of caring for young children (Herbich, 2011).

Kikuyu. The Kikuyu live mostly in central Kenya and speak Kikuyu, a Bantu language. During the Pre-colonial period, Kikuyu were hunters and gatherers, but later adopted farming as their main economic activity (Davison, 2010). It is believed that during pre-colonial times, Kikuyu were matrilineal, but since the nineteenth century they have been patrilineal with children remaining as members of their fathers' lineage (Davison, 2010). Even though polygyny continued through the colonial period, religious, economic, and geographical factors have resulted in a shift toward monogamy, especially in urban areas (Davison, 2010). Mothers or grandmothers are usually responsible for childcare and childrearing, but this responsibility may also be shared by older siblings (Kenyatta, 1938; Price, 1996). Community, kinship relationships, responsibility, hospitality, and obedience to elders are highly valued by the Kikuyu (Davison, 2010). Indeed, children learn from early years about the importance of extended family, lineage, and clan membership (Davison, 2010). Though in rural areas the extended family compound continues being the basic unit, single-family households are most common in urban areas (Davison, 2010).

Kamba. The Kamba are typically a farming group residing in Makueni, Machakos, and Kitui counties of Kenya. Their native language is Kikamba, a Bantu language. Compared to the other ethnic groups, the Kamba have been less studied (Oliver, 1965). Brief accounts suggest that individualism and freedom of choice seem to be more valued than collectivism (Dundas, 1913; Jacobs, 1961; Oliver, 1965).

Procedures

Demographic Interview. A structured demographic interview with the primary caregiver of the focal child was conducted to gather information about the participants, including ethnicity, household characteristics (members of household, ages, relationships, etc.), socio-economic circumstances, time living in the community, caregiver(s) of the focal child, and other descriptive information. Demographic data were collected by a trained research team during one household visit, with a local field assistant serving as an interpreter (English-Swahili).

Qualitative observations. Qualitative observations of each focal child were taken by trained graduate students from a university in the US and a university in Kenya, on three different days for a period of 2 hours each day. The observations were made at different points in their daily routine: one day the observations were in the morning, another day at mid-day, and the other day in late afternoon. After 45-minutes of observation, the observers had a 15-minute rest period to prevent observer fatigue. A total of 270 minutes of data were collected for each child. These qualitative observations were written in a narrative manner and focused on children's social and emotional interactions with various social partners and caregivers. The qualitative observations were taken to supplement quantitative observations used for the larger study. Also, before each observation the observer described the setting and the people present at the time of the observation. Observers were trained by an experienced researcher with expertise

in methods of behavioral observation over two days in Kenya. During this time, students a) received instructions about the behaviors under study, b) practiced making anecdotal notations, and c) kept running record accounts of observed behaviors. During the entire data collection period, observers met as a group several times a week to discuss the observations, field experiences, get feedback from the trainer, and check for consistency across observers.

Categories of Support and Definitions

The following categories of support were identified based on prevalent themes found in the social support literature and preliminary examination of the qualitative observational data. Definitions of the five categories of support were refined based on recursive readings of the qualitative observations in order to fit specifically with the context and experiences of the children in this study.

Social/companionship Support. Social support refers to the opportunities that someone has to interact, share activities with another person, participate in group activities, and have a companion, which in turn promote feelings of belonging. Indicators of this type of support include: playing, keeping close proximity, interacting, and laughing or smiling with a social partner.

Emotional Support. Emotional support includes types of support that may make people feel loved, valued or cared for, such as expressions of affection (e.g., kissing, hugging), grooming, acknowledging feelings or emotions through actions or verbal expressions and offering comfort by touching, talking, and through facial expressions such as smiling.

Material Support. Material support refers to the instances in which a social partner lends or gives an object that the focal child wants (e.g., object, toy, food).

Instrumental Support. Instrumental support refers to “concrete” help that a child receives from a social partner to perform an activity or reach a personal goal (e.g., reaching for an object that the child cannot reach by itself, helping the child to finish/do an activity or task).

Informational Support. Instructional support includes any kind of advice/information that is helpful for performing a task, cope with difficulties, or to encourage proper behavior. Indicators of this type of support include: physical demonstration on how to perform an activity, verbal clarification on how to perform an activity, physical and nonphysical modification of child's behavior.

Analysis

Since a mixed-method approach was employed, the data analysis was carried out in a series of steps. First, qualitative observations were transcribed verbatim in separate word documents and uploaded into the software Nvivo 11. To answer the first research question, qualitative observations were coded to identify the five categories of support previously identified in the social support literature and to obtain the prevalence and source of the five types of support of interest for this study. To answer the second research question, qualitative content analysis was used to identify themes within each category of support. Phrases and sentences were highlighted in the texts of the transcripts with color coding according to emerging themes and excerpts depicting each theme were selected from the observation transcripts. To ensure trustworthiness of the coding, twenty percent of the qualitative observations were also coded by a second trained coder, and disagreements were discussed until both coders reached agreement on all the codes.

The information was then exported to SPSS, where preliminary analyses were conducted to provide descriptive information about children’s social support systems. Each variable was

also examined to ensure that the assumptions associated with general linear model analyses (normality, linearity, and homogeneity of variance) were met. To answer the second research question, univariate (ANOVA) and multivariate (MANOVA) analyses were conducted. Preliminary analyses indicated that age did not have an interaction effect with other independent variables and did not significantly predict children's support systems. Therefore, only gender and ethnicity were included as independent variables in the final analyses. First, an ANOVA with ethnicity and gender as the independent variables and overall support as the dependent variable was conducted. Then, two MANOVAs were conducted to determine whether children's types and sources of social support differed as a function of the child's ethnicity and gender, and to determine if there was an interaction between these two independent variables.

Results

Qualitative Description of the Types of Support

Emotional Support. Three forms of emotional support were identified: i) soothing, ii) expression of affection, and iii) secure base.

Soothing. Soothing was the most frequent form of emotional support provided to children. When the participating children were in distress, members of their social networks soothed and provided comfort by holding, talking, patting, and moving closer to the child. This form of support was provided more often by adults than children.

The following are examples of "soothing" from the qualitative observations:

"Dad comes closer to see his son and calls him. [Focal child] goes to his father who pats his head. Dad gently talks to him. [Focal child] soon stops crying." (Kamba, 3 years-old boy)

"Focal child throws himself to the ground and begins fussing. Female child goes and picks him up. Focal child immediately stops fussing" (Luo, 3 years-old boy)

Expression of affection. This was the second most frequent form of emotional support provided to children. Expression of affection included: smiling, hugging, holding, praising, rocking, and/or singing. This form of support was provided more often by adults than children.

The following examples of “expression of affection” were extracted from the qualitative observations:

“his mother holds him on her lap; rocking him and singing to him. He was smiling.”

(Luo, 4 years-old boy)

“She runs to her brother (about 7 years old) who was standing nearby, with her arms out stretched, her brother picked her up (holding her in his arms)” (Maasai, 2 years-old girl)

Secure base. This form of emotional support was exclusively provided by the primary caregiver (i.e., mother, and one aunt). When feeling vulnerable (e.g., scared), participant children tended to reach for the primary caregivers, who responded by hugging and/or holding them in their arms.

The following example of “secure base” was extracted from the qualitative observations:

“she is now moving toward mother crying, scared of us, mother embracing her, holding her lovingly” (Luo, 3 years-old girl)

Informational Support. Six forms of informational support were identified: i) behavior, ii) eating, iii) game, iv) household tasks, v) location, and vi) personal care.

Behavior. This was the most frequent form of informational support provided to the focal child. It included any instruction that an adult or other child gave to the focal child with the goal of modifying or stopping a behavior by speaking, yelling, or physically punishing (e.g., hitting). This form of support was provided more often by adults than children.

The following are examples of “behavior” from the qualitative observations:

“[Focal child] applies sewage water on her friend’s finger pretending to be nail polish, mother shouts at her and she walks away in company of other children” (Kamba, 4 years-old girl).

“[Focal child] pours dust on the head of the youngest peer; a girl (older peer) intervened and slapped all their heads; telling them not to pick on the smallest.” (Kikuyu, 3 years-old boy)

Location. This was the second most frequent form of instructional support provided to children. It was coded each time a network member redirected the child to a different location by talking or carrying him/her. This form of support was provided by adults as well as by children.

The following examples of “location” were extracted from the qualitative observations:

“a gentleman passed by and called the focal child and her peers to walk along with him; they followed him; but after about 100m of walk, the mother called her back” (Luo, 3 years-old girl)

“they [Focal child and peers] went to the road and as they walked along, her cousin called her back, she refused to comeback, so the cousin ran after her, caught her up and dragged her back against her will. She was protesting.” (Maasai, 4 years-old girl)

Eating. This form of informational support was coded each time a social network member advised the child to continue eating. It was provided more often by adults than children social partners.

The following example of “eating” was extracted from the qualitative observations:

“Mother tells him to eat and to stop staring at the television” (Kikuyu, 3 years-old boy)

“brother asks him to eat” (Kamba, 3 years-old boy)

Game. This form of informational support was exclusively provided by child social partners and refers to instructions about rules of games.

The following is an example of “game” from the qualitative observations:

“the peers gathered together to play; [focal child] joined them in the game and he was active running around; he did not know the game too well so they [siblings] had to direct him”
(Maasai, 2 years-old boy)

Personal Care. This form of informational support was exclusively provided by female relative adults and it was coded each time a network member directed or advised the child to perform personal cleaning or body care.

The following example of “personal care” was extracted from the qualitative observations:

“there was a Vaseline jar on the table and the mother told the focal child to take some and apply it on his face; he did so smiling. The mother told him to apply it on his body, head, face, and legs so that he can be a beautiful boy” (Kikuyu, 3 years-old boy)

Household tasks. This form of informational support was the least frequently provided and it included any instruction given to the focal child regarding the performance of household tasks. This form of informational support was provided exclusively by female relative adults.

The following example of “household tasks” was extracted from the qualitative observations:

“[focal child] picks up soap as instructed by mother, so she [focal child] applies it on a piece of cloth she is washing.” (Luo, 3 years-old girl)

Instrumental Support. Three forms of instrumental support were identified: i) Basic needs, ii) Physical, and iii) Object.

Basic Needs. This was the most frequent form of instrumental support provided to the focal child. It included any concrete help that was directed to satisfy the focal children’s basic

needs. It included feeding, grooming, and dressing. This form of support was provided more often by adults than children social partners.

The following examples of “basic needs” were extracted from the qualitative observations:

“the mother called him to wipe his nose; he walked near her; removed his jacket and wiped his nose” (Kamba, 3 years-old boy)

“she [Focal child] was still bitter; so a girl (neighbor) fed her the food” (Maasai, 2 years-old girl)

Physical. This form of instrumental support refers to the concrete help that the focal child received to perform an activity that exceeded his/her physical strength (e.g., lift heavy weight) or motor abilities (e.g., climb something). This form of support was provided by adults as well as children.

The following examples of “physical” were extracted from the qualitative observations:

“focal child held her aunt and the aunt helped her to climb down the rabbit cages”
(Kamba, 3 years-old girl)

“he [focal child] was trying to lift the chair but it was too heavy so a peer assisted him to lift it” (Maasai, 3 years-old boy)

Object. This form of instrumental support was the least frequently observed and refers to the concrete help that the focal child received to fix a toy or object. Adults more frequently provided this form of support than children.

The following are examples of “object” from the qualitative observations:

“Dad fixed the toy and handed it back to focal child” (Kamba, 3 years-old boy)

“focal child brought the toy to an older girl. She reattached the string and handed back to him” (Kamba, 3 years-old boy)

Material Support. Three forms of material support were identified: i) Food, and ii) Object/Toy.

Food. This was the most frequent form of material support provided to the focal child. It was coded each time a network member provided the focal child with food. Adults provided more frequently this form of support than children social partners.

The following examples of “food” were extracted from the qualitative observations:

“the woman gave him a piece of orange and some crisps” (Maasai, 2 years-old boy)

“older boy gives her the sucker and also gives her a piece of the muffin” (Maasai, 3 years-old girl)

Object/Toy. This was the second most frequent form of material support provided to the focal child. It was coded each time a network member provided the focal child with a manufactured toy or an object (e.g., empty plastic bottles, chalk, plastic bags, pencil, paper, etc.) that was usually used by focal children for play. Children were a greater source of objects, while adults were greater source of manufactured toys.

The following examples of “object/toy” were extracted from the qualitative observations:

“the aunt called her and gave her a doll” (Maasai, 3 years-old girl)

“brother picked an empty milk box, he filled it up with air and tied the opening with grass and gave it to focal child who began to kick it around as well as stomping on it with one foot” (Luo, 3 years-old boy)

Social/companionship support. Four forms of social/companionship support were identified: i) companionship, ii) talk, iii) play, and iv) greeting.

Companionship. This form of support was the most frequently provided, particularly by children. It was coded each instance a social partner was physically close to the focal child and it included sitting close to the child, engaging in the same activity without interaction (e.g., parallel play), and serving as a companion to the child while moving to a different location. Children were a greater source of this form of support than adults.

The following examples of “companionship” were extracted from the qualitative observations:

“he is seated within a group of adults” (Kamba, 3 years-old boy)

“[Focal child] walks along the river with friend... starts walking away with friend”

(Kamba, 4 years-old girl)

Talk. This form of social/companionship support was coded each time a social partner engaged the child in conversation. Adults more frequently provided this form of support than children social partners.

The following examples of “talk” were extracted from the qualitative observations:

“he spent a few minutes chatting with the shopkeeper (shopkeeper engages him in conversation)” (Kamba, 3 years-old girl)

“he picked the tins as a girl engaged him in conversation” (Kikuyu, 3 years-old boy)

Play. This form of social/companionship support was coded each time a social partner engaged the child in play. It included organized games (e.g., hide and seek, role play, group competitions) and informal games (e.g., chasing each other). Children were a greater source of this form of support than adults.

The following are examples of “play” from the qualitative observations:

“the aunt engaged him to play; he ran to her (she was seated at the sofa) from the window and she would say “ba,” focal child would say “ba” and then run back to the window laughing; this went back and forth for a while” (Kikuyu, 3 years-old boy)

“the peer turned to her and told her, ‘ok throw the ball/apple.’ So she would throw it to him, he catches and throws it back to her but she never caught any on her spread palms; but she enjoyed it, laughing; if the peer paid attention to the other peers, she would yell in a cry and the peer stop paying attention and began playing with her” (Maasai, 3 years-old girl)

Greeting. This form of social/companionship support was coded each time a social partner engaged the child in formal greeting. It was exclusively provided by adult social partners.

The following example of “greeting” was extracted from the qualitative observations:

“a sister to the grandmother arrived in the homestead; the peers and focal child run to her bending a little bit for the customary greetings (elders touch children’s head)” (Maasai, 2 years-old boy)

Quantitative Description of Support.

Means, minimums, maximums, and standard deviations for each type of support and sources of support are shown in Table 1 of Appendix B. The means represent the average number of instances in which the focal child received a type of support from a social partner within the total 270-minute observation.

There was substantial variation in the amount of overall support provided to children ($M=30.95$, $SD=13.34$, $Min=11$, $Max=71$), regardless of the type and the source of support. Figure 3 reports the mean amounts of each type of support (comprising the overall support) in the form of a stacked bar plot, where the size of each individual block represents the contribution of support given by a source. Figure 4 is a similar plot that shows the mean amounts of each type of

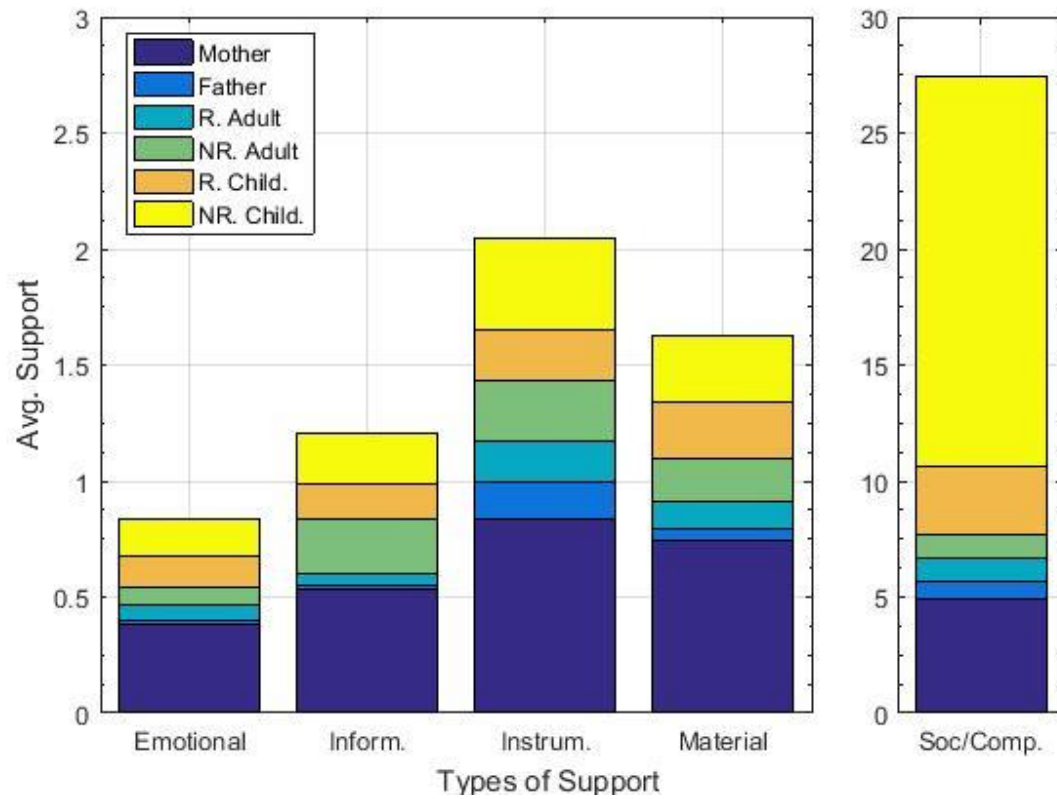


Figure 3. *Average Amounts of Support and the Sources for Each Type of Support.*

Note: This stacked bar plot reports the average amounts of support and the sources comprising each type of support. Mean values of social/companionship support were reported in a different scale, because contributions for the other types of support would have not been visible due to the large differences in observed frequency. R= Relative and NR= Non-relative.

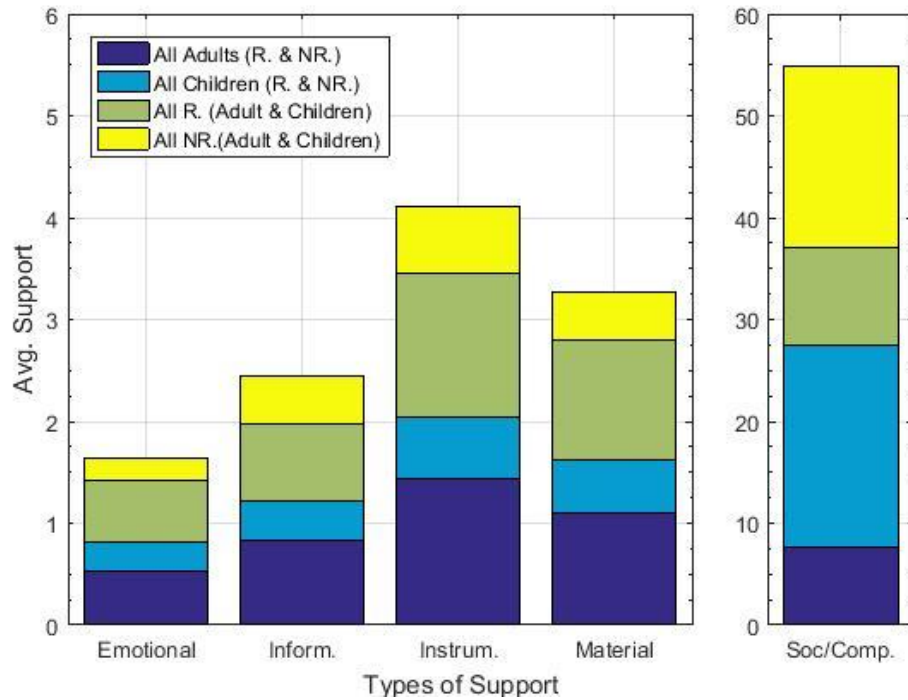


Figure 4. *Average Amounts of Each Type of Support Provided by Different Types of Relationships.*

Note: This stacked bar plot reports the average amounts of each type of support as given by: adult social partners, children social partners, relative social partners, and non-relative social partners. The mean values of social/companionship support were reported in a different scale, because the contributions for the other types of support would have not been visible due to the large differences in observed frequency. R= Relative and NR= Non-relative.

support as given by: all adult social partners (relative and non-relatives), all children social partners (relative and non-relatives), all relative social partners (adult and children), and all non-relative social partners (adult and children). From Figures 3 and 4, it is apparent that, in general, the types of support provided by adults were usually directed to satisfy children's emotional, informational, instrumental, and material support needs. In contrast, children were usually the greatest source of social/companionship support for the focal children in this study.

Mothers were the main source of *emotional support*, while fathers were the least frequent source (Figure 3). In general terms, almost equal amounts of emotional support were provided by relative and non-relative adults, excluding mothers and fathers, and relative and non-relative children. Adult social partners were greater sources of emotional support than child social partners, while relative adults and relative children combined provided more emotional support than non-relative adults and non-relative children together (Figure 4).

Regarding *informational Support*, mothers were the main source, while fathers the least frequent source. Relative adults provided more informational support than non-relative adults and non-relative children provided slightly more support than relative children. Overall, adult social partners were greater sources of informational support than children, and relative adults and children combined provided more informational support than non-relative adults and children together.

Moreover, the main source of *instrumental support* was, once again, mothers, while fathers were the least frequent source. Non-relative adults and non-relative children provided more instrumental support than relative adults and relative children respectively. Conversely, relative adults and children together provided more instrumental support than non-relative adults

and children combined. In general, adult social partners were greater sources of instrumental support than children.

Regarding *material support*, again, mothers were the predominant source and fathers the smallest source. Relative adults, excluding mothers and fathers, provided as much material support as non-relative ones. A similar trend was observed among relative and non-relative children. However, relative adults and children together provided more material support than non-relative adults and children combined. In general, adult social partners were greater sources of material support than children.

Social/companionship support was the most observed type of support and was mainly provided by non-relative children. Mothers were the second largest provider and fathers the least frequent provider. Contrary to other types of support, child social partners were greater sources of social/companionship support than adults. On average, non-relative adults provided more social support than relative adults, which was also observed among relative and non-relative children. Furthermore, non-relative adults and children combined provided more social support than relative adults and children together, which is the opposite of the trend observed for the other types of support.

In terms of the sources of support and the distribution of the types of support given by various people, Figure 3 also reveals that social/companionship was the most prevalent type of support given by mothers, followed by instrumental, material, informational, and finally emotional support. Fathers (who were the least frequent providers of observed support) mainly provided social/companionship, followed by instrumental, material, and similar amounts of informational and emotional. Regarding relative adults, social/companionship was, again, the type of support most often provided, followed by instrumental, material, and similar amounts of

emotional and informational. The main type of support provided by non-relative adults was social/companionship, followed by relatively similar amounts of instrumental and informational support, then material, and finally emotional. Social/companionship was also the main type of support provided by relative children. This was followed by relatively similar amounts of material and instrumental support, and then by similar amounts of informational and emotional support. Finally, social/companionship was the main form of support given by non-relative children, who were the greatest providers of this type of support overall. Furthermore, non-relative children, provided small amounts of instrumental, material, informational, and emotional.

Variations Based on Ethnicity and Gender

Figures 5 and 6 show the mean values of different types of support (including the overall support) received by children according to ethnic group and gender, respectively.

Among all ethnic groups, Luo children seem to receive slightly more overall support than children in the other groups, followed closely by Kamba, Kikuyu, and Maasai children. However, the univariate analyses revealed no significant differences in the amount of overall support received by children based on ethnicity. The ANOVA also revealed no statistically significant difference in the amount of overall support based on children's gender.

A multivariate analysis of variance (MANOVA) was conducted to determine whether children's types and sources of support differed as a function of their ethnicity (Kamba, Kikuyu, Luo, and Maasai) and gender (boys and girls). Regarding the types of support, the MANOVA revealed no statistically significant differences in the amount of the different types of support received by children based on children's ethnicity and there was no interaction between these

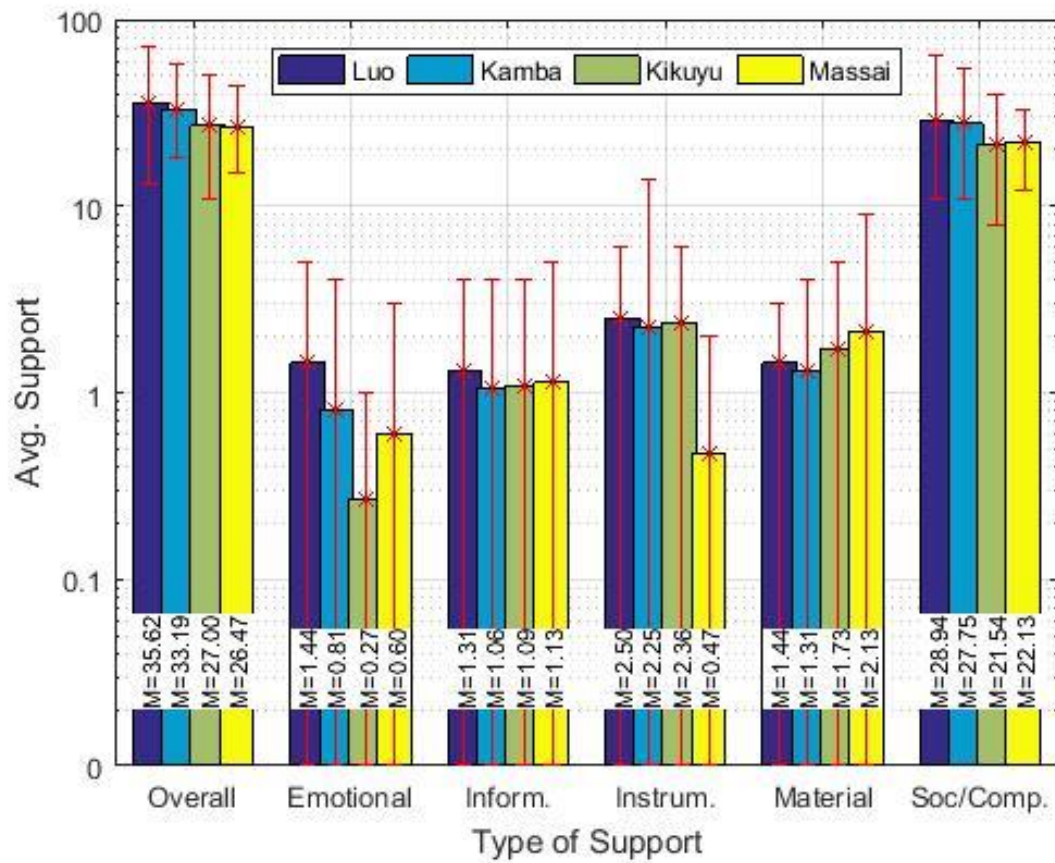


Figure 5. Average Amounts of Each Type of Support Received by Children Across Ethnic Groups.

Note: Average amounts of each type of support received by children (in logarithmic scale), organized by ethnicity. Also Min-Max range bars included in red.

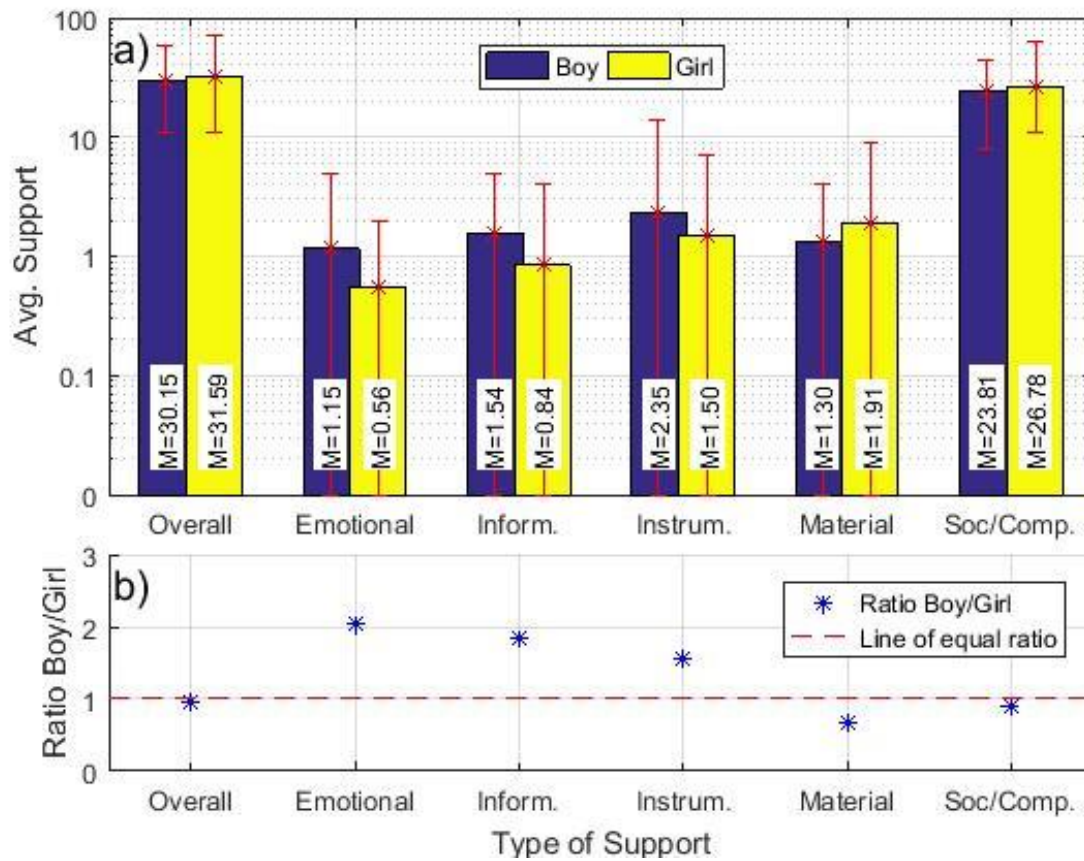


Figure 6. Average Amounts of Support Received by Boys and Girls.

a) Average amounts of support received by children (in logarithmic scale), organized by gender and type of support. b) Ratio of the average support received by boys over girls per type of support.

two variables. Thus, children of each ethnicity received similar amounts of emotional, informational, material, and instrumental support (Figure 5).

On the other hand, the MANOVA revealed a significant main effect for gender ($F(5,46) = 2.878, p=.024$; Wilk's $\lambda = .762$, partial $\eta^2 = .238$). Subsequent univariate analyses revealed significant gender differences for informational support only as boys received more informational support than girls ($F(1,56) = 4.59, p=.037$). Figure 6a shows the average amount of the different types of support received based on gender, including the overall support. Generally, boys appear to have received slightly higher values of emotional, informational, and instrumental support, while girls received higher levels of material and social/companionship. Figure 6b shows that boys received almost twice the amount of informational support compared to girls.

A MANOVA examining the effects of children's gender and ethnicity on the overall support received by other children and the overall support received by adult social partners revealed only a main effect for children's ethnicity ($F(6,98) = 2.630, p=.021$; Wilk's $\lambda = .742$, partial $\eta^2 = .139$). In particular, children's ethnicity predicted overall support provided by adults ($F(3,50) = 4.34, p=.009$), but not overall support provided by children. In post-hoc tests it was revealed that the Luo children received higher levels of overall support from adults than the Maasai children (Tukey= 12.46, $p=.003$). Figure 7 shows the mean values of overall support provided by the different sources to the children of the four ethnic groups. Note that Luo children seem to receive more support from their mothers than any other children, and considerably more than the Maasai children. Relative adults, excluding mothers and fathers, were more often a source of overall support than non-relative adults across the ethnic groups.

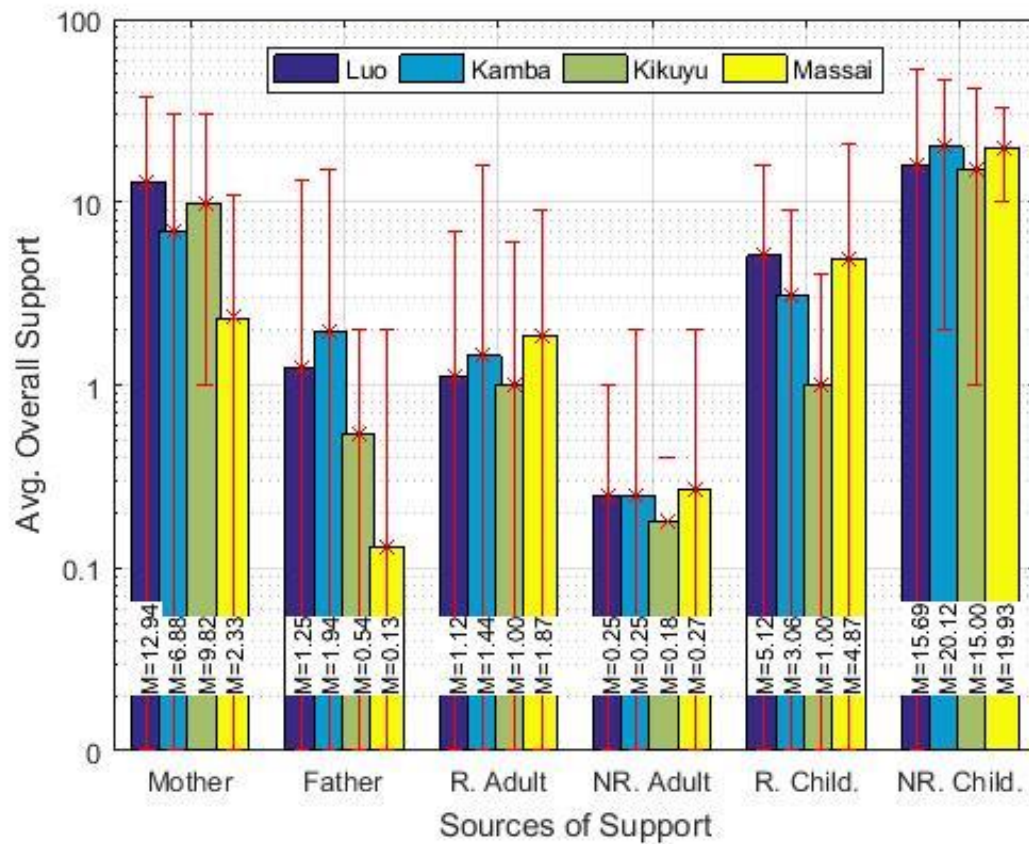


Figure 7. Average Amounts of Overall Support Provided by Different Sources Across Ethnic Groups.

Notes: Average amounts of overall of support provided by different sources (in logarithmic scale), organized by ethnicity. Also Min-Max range bars (red). R= Relative and NR= non-relative.

In general terms, child social partners (relative and non-relative) on average provided more overall support than adult social partners (relative and non-relative including mothers and fathers) across ethnic groups (Figure 8a). This trend is highly marked among Maasai children, who received over four times more overall support from children than adult social partners (Figure 8b). While Luo children also tended to receive more support from children, the difference in proportion is not as great.

Regarding gender differences in the sources of overall support, multivariate analyses did not reveal significant differences in the amount of overall support received based on children's gender. Figure 9a shows that in both genders, non-relative children are the biggest sources of overall support followed by mothers. In both cases, non-relative children provided about twice the amount of support than mothers and fathers provided together. Moreover, children were greater providers of overall support than adults, regardless of gender. In fact, in both cases children provided about 1.8 times more support than adults (Figure 9b).

Discussion

The purpose of the present study was to: a) provide a qualitative and quantitative description of the different types of support available to children of four ethnic groups within an informal urban settlement in Kenya, and b) examine commonalities and dissimilarities in the types and sources of social support among these children related to ethnicity and gender.

Different forms of the same support were identified in the qualitative observations, which were provided by child or adult social partners or both. Descriptive information also revealed that emotional, informational, instrumental, and material support were more often provided by adults, while children were usually the greatest source of social/companionship for the focal children in this study. Univariate and multivariate analyses did not reveal substantial

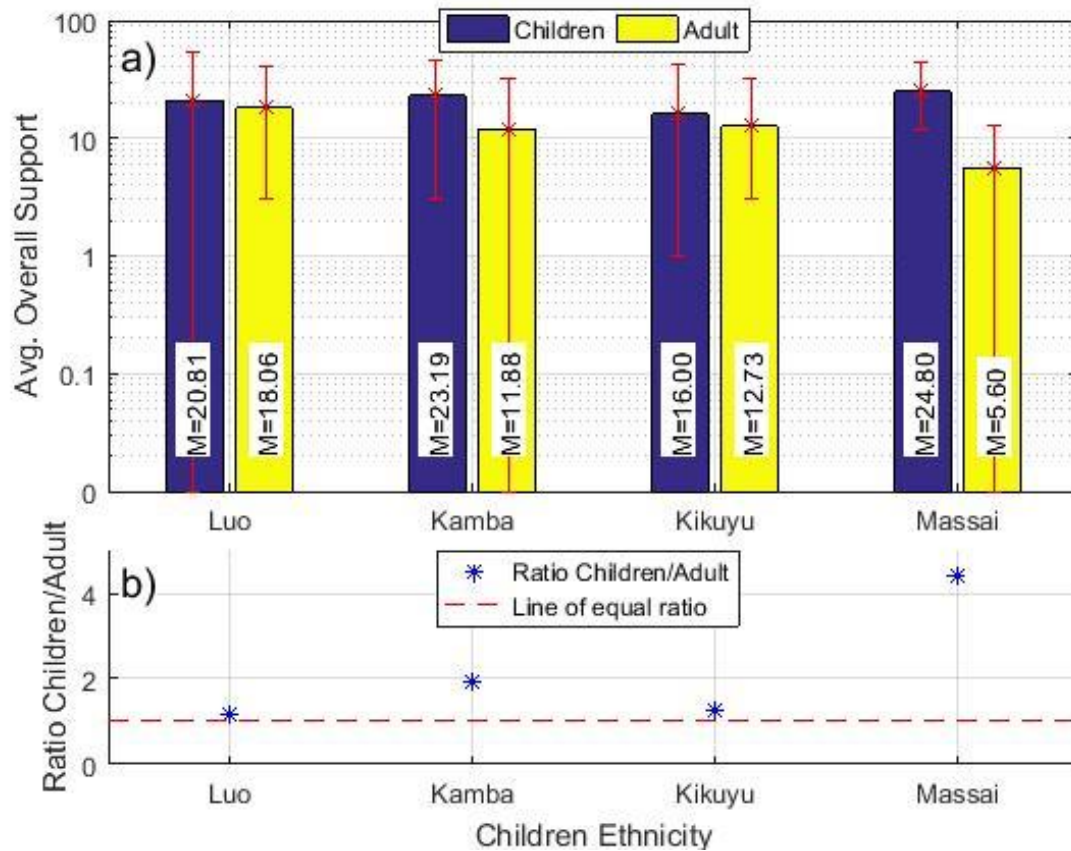


Figure 8. Average Amounts of Overall Support Provided by Children and Adult Partners Across Ethnic Groups.

a) Average amounts of overall support (in logarithmic scale) provided by all children and all adult partners across ethnic groups. b) Ratio of the average support provided by all children over all adult partners.

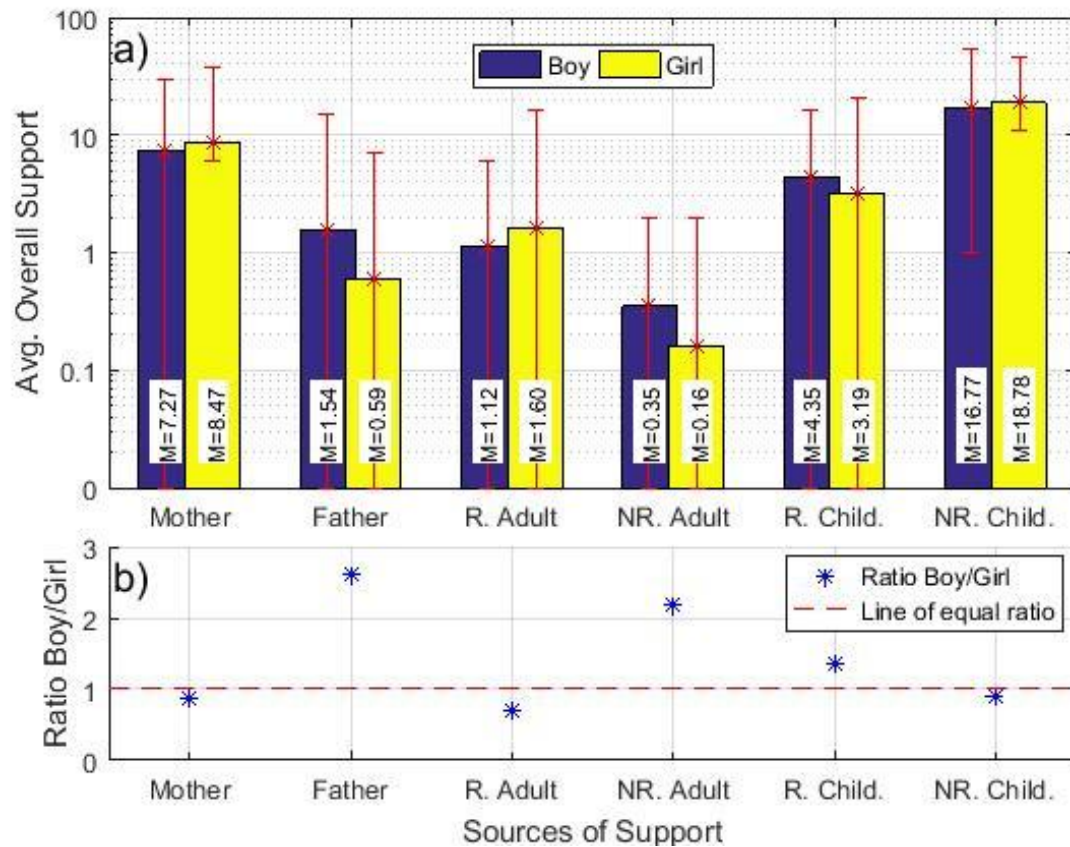


Figure 9. Average Amounts of Overall of Support Received by Boys and Girls per Source. a) Average amounts of overall of support received by children (in logarithmic scale), organized by gender and source. b) Ratio of the average overall support received by boys over girls per source. R= Relative and NR= non-relative.

differences in the amount of overall support provided by different social partners based on focal children's ethnicity or gender. However, there were differences in specific types of support received. Namely boys received markedly more informational support than girls and Luo children received more overall support from adults than did Maasai children.

Considering the various types of support (emotional, informational, instrumental, material, and social/companionship), all children received each type of support to some degree. However, social/companionship was the most common type of support that children were observed receiving. Interestingly, even though some types of support were more often provided by a specific type of person (e.g., mothers were the main source of emotional support, children the main source of social/companionship support); in general, children received each type of support from a variety of people. This finding is especially relevant in the context of poverty, which, as previously discussed, is associated with a wide range of negative effects on children's well-being, particularly for infants and toddlers. For instance, children living in poverty are not only at increased risk of having low birth weight, but also poor nutrition during childhood due to inadequate food consumption (Bradley & Corwyn, 2002; Evans, 2004; Leventhal & Brooks-Gunn, 2000). Thus, having multiple members of their social networks (not only immediate family) to provide material support in the form of food may be protective and provide a larger safety net, so to speak. Also, in the context of high mortality rates in which these children live, having more than one network member to provide the same support may be particularly important, especially when there is the possibility that an important source may become unavailable (e.g., illness or death). Receiving the same type of support from multiple sources seems adaptive in order to meet the demands of a harsh environment, which is consistent with the literature on multiple caregiving or cooperative breeding (Hrdy, 2007, 2011). Allomaternal

care, for example, seems to be a form of support that is essential for child survival in environments with high levels of child mortality (LeVine, 2004). The cold temperatures of the forest inhabited by the Efe of the Ituri promotes caretaking practices such as passing the infant among many individuals in several occasions a day to increase the infant's activity level, which in turn, increases heat production. Also, this cooperative caregiving permits less investment per offspring and the possibility of giving birth again sooner (i.e., shorter birth spacing), without sacrificing child survival (Tronick, Morelli, & Winn, 1987). Thus, parenting strategies appear to adapt based on the parents' perceptions of risk in the environment in which they live (LeVine, 1977, 2004). Further research is needed to explore this phenomenon in relation to the environmental conditions of slum communities in particular.

Despite the involvement of multiple caregivers, the findings from the current study indicate that, in general, mothers were the greatest adult source of the different types of support observed, while fathers provided the least amount of observed support. The apparent low levels of father involvement may be explained by the family circumstances and characteristics of the sample. In particular, 17% of the focal children did not have a residential father and 72% of them had a father that either worked all day away from home or periodically migrated to work for long periods of time. Thus, fathers were often not present during observations. More extensive longer observations may have better captured father's involvement with children; thus this study alone does not imply lack of paternal interest or investment as low observed involvement could be attributed to the timing of observations.

Consistent with attachment theory (Bowlby, 1988), the qualitative description of the types of support revealed that secure base, a form of emotional support, was provided exclusively by the primary caregivers (mostly mothers). In contrast to what is commonly observed in the U.S.

and other highly industrialized western societies, in this sample, children as young as two year-olds were observed to walk long distances away from their primary caregivers to play with other children or were sent to run errands by themselves, which have been documented in some ethnographic research in East Africa (LeVine et al., 1996; Weisner, 1989). However, similar to what is observed in young children from Western societies, the participating children were also observed to use their primary caregivers as a “safe haven” whenever they felt afraid or intimidated.

Each culture has their own notions and beliefs about what young children’s needs are and what types of support are more important. An understanding of the particular ecology and cultural values in which children live is required for a precise interpretation of what constitutes supportive behaviors, and the role these behaviors play in the children’s development. As Ogbu (1981) suggested, the components and functionality of children’s support systems vary, so that children become prepared to succeed as adults within a particular ecological setting or niche. For example, while the provision of emotional support is commonplace in industrialized western societies, the results of this study showed that emotional support was the type of support least often provided to this group of children. Thus, it may be possible that other types of support are more valued than emotional support in the context in which the participating children live. Indeed, some research related to socialization has suggested that childrearing ideals of one culture are not necessarily the same in another culture, and differences in the set of standards that guide children’s development exist (Gielen & Roopnarine, 2016). For example, while western parents tend to focus more on providing constant warm and intellectual stimulation, in many cultures of Africa, parents focus more on physical growth, survival, and obedience (LeVine, 2004).

Another interesting finding is that social/companionship was the type of support most often provided, and children were the greatest source. This finding highlights first, the important role that children can play as a provider of support while also reciprocally receiving support, and second, how the level of access to other children can influence the amount of support being provided by other children within their social networks. In highly industrialized cultures, the interactional relationships between young children depends on the role that parents play in creating contact opportunities between their own children and potential play partners, particularly before they enter formal education settings. In contrast, as noted by observers in this study, participating children spend a substantial portion of their time outside their homes, interacting with other children without parental intervention.

Interestingly, the results indicated that boys received significantly more informational support than girls. A possible reason for this difference may be that boys were slightly younger than girls in this sample, and thus, may have needed more informational support; however, age differences were not detected in the preliminary analyses. Also, if age is considered a plausible reason for needing more informational support, it would also be expected that younger children would need more instrumental support as well. Young children may require advice/instructions as much as they may need concrete assistance to complete a task or activity. Therefore, further research is needed to examine this gender difference.

Regarding ethnic group differences, the results of this study showed marked variation between Luo and Maasai children in the amount of support they received from adult social partners. Luo children received more overall support from adults than Maasai children. Based on ethnographic observations of these four groups in the informal urban settlement under study, the Maasai seem to have maintained more of the traditions and childcare customs that are

comparable to rural villages. For example, among the Maasai in this study there seemed to be a stronger emphasis on siblings and other children as caregivers to younger children, which in turn may have related to adults being less involved. Also, while the other three ethnic groups tended to live in more multiethnic parts of the community, the Maasai predominantly lived near other Maasai households, which may be related to maintenance of their cultural practices. For example, most of the Maasai in this community continued with their pastoral activities (e.g., kept cattle on the outskirts of the slum) and construction of their traditional houses (made from a mixture of dung and mud) even within the urban settlement. This ethnic difference highlights the important role that cultural beliefs and practices may play in the characteristics of children's support systems. Further research with a larger sample is needed to examine this variation and tease out possible differences among other ethnic groups as well as to examine possible connections between cultural beliefs and the types of support provided.

The present study has some limitations. First, although most of the qualitative observations were collected by students from a university in Kenya who were fluent in Swahili, some informational/advise support that included verbal clarifications on how to perform an activity might have been underestimated by data collectors from U.S who did not speak Swahili or other local languages. Likewise, the students from Kenya did not speak all of the local languages in the settlement and focal children often used multiple languages. Thus, informational support, overall, may have been underestimated in observations. Second, the number of relative members in children's networks (children and adults) might be underestimated, since it was impossible to identify the type of affiliation that the focal child had with every single person he/she interacted with during the observations.

Despite these limitations, the present study has contributed new knowledge to the area of children's social support system by focusing on young children within an informal urban settlement. This study not only described the types of support available to the participating children, but how each of them is provided differently depending on its source and the potential role that ethnicity may play on the provision of the different types and sources of support. It is quite interesting that the types of social support found here to be available to young children are consistent with the types of support usually studied among adults, which further highlights the importance of the availability of these types of support in children's lives. Moreover, knowing the types of support available for children is crucial to understand their needs, especially in a context of poverty, and should be considered as fundamental step in future social intervention plans.

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Chapter IV. Characteristics of the Social Networks of Children in an Informal Urban Settlement of Kenya

Abstract

Children's social networks are comprised of a variety of social partners in terms of age, gender, and relation (e.g., kin vs. non-kin) who interact with the child in unique ways and contribute distinctly to his/her social and emotional development. The present manuscript provides a detailed description of the structure of children's social networks from four different ethnic groups (Kamba, Kikuyu, Luo, and Maasai) residing in an informal urban settlement in Kenya. It was found that children's social networks were mostly made up of non-relative children and non-relative adults, while only a small portion of children's social networks were comprised of relative adults and relative children. However, relative adults (including primary caregivers) were the most involved with focal children during the observation period, suggesting that larger social networks do not necessarily mean more highly involved members. Regarding the types of interactions, children's social partners were more often observed to be in close proximity and to engage in play and conversation with the focal children, while adults were more often observed displaying affection, providing physical care, and modifying the focal children's behaviors. Moreover, ethnic group differences regarding the total network size of children were identified. Specifically, Maasai children's networks were larger than that of the Kikuyu and Luo children and Maasai children tended to have the largest number of non-relative children within their social networks. The importance of the findings in relation to implications for practice and future research are discussed.

Introduction

The term *social network* refers to the set of social linkages that surround individuals (Mitchell, 1969). Social network analyses emphasize the structural characteristics of the network and the interrelationships among the cast of characters that constitute the social world of an

individual (Prell, 2012). Structural characteristics of the social network include the size or number of the network contacts, strength of the relationships, diversity of roles, relationships, and diversity of network contacts in terms of gender, age, and life stage (Acock & Hurlbert, 1993; Perry & Pescosolido, 2010; Song & Lin, 2009).

The social nature of human beings starts from birth. Indeed, interactions are made with different social agents during the first minutes of life. As the range of network members increases, the range of possible social interactions also increases, which in turn may influence individuals' thoughts and behaviors to adapt to the requirements of belonging to a social network. In this regard, part of socialization entails learning to become a member of a social network (Cochran & Brassard, 1979; Lewis & Feiring, 1978). The benefits of having rich social networks are well documented. In fact, characteristics of social networks have been found to be strongly associated with individuals' well-being and lower mortality rates (Berkman, 1984; Leavy, 1983), and the ability to cope with stressful situations (Cohen & Syme, 1985; Gottlieb, 1981). Yet, most research on social networks has been conducted among adults with very little attention focused on children.

Children's Network Members

Similar to adults, children's social networks are comprised of a variety of social partners in terms of age, gender, and relation (e.g., kin vs. non-kin). These partners interact with the child in unique ways and contribute distinctly to his/her social and emotional development (Belle, 1989). For example, Lewis, Feiring, and Kotsonis (1984) found important distinctions between adults and peers, and relative and non-relative connections in children's social networks when they were 3 and 6 years old.

Since children's social interactions during the first years of life may be somewhat limited to the caregiver-child dyads, caregivers are likely to foster appropriate and desirable behavior in children to accommodate family standards and expectations (Collins, Gleason, & Sesma Jr, 1997). Hence, caregivers are usually considered the primary socializing agents for their children to prepare them to fit into their cultural milieu and social roles (Bugental & Grusec, 2006). However, in some cultures, siblings are also involved in young children's care (Weisner, 1997). Thus, children are exposed to vertical (adult-child interactions) as well horizontal relationships (child-child interactions) from early life stages. Characteristics of child-child interactions are often quite different from those observed in adult-child social exchanges. For instance, adults usually guide, direct, and control interactions. In contrast, within the child-child social system, a child is not necessarily more knowledgeable or skillful (regarding social exchanges) than a peer, and may have similar social power. Children's participation in larger peer groups creates an important developmental context for them (Rubin, Bukowski, & Parker, 2006). By comparing and competing with other children they can measure and judge their physical, social, cognitive, and linguistic competencies and gain a more realistic sense of self (Rubin, Bukowski, & Laursen, 2009). In these contexts, children have the possibility to elaborate, adapt, or change the social skills learned during caregiver-child interactions with individuals who are relatively similar to them (Willard W. Hartup, 1989; Ladd, 1999). Also, within the peer context children have greater opportunities to negotiate solutions to disagreements (Corsaro, 1981; Verba, 1994), learn how to take the perspective of others, formulate and state their own opinions, and resolve conflicts (Willard W. Hartup & Moore, 1990).

While children's networks may include members of different genders that influence their social experiences, children's own gender can influence the composition of their social network.

For instance, the *two cultures theory* suggests that while boys are more group-oriented, girls tend to play in smaller groups that emphasize close relations (Maccoby, 1998; Rose & Rudolph, 2006). These differences may be reflected in the composition of their social networks, as boys may have a larger number of similar-age members than girls. In fact, Parker and Seal (1996) examined the social network of 8- to 15-year-old children in a camp setting and found that, by the end of camp, the boys' social networks were larger than girls' networks.

On the other hand, children's social networks often include immediate and distal family members (kin members) as well as people from outside the family system (non-kin members). Since the first social and emotional experiences happen within the family context (Grusec & Goodnow, 1994), it has been considered as the most important source of support for children. For example, the survival of an infant depends on a relationship with their primary caregiver, usually their mother (Bowlby, 1988; Eibl-Eibesfeldt, 1989). Indeed, the mother-child relationship has been emphasized as the basis for the development of children's socio-personality by several developmental theorists (Bugental & Grusec, 2006; Freud, 1976). In a similar vein, a positive father-child relationship has been associated with children's high self-esteem, intellectual development, and positive peer relationships (Amato, 1994; Lamb, 2004). Unquestionably, parents are important sources of support for children, particularly emotional support (Belle & Longfellow, 1983; Duncan, Duncan, & Strycker, 2005; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004; Youniss & Smollar, 1985); perhaps, this is the main reason for the tendency to neglect children's other connections when studying their social networks. However, many children are raised by non-parental caregivers around the world. In Africa, for example, the high incidences of orphaned children (Fotso, Holding, & Ezeh, 2009; Mishra, Arnold, Otieno, Cross, & Hong, 2007), have resulted in some children being raised by extended

family or by people from outside of the child's kin group through formal or informal arrangements (Case, Paxson, & Ableidinger, 2004; Skovdal, 2010).

Importance of Social Network Size in the Context of Poverty

The deleterious impact of poverty on children's development is well known. Poverty has been identified as one of the main detrimental factors confronted by young children, especially infants and toddlers (Evans, 2004) and has a wide range of negative effects on their well-being (Cicchetti & Curtis, 2015). The current high urbanization rates that Kenya is experiencing without proper urban planning and regulations has resulted in an increment of informal settlements, also known as slums or shantytowns (APHRC, 2002; Kyobutungi, Ziraba, Ezeh, & Ye, 2008; Ndugwa & Zulu, 2008). Estimates suggest that over 60% of the residents in Nairobi, Kenya's capital city, live in extreme poverty conditions and reside in congested slums (APHRC, 2002; Matrix Development Consultants., 1993). Having a wide social network constituted by different social partners might attenuate the deleterious effect of living in poor conditions. For instance, a large network indicates that more people are potentially available to assist the child and may be protective against some of the stress related to living in extreme poverty (Acock & Hurlbert, 1993). In fact, there is research suggesting that the quality of caregiver-child interactions can have a buffering effect on some of the negative consequences of poverty for children (Caughy, DiPietro, & Strobino, 1994; Fuller, Kagan, Loeb, & Chang, 2004; Joshi & Bogen, 2007). Moreover, there is also evidence suggesting that peers can also provide supportive resources that may provide stress-buffering to children (Belle, 1989). Therefore, it is important to study the structure and compositional characteristics of children's peer social networks in various ecological settings. Slums communities in Kenya are ethnically diverse (KNBS, 2010), which

makes it an ideal place to investigate cultural and individual variations in young children's social networks.

Theoretical Framework and Objectives of this Study

The present work is guided by the bioecological perspective (Bronfenbrenner & Morris, 2006). Bronfenbrenner's bioecological perspective suggests that the developing person is influenced by different factors outside the family and other immediate settings. Since this study is situated in an impoverished context, it is important to consider demographic and ecological characteristics (e.g., household characteristics, proximity to neighbors, working status of primary caregiver) when analyzing the data and discussing the results. Thus, Bronfenbrenner's bioecological model will serve as a framework when interpreting the results.

The main purpose of this manuscript is to explore and provide a description of children's social networks in an informal urban settlement in Kenya. Also, this manuscript seeks to examine commonalities and dissimilarities in the characteristics of children's social networks among four ethnic groups (Kamba, Kikuyu, Luo, Maasai) residing in the same community. Thus, the following research questions are explored:

- 1) What do children's social networks look like among children from an informal urban settlement in Kenya?
 - a. What are the sizes of children's social networks?
 - b. Who comprises their social networks?
 - c. What are the characteristics of the networks' members in terms of age, gender, and relationship?
 - d. What are the strengths of connections within social networks?

- 2) Do characteristics of children's social networks vary as a function of ethnicity? If so, to what extent and how do they vary?

Since there is no previous research conducted in similar settings (i.e., informal urban settlements) or among these specific ethnic groups, making specific predictions about the characteristics of their social networks is not warranted. Ethnicity has been previously associated with childcare practices and customs that may influence children's social experiences. Based on ethnographic information available for each ethnic group, it is expected that Maasai children will have the largest social network and the largest number of children within their networks due to their emphasis on the community and peer fraternity. However, more specific predictions about ethnic group differences are unwarranted, since there is not in-depth research conducted among these ethnic groups.

Methods

The data for the present study were collected as part of a larger study, with the primary purpose of examining the cultural and individual variation in the caregiving practices of young children within an urban informal settlement. All procedures and measurements for this research project were approved by the university's Institutional Review Board (IRB).

Participants

The data were collected in two phases: November through December 2011 and May through July 2012. The coding system was refined between these two phases to include characteristics of the focal children's social partners. Thus, only the 44 participants (i.e., focal children) from the 2nd phase of data collection are included in this study. Of the participants, 20 are boys and 24 are girls and the average age of the participants is 40 months (min=24, max=55). 11 participants are Kamba (6 boys, and 5 girls), 9 are Kikuyu (6 boys, 3 girls), 15 are Luo (6

boys, 9 girls), and 9 participants are Maasai (2 boys and 7 girls). In 41 of the cases the mother was the primary caregiver, in 1 case the father was the primary caregiver, and 2 of the cases the grandmother was the primary caregiver. The average household size of the sample was 5 people and on average focal children had 2 siblings living in the same household. All of the Maasai primary caregivers reported having relatives living close by, 75% of the Luo primary caregivers reported having relatives living close by, 45% of the Kamba primary caregivers reported having relatives living close by, and 44% of the Kikuyu primary caregivers reported having relatives living close by.

Ethnographic background of ethnic groups.

Maasai. The Maasai are a Maa-speaking and predominantly semi-nomadic pastoralist group, who are spread over southern Kenya and northern Tanzania. The Maasai are patrilineal and to some extent practice polygyny (Spencer, 1996). Collectivism is highly valued, and behaviors such as generosity, mutual respect, and cooperation are rewarded (Talk, 1995). Among Maasai people, kinship terminology is broadly defined and there is a general preference to address others in the community as family members (Spencer, 1996). There are marked gender differences in the way children are socialized; while girls are socialized to accept the authority of their future husbands and male elders, boys are expected to develop a strong sense of loyalty for their peer group (Spencer, 1996).

Luo. The Luo mostly live in western Kenya, mainly in the adjacent parts of Uganda and Tanzania. Their native language is called Dholuo. In rural areas, their economy is based on agriculture, breeding animals, and fishing (Herbich, 2011). The Luo are patrilineal, with women and children remaining as members of their father's lineage after marriage (Cooper, 2012). Kin relationships occupy an important role in the social and political structure of Luo communities,

and mother, grandmother, and older sibling typically share the responsibility of caring for young children (Herbich, 2011).

Kikuyu. The Kikuyu live mostly in central Kenya and speak Kikuyu, a Bantu language. During the Pre-colonial period, Kikuyu were hunters and gatherers, but later adopted farming as their main economic activity (Davison, 2010). It is believed that during pre-colonial times, Kikuyu were matrilineal, but since the nineteenth century they have been patrilineal with children remaining as members of their father's lineage (Davison, 2010). Even though polygyny continued through the colonial period, religious, economic, and geographical factors have resulted in a shift toward monogamy, especially in urban areas (Davison, 2010). Mothers or grandmothers are usually responsible for childcare and childrearing, but this responsibility may also be shared by older siblings (Kenyatta, 1938; Price, 1996). Community, kinship relationships, responsibility, hospitality, and obedience to elders are highly valued by the Kikuyu (Davison, 2010). Indeed, children learn from early years about the importance of extended family, lineage, and clan membership (Davison, 2010). Though in rural areas the extended family compound continues being the basic unit, single-family households are most common in urban areas (Davison, 2010).

Kamba. The Kamba are typically a farming group residing in Makueni, Machakos and Kitui counties of Kenya. Their native language is Kikamba, a Bantu language. Compared to the other ethnic groups, the Kamba have been less studied (Oliver, 1965). Brief accounts suggest that individualism and freedom of choice seem to be more valued than collectivism (Dundas, 1913; Jacobs, 1961; Oliver, 1965).

Procedures

Demographic Interview. A structured demographic interview with the primary caregiver of each focal child was conducted to gather information about the participants, including: ethnicity of household members, household characteristics (members of household, ages, relationships, etc.), socio-economic circumstances, time living in the slum community, and other descriptive information. Data were collected by a trained research team during one household visit with a local field assistant serving as interpreter (English-Swahili).

Observations of Focal Children. Participating children from each household were observed on three different days for 2 hours each day, with one observation in the morning, one mid-day, and one in late afternoon. The observations utilized an on-the-mark time-sampling technique that consisted of a 20-second observation period and a 10-second recording period. Observers used a pocket-sized digital player with an ear-phone that signaled them to observe and record. Thus, trained observers observed each child for 20-seconds and when the digital player announced ‘record,’ the observer recorded the behaviors of the focal child and behaviors directed toward the focal child onto a detailed checklist of behaviors during the 10-second record period. After 45-minutes of observation, the observers had a 15-minute rest period to prevent observer fatigue. A total of 3 observations of 90 minutes each were made on each child, for a total of 540 observational points on every child.

The observational coding system used for this study was adapted from a system used by Belsky, Gilstrap, and Rovine (1984), similar adaptations have been used to observe children in many different contexts, including Central Africa, Central America, and the U.S. (Fouts, 2008; Fouts, Hewlett, & Lamb, 2005; Fouts & Lamb, 2009; Fracasso, Lamb, Scholmerich, Leyendecker, & Birgit, 1997; Hewlett, Lamb, Leyendecker, & Schölmerich, 2000; Hewlett,

Lamb, Shannon, Leyendecker, & Scholmerich, 1998; Leyendecker, Lamb, & Fricke, 1996; Roopnarine, Fouts, Lamb, & Lewis-Elligan, 2005). Prior to data collection, each observer was trained over a 3-week period and reached 90% agreement with a trained coder for each code on the checklist. During data collection, 10% of the total field observations were conducted by two observers in order to re-assess reliability.

Field reliability among observers was determined through the Cohen's Kappa coefficient (Scott & Hatfield, 1985). Landis and Koch (1977) proposed the following parameters to determine the level of interrater agreement: values between 0.81-1.00 indicate almost perfect agreement, values between 0.61 to 0.80 indicate considerable levels of agreement, and Kappa values between 0.41 and 0.60 indicate moderate levels of agreement. Calculations of the interrater reliability coefficients for each of the variables analyzed in this study indicated either considerable or almost perfect levels of agreement for all the variables, except for *play* that yielded moderate levels of agreement (0.60). According to Kuppens, Holden, Barker, and Rosenberg (2011), Cohen's Kappa may not provide an accurate estimate of interrater reliability when the frequency of the observed behaviors are either very high or very low. In fact, the prevalence of *play* during the observations was very high, which may have contributed to the moderate interrater reliability coefficient.

Codes and Definitions

Network Size. Network size refers to the number of network members present during the observations of each focal child.

Network Members. Network member refers to people who a) were observed in any type of interaction with the focal child (e.g., verbal communication, recreational activities, grooming,

feeding) or b) were available for interaction (e.g., physical proximity), during observations of the focal child.

Relationship Category. This refers to a group of social network members who share a particular type of relationship with the focal child. Each network member was classified into one of these four relationship categories: relative adults, non-relative adults, relative children, and non-relative children.

Strength of the relationship. Strength of the relationship refers to the number of times that a network member, within a relationship category, was observed interacting with the focal child during the total observation time (270 min). Even when a network member may have had multiple types of interactions within a single observation time-interval (10 sec), it was recorded as a single interaction to avoid over-scoring the frequency of interactions, which in turn would overestimate the strength of the relationship. The strength of the relationship was determined by adding the number of interactions of all the members within a relationship category.

Density of the relationship. The density of the relationship refers to the number of individuals within a relationship category relative to the total size of the network, measured as percentage. It was calculated as:

$$\frac{\text{\# of people within a relationship category (per participant)}}{\text{total network size of each participant}} \cdot 100 \quad (1)$$

Types of interactions. Overall, six different types of interactions involving adults and child social partners were identified and coded as individual variables:

Behavior Control. This was coded when a social partner used physical (e.g., moving the child away from someone or something, taking an object away from the child) or verbal (e.g.,

distracting the child or suggesting him/her to engage in a different behavior) means to modify the focal child's behavior.

Vocalization. This was coded when a social partner stimulated (i.e., actions to focus the child's attention on a specific event), talked, or sang to the focal child.

Play. This variable was coded when the focal child engaged in social play activities with a social partner. Play included various types of socially engaged play (e.g., construction, games, pretend, etc.), but did not include parallel play.

Affection. This was coded when a social partner showed physical (e.g., touching, kissing, hugging, patting, cuddling) and non-physical (i.e. verbal expressions of emotions, feelings, and sentiments related to love and care) expression of verbal affection to the focal child. This variable was not coded if the social partner showed affectionate behavior in response to child fussing, crying, or irritability.

Care. This was coded when a social partner provided direct physical care (e.g., grooming, cleaning, dressing) to the focal child.

Proximity. This variable was coded when a social partner was within approximately 12 inches of the focal child.

Data Analysis Overview

To answer the first research question, descriptive statistics were employed to determine the social network size, characteristics of network members, and the strength and density of the relationships. Each variable was examined to ensure that the assumptions associated with general linear model analyses (normality, linearity, and homogeneity of variance) were met. To answer the second research question, Univariate and Multivariate Analysis of Variance were employed. Preliminary analyses indicated that the age of children did not have an interaction effect with

other independent variables and did not significantly predict children's social networks characteristics nor types of interactions. Therefore, only ethnicity and gender were included as independent variables in the MANOVA analyses and the different measures of children's social networks (size, strength of relationships, density, and types of interactions) were entered as the dependent variables. Both, the descriptive statistics and the MANOVA were conducted using the IBM SPSS (version 21) software.

Results

Characteristics of Children's Social Networks

The average social network size of each relationship category and the average size of the total network are reported in Figure 10. Also, the minimum and maximum social network sizes are reported in the form of error bars for each category. Descriptive statistics for these variables are reported in Table 1 of Appendix C. The average social network size of each relationship category represents the average number of network individuals who were classified as relative adult, non-relative adult, relative child, or non-relative child during each focal child observation. On average, the total size of children's social networks was 11 members (Min=1, Max=22).

The density of the relationship provides an estimate of the proportional size of each relationship category within the focal child network. On average, 43% of the children's social network members were non-relative children (majority), 26% were non-relative adults, 16% were relative adults, and 15% were relative children. An examination of the strength of the relationships shows that, on average, the focal children had the strongest relationships with non-relative children ($M= 215.77$), followed by relative adults ($M= 97.20$), relative children ($M=79.20$), and lastly non-relative adults ($M= 42.89$). Interestingly, the density of the relationship category did not directly predict the strength of its relationship with the focal

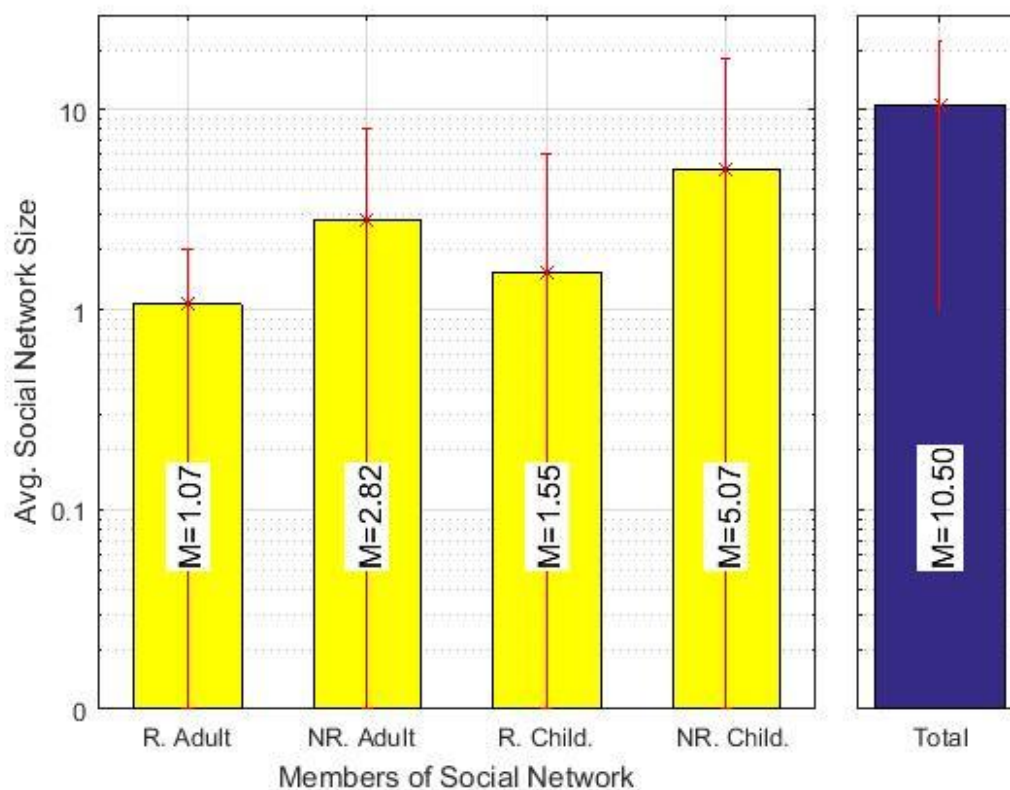


Figure 10. *Average Number of Members Comprising Children's Social Networks.*

Note: This figure reports the average social network size of each relationship category, and the average size of the total network (in logarithmic scale); R= relative and NR= non-relative.

children. For example, while the density of relative adults within networks was one of the lowest, relative adults on average had the second strongest relationships with focal children. On the other hand, while the density of non-relative children within networks was the highest, non-relative children also had the strongest relationship with focal children.

Since density seems to have a different effect on strength depending on the type of relationship category, in order to further examine the relationship between these two variables, a scatter plot of density vs. strength (logarithmic) is presented in Figure 11. In this figure, the density and strength values for all the participants were included (which illustrates the range of maximum and minimums), and also the average values of each relationship category. Notice that the average values indicate that for non-relative children higher density is associated with stronger relationships, while for non-relative adults a high density does not necessarily mean a stronger relationship. For relative adults and children, there seems to be a tendency to have stronger relationships even when the densities of these relationship categories are low. In addition, Figure 11 shows that the minimum possible strength observed between a relationship category and the focal child takes a linear form when the vertical axis (strength) is logarithmic (dashed line in Figure 11). It is interesting to see that, unlike mean values of density and strength, the minimum possible strength follows a predictable pattern based on the density: the higher the density, the higher the minimum strength. The mathematical expression describing the minimum strength as a function of the density is:

$$strength = 1.071^{density} \quad (2)$$

In other words, this simple mathematical expression estimates the minimum strength a connection between the focal child and a relationship category can have if the density of the relationship category is known. For instance, the minimum strength of a relationship between the

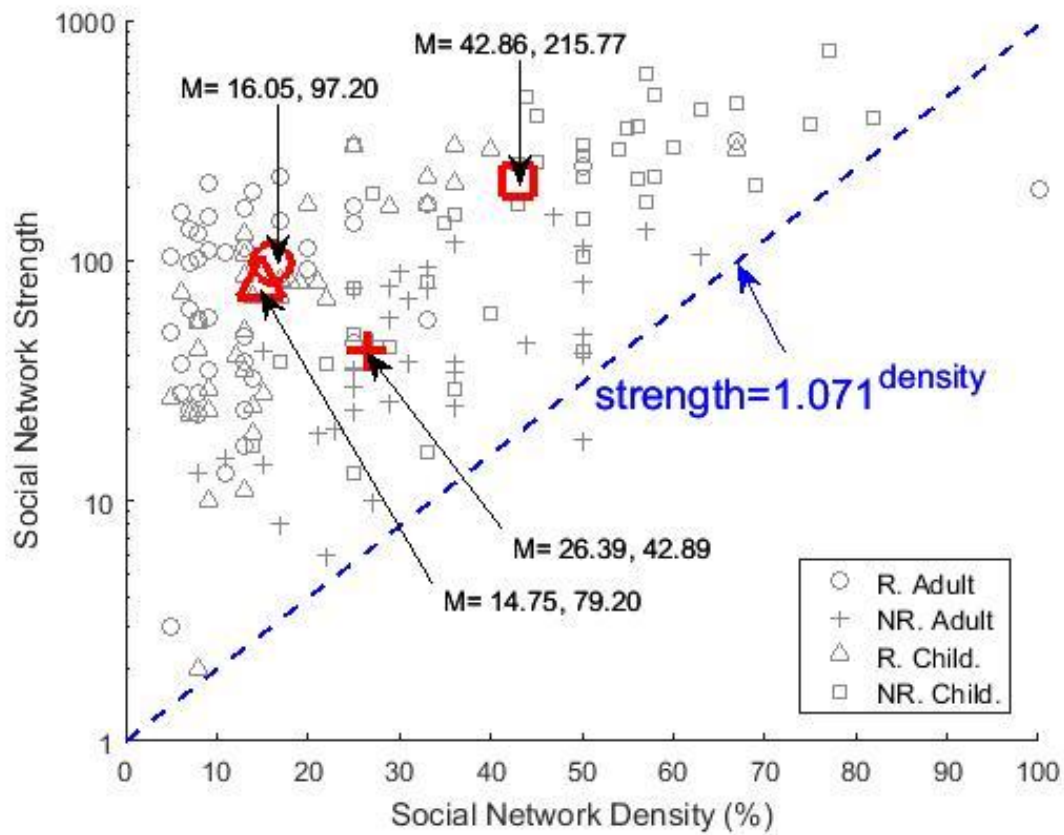


Figure. 11. *Strength vs. Density of the Relationship.*

Note. Scatter plot showing the relationship between the social network strength and density for each focal child. The mean values of each relationship category are represented with the larger symbols (red). The dashed line (blue) indicates the minimum strength of a relationship category based on its density. R= Relative and NR= non-relative.

focal child and a relationship category whose density is 30% is approximately 7.83 (minimum number of interactions between the focal child and a relationship category).

To examine the influence that each relationship category has within the children's social networks, a value of the involvement of each relationship category was calculated. The involvement is defined here as the normalized value of strength relative to (or controlled for) density, so the values of involvement are not driven by the number of people in a relationship category within the network. Mathematically, involvement is expressed as:

$$involvement = \frac{strength}{density} \quad (3)$$

As shown in Figure 12, relative adults were the most involved with the focal child during the observation period. Note that primary caregivers are all included in the relative adult group, explaining the high levels of involvement observed in this category. Figure 12 also shows that non-relative children (who had the highest strength and density in their relationships) were the second most involved, followed by relative children, and finally non-relative adults (who were the least involved during the observation period).

Types of interactions

The various types of interactions involving adult and child social partners are reported in Figure 13. The mean number of interactions represents the average number of instances in which an adult or child social partner engaged the focal child either in Behavior Control, Vocalization, Play, Affection, Care, or Proximity within the 270-minute time frame. As shown in Figure 13a, child social partners were more often observed to be in close proximity to focal children, and to engage in play, and vocalization with focal children. In contrast, adult social partners were more often observed displaying affection, providing physical care, and modifying the behavior of focal

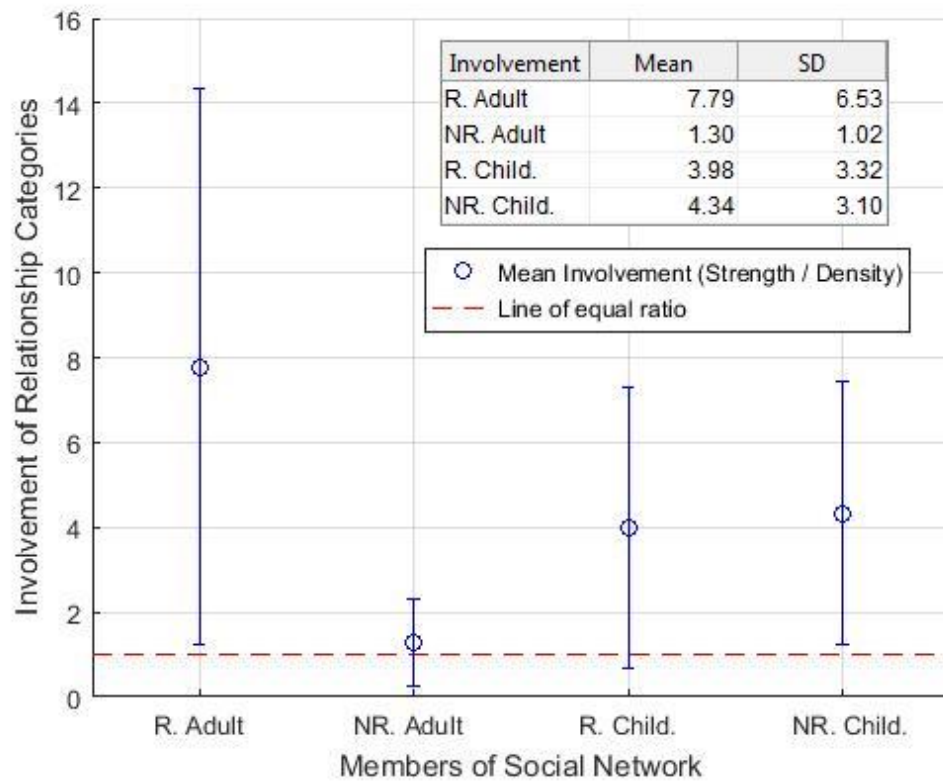


Figure 12. *Level of Involvement of each Relationship Category.*

Note: Error bars indicate one SD from the mean; R= relative and NR= non-relative.

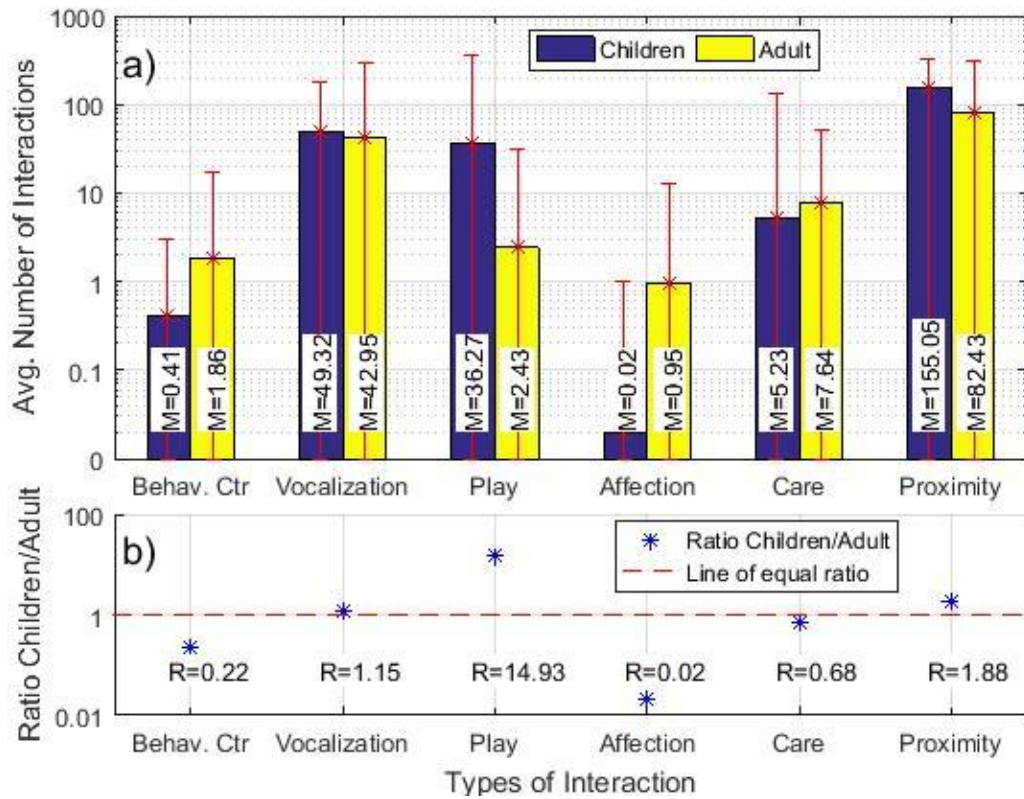


Figure 13. Types of interactions involving adult and children social partners and the focal child. a) Type and frequency of the different types of interactions between the focal child and adults and children's social partners (in logarithmic scale). b) Ratio of the average number of interactions involving children social partners over adult social partners, per type of interaction.

children. Among the more striking differences in the types of interactions provided by children and adults, note that children played with the focal child approximately fourteen times more than adults, while adults provided affection to the focal child approximately fifty times more than children (Figure 13b).

Differences in Children's Social Networks across Ethnic Groups

Children's Social Network Sizes across Ethnic Groups. An ANOVA examining the effects of children's gender and ethnicity on the total size of children's social networks revealed main effects only for children's ethnicity ($F(3,36) = 3.685, p=.021$). Post-hoc tests revealed significant mean differences in the social network size between Maasai and Kikuyu children (Tukey=6.00, $p=.035$) and between Maasai and Luo children (Tukey=6.69, $p=.006$). As shown in Figure 14, Maasai children had the largest social networks compared to the other ethnic groups. Regarding the average number of members in each relationship category, MANOVA revealed a multivariate main effect for children's ethnicity ($F(12,87) = 2.793, p=.003$; Wilk's $\lambda = .424$, partial $\eta^2 = .249$), but not for gender. In particular, children's ethnicity predicted the number of relative adults in their social networks ($F(3,36) = 4.680, p=.007$). Post-hoc tests revealed a significant difference in the mean number of relative adults in children's social networks between Maasai and Luo children (Turkey= -.49, $p=.013$). Maasai children tended to have fewer relative adults in their social networks than children in the other groups, especially compared to Luo children (Figure 14). Children's ethnicity also predicted the number of non-relative children in children's social networks ($F(3,36) = 6.190, p=.002$). Post-hoc tests revealed that Maasai children tended to have more non-relative children in their social networks compared to Kamba children (Turkey= 5.23, $p=.002$), Kikuyu children (Turkey= 6.00, $p=.001$), and Luo children (Turkey= 6.38, $p=.000$).

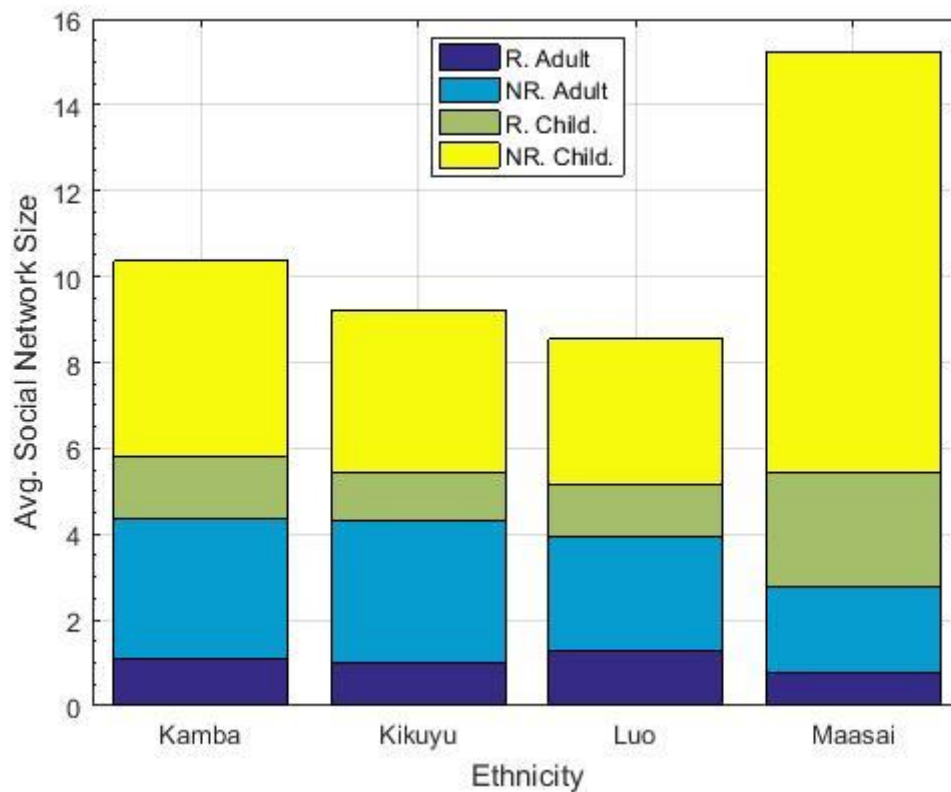


Figure 14. *Average Number of Members in children's Social Networks.*

Note: This stacked bar plot reports the average number of people in children's social networks and the average number of members from each relationship category per ethnic group; R= relative and NR= non-relative.

Strength, Density, Involvement, and types of interactions. A series of MANOVAs were conducted to determine whether these variables (Strength of the relationship, density of the relationship, involvement, and types of interactions) differed as a function of the children's ethnicity and gender. Regarding the strength of the relationships, a MANOVA revealed no significant differences between boys and girls nor across ethnic groups. Figure 15 shows that the density of non-relative children within the Maasai's social networks seems to be higher than the one observed among other ethnic groups. However, no significant differences in the density of the relationship were found across children based on their ethnicity or gender. In the same way, neither children's ethnicity nor gender predicted involvement within any of the relationship categories. Similarly, there were not significant differences in the types of interactions provided either by children or adults among ethnic groups.

Discussion

The purpose of the present study was to: a) explore and describe the main characteristics of children's social networks among four ethnic groups residing in an informal urban settlement in Kenya, b) examine the types of interactions interchanged between children and various social partners, and c) examine commonalities and dissimilarities in the social networks of these children as a function of ethnicity and gender.

While a small portion of children's social networks were comprised of relative adults and relative children, children's social networks were mostly made up of non-relative children followed by non-relative adults. Nevertheless, after a value of the involvement (strength of the relationship controlled for density) of each relationship category was calculated, results revealed that involvement was not driven by the number of people in a certain relationship category per se. Regarding the types of interactions, children's social partners were observed to be in close

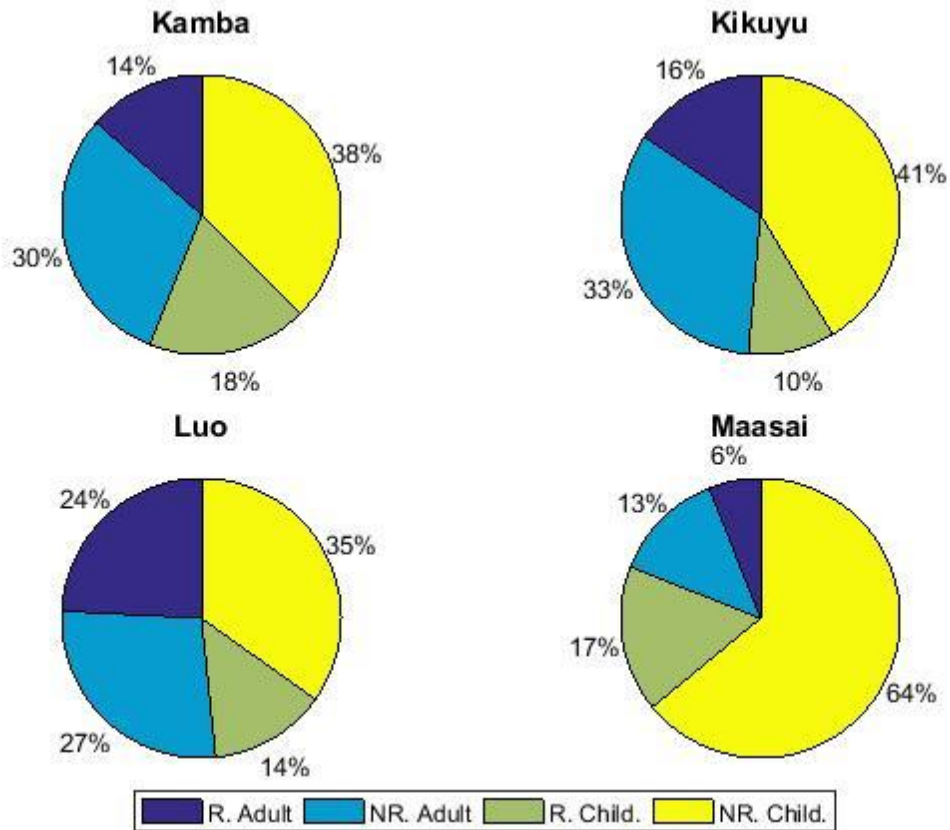


Figure 15. *Density of Each Relationship Category per Ethnic Group.*

Note: These pie charts report the density of each relationship category within each ethnicity; R= relative and NR= non-relative.

proximity and to engage in play and conversation with the focal children more often than adult social partners. On the other hand, adults were usually observed displaying affection, providing physical care, and modifying the focal children's behaviors. Furthermore, the findings revealed ethnic group differences regarding the total network size of children. Maasai children's networks were larger than that of the Kikuyu and Luo children and tended to have the largest number of non-relative children within their social networks (though not statistically significant).

The fact that the majority of the children's network members were non-relatives (children and adults) is inconsistent with the idea that kin ties tend to predominate in the social networks of children from small-scale societies in Africa, as some studies have suggested (Abebe & Aase, 2007; Karimli, Ssewamala, & Ismayilova, 2012; Lund & Agyei-Mensah, 2008). Certainly, in most rural settlements of Africa, kinship continues to be the foundation for all primary social relationships; indeed, people tend to live in extended family groups where children grow up together with siblings and cousins. However, when social changes such as urbanization, industrialization, and migration arrive a gradual shift away from extended family households towards nuclear family households is observed (Kazianga & Wahhaj, 2015; Therborn, 2004). For example, the continued migration to urban areas related to searching for better job/income opportunities (Therborn, 2004), may have contributed to the breakdown of the kinship-based ties and limited children's opportunities to interact with extended family on a regular basis. It may be possible that families migrate in company of other relatives, but even then the size of their extended family network is probably smaller compared to the one they had in more rural areas. In Kenya, the increase of urbanization in a context of poor economic performance, planning, and regulation has yielded to the growth of informal urban settlements (aka. Slums) (HABITAT, 1996; Todaro, 1989; UN-HABITAT, 2004). In fact, more than half of urban residents live in

these settlements or similar impoverished conditions (APHRC, 2002; UN-HABITAT, 2008).

Many newcomers to urban areas have no choice but to live in an informal settlement, because it is the only place where they can afford housing (Zulu, Dodoo, & Chika-Ezeh, 2002). And even when these informal urban settlements are very congested areas, people living close to each other are not necessarily related by blood or marriage. Through the lens of Bronfenbrenner's bioecological framework, environmental factors such as neighbors' characteristics may influence the structure and function of children's social networks (Bronfenbrenner, 1994). Thus, children residing in this particular setting have a greater exposure to a large number of adults and children outside the family, which may explain the high density of non-relative contacts (especially non-relative children) found in this study.

One important implication of this finding is in the area of interventions, particularly related to health and nutrition that generally target mothers and in some cases the father, overlooking the important role that other social network members play in children's lives. The fact that a large number of the children's social network members are non-relatives implies that the role they play in the children's lives is important, and therefore should be considered for interventions. For instance, Fouts and Brookshire (2009) examined the feeding network of 22 Aka children between two and four years of age and found that even when the mother was the main food provider to their children, the combination of contributions to child feeding from other individuals was higher than that of the mothers. Another important implication is the value of having regular interchanges with mixed-age children outside the family circle, which have been documented in several cultures (Rogoff, 2003). For instance, children's participation in mixed-age groups has been associated with positive effects in social, behavioral, and cognitive development (Bandura, 1986; Willard W Hartup, 1983). Moreover, for the children under study,

participating in a mixed-age group that is also multiethnic may expose them to different cultural patterns and perhaps create multicultural awareness, which in turn may facilitate their interactions with people from different cultural backgrounds.

Moreover, relative adults (including primary caregivers) were the most involved with focal children during the observation period, even though the proportion of relative adults in children's social networks was small compared to non-relative children. Density seems to have a different effect on the strength of the relationship (i.e., number of interactions with the focal child) depending on the type of relationship someone has with the child. This finding suggests that larger social networks do not necessarily mean more highly involved members, since network members are not equally involved in children's lives. Some scholars have suggested that having a rich social network is important for children's well-being, because if a network member is absent another member may take his/her place (Portes, 2000). However, the results from this study suggest that this only holds true if a child loses a network member from a relationship category that consists of multiple individuals, and their involvement in children's life is low (i.e., high density/low involved relationship). In contrast, if a child loses a network member that is highly involved in his/her life, it may hinder his/her development. In this study, for example, there is a high density of non-relative children within the social networks, but these social partners are mainly assuming a role of companionship and/or playmate and they are not satisfying essential needs for survival. On the other hand, while the proportion of highly involved people within the network may be low, they supply needs that are essential for children's development (e.g., affection, food, clothing, shelter) and their role may not necessarily be replaced by low involved people. For instance, even in cultures where alloparenting or multiple caregiving is practiced, the mother is still the most involved and main provider figure for their

children (Ivey, 2000; Jung & Fouts, 2011; Kruger & Konner, 2010). The natural question that arises is if a child's social network is constituted of high density/low involved relationships only, would his/her needs be fulfilled? While the child would have more opportunities to interact with different individuals and be exposed to different interaction styles, depending on various low involved people to satisfy basic needs may produce unpredictability for the children, since there would be more variation on the way these needs are fulfilled. For instance, the results presented in the third chapter of this dissertation project, revealed that the support provided by various network members (emotional, social, instrumental, material, and informational) takes different forms depending on who is providing the support. For example, "secure base" is a form of emotional support exclusively provided by caregivers, while non-relatives only provided "soothing" or "expression of affection" forms of emotional support. Thus, it appears crucial that children have at least one committed person within their social network, particularly for young children, since their survival may depend on that person.

Regarding the types of interactions, the findings presented here are very consistent with the literature on children's relationships, as adult social partners took more caring and emotional regulatory roles while child social partners took companionship and playmate roles. One of the more striking findings is that adult social partners played substantially less with the focal children compared to child social partners. Children have been observed playing in different settings around the world; however, playful interactions between adults and children don't appear to be universal (Lancy, 2007). In the Western world, for instance, play is considered essential for the proper cognitive and social development of children, and parents' participation in these activities is often viewed as essential (Göncü, Mistry, & Mosier, 2000; Parmar, Harkness, & Super, 2004). In fact, many influential theoretical claims about the role of play in

children's development purport this principle (Erickson, Sroufe, & Egeland, 1985; Piaget, 1926; Vygotsky & Cole, 1978). Thus, parents are expected to be directly or indirectly involved in children's play activities and this has become part of folk wisdom (Lightfoot & Valsiner, 1992). In contrast, in some non-Western cultures adults do not engage in play with children; in fact, some believe that play is something that should happen between children without the intervention of adults (Farver & Howes, 1993; Parmar et al., 2004). For example, Super and Harkness (1986) found that Kipsigis mothers did not consider themselves appropriate playmates for their children; rather, they believed that other children were more appropriate playmates for their young children. The low occurrence of play between adults and children is consistent with studies in other non-western contexts, where play is not considered part of the role of parents nor a fundamental characteristic of parental interactions.

The results of this study also revealed marked differences between the social network of Maasai children and children from the other ethnic groups. For instance, Maasai children had the largest social network size and seemingly largest proportion of non-relative children within their networks. These findings may reveal ethnic differences since all the participating children lived in the same community. Nevertheless, the anthropological construct of "cultural discontinuity" (Ogbu, 1982), which has been adapted in the educational literature regarding minority students, may provide a framework to explain the differences found between Maasai and the other ethnic groups. Cultural discontinuity or misalignment refers to the lack of consistency between two or more socializing settings in which a person participates (Lovelace & Wheeler, 2006). In the classroom setting, cultural discontinuity may lead to misunderstandings of students' behavior or interactional patterns, conflicts, and academic failure or drop out of these students, due to culturally based differences in interaction styles between the school and home setting (Cholewa

& West-Olatunji, 2008; Lovelace & Wheeler, 2006). Following this line of thought, children who live in an ethnically diverse setting may encounter similar difficulties/barriers to form relationships, which in turn affect the characteristics of their social networks (e.g., size, composition, strength of the relationships). Based on ethnographic observations, the Maasai, compared to the other ethnic groups, appear to maintain many of the cultural traditions observed in rural areas in terms of childcare custom, housing construction (i.e., made from a mixture of dung and mud), and pastoral activities (e.g., kept cattle on the outskirts of the settlement). In contrast to the other ethnic groups that tended to live in more multiethnic parts of the community, most Maasai lived near other Maasai households. In fact, in the demographic surveys, all the Maasai participating in this study reported relative family living close by them. Living among people of the same ethnicity, and perhaps kinship, may result in a “cultural continuity” between the Maasai’s experiences in and out of their homes, creating less misunderstandings between the child, his/her family, and neighbors based on cultural-specific behaviors, less barriers to form relationships, and less adult interference in their relationships with other children. Further research is needed to understand how cultural discontinuity between the home and the peer group affects parents’ involvement in children’s social lives. This study is not exempt of limitations. For instance, even though at the beginning of each observation every participant was identified and his/her relationship to the focal child noted, in some cases it was not possible to clarify the relationship with the focal child and it was assumed by default to be nonrelative. The number of relatives, therefore, may be underestimated. Also, the sample was relatively small limiting the generalizability of the findings; future research with a bigger sample size is needed to see if these trends extend to other contexts and cultures. Due to the high mobility of people in this type of setting (moving in and out of the settlements) it is impossible to

predict that the same characteristics of children's social networks observed during these three consecutive days will be observed in the future. Thus, longitudinal research is recommended to further examine the effect of culture on these highly dynamic networks.

This study examined the characteristics of children's social networks in a very novel way. Not only the size and the components of the social network were described, but also a measure of involvement and a way to numerically calculate its value for each type of relationship (relative adults, nonrelative adults, relative children, and nonrelative children) were proposed. The results from this study also further highlight the potential role that culture may play in the characteristics of children's social networks, and contributes to the limited literature regarding children's social networks in less industrialized societies.

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Chapter V. Conclusion

The important role that children's social support networks play in young children's well-being has been recognized (Bost, Cielinski, Newell, & Vaughn, 1994; Bost, Vaughn, Washington, Cielinski, & Bradbard, 1998; Franco & Levitt, 1997; Larkina & Bauer, 2010; Mashburn, 2008; Slykerman et al., 2005), yet research in this area has mainly studied adults and adolescents rather than young children. Guided by Bronfenbrenner's bioecological perspective, the three manuscripts presented in this dissertation addressed different aspects of children's social support networks and also provided directions and suggestions for future research.

The first article consisted of two main sections. In the first half, a systematic literature review was conducted regarding young children's social networks and social support from two major electronic databases. The primary studies examined in this review have expanded our understanding of young children's social networks and the importance of having a rich support system. At the same time this review process has revealed: a) the need for further examining these constructs among informal/less bounded settings, b) the need for examining these constructs among less industrialized societies, and c) the relevant importance of different ecological factors and how social network and social support are affected by them. In the second half of this article, a novel framework for the study of children's social support networks was proposed, based on the fundamentals of the Bronfenbrenner's bioecological framework. The proposed model consisted of four interactional contexts in which children participate and suggested different moderating factors that influence children social support network within these contexts.

In an attempt to contribute and expand the knowledge about children's social support networks within informal settings and on less industrialized societies, the second and third manuscripts focused on the functions (provision of support) and structures (network

characteristics) of the social networks of young children living in an informal urban settlement in Kenya. One of the principal characteristic of these informal urban settlements in Kenya is the high number of distinct ethnic groups (KNBS, 2010) sharing similar ecological circumstances, which provides an ideal context for examining potential cultural and individual variations in young children's social networks and support systems. Specifically, the second manuscript provided a qualitative and quantitative description of the different types of support available to children from four different ethnic groups within this informal settlement. Results suggested that among this group of children, all members of the children's social networks can potentially become a source of various types of support for the children. However, the mothers were the greatest adult source of the different types of support observed and children's social partners were the greatest source of social/companionship, which was also the type of support most often provided. The results from the qualitative analysis suggested that each type of support may be provided differently depending on its source. Moreover, ethnic group differences in the amount of support they received from adult social partners were identified.

In the third manuscript, the focal child observations were quantitatively analyzed to examine the structural characteristics of the social networks of young children from the same informal urban settlement. Results revealed that relative adults, including the primary caregiver, were the most socially involved with the child during the observations, even though the number of relative adults within children's networks was small compared to non-relative children. Thus, density seems to have a different effect on strength depending on the type of relationship category, suggesting that larger social networks do not necessarily imply that more highly involved social partners are available, since network members are not equally involved in

children's lives. Lastly, ethnic group differences in the total social network size and proportion of non-relative children were identified.

Limitations of the Study

It is important to acknowledge the limitations of each study when interpreting the results. A limitation of chapter II is the large range of sample sizes in the reviewed studies (i.e., 10 – 1162). For instance, a small sample size makes it difficult to find significant relationships from the data, while a detected statistical significance may not be meaningful in sample sizes that are too large. However, it is important to note that since the literature review did not have restrictions on the type of study design (i.e., qualitative, quantitative, mixed methods), variations in sample sizes were expected among the included studies. In this manuscript, the largest sample size was not large enough to bias the results and smaller sample sizes corresponded to qualitative studies in which the sample size is less relevant. Another limitation of this study is the inability to calculate reliability of the search process, given that the review was conducted by a single author. However, in contrast to informal literature reviews, the rigorous and reproducible search protocol and the explicit inclusion and exclusion criteria of this study are means to reduce the potential bias and subjectivity of the author (Bartolucci & Hillegass, 2010).

Limitations in chapter III and IV are associated with methodological issues. First, even though at the beginning of each observation every participant was identified and his/her relationship to the focal child noted, it was not always possible to clarify the type of affiliation that the focal child had with every person that he/she interacted during the observation period, and it was assumed by default to be a nonrelative. The number of relatives, therefore, may have been underestimated. Misidentifying a relative as non-relative underestimates the density of relatives (adults and children) within children's networks, which may affect the interpretation of

the findings presented in the study. However, according to the characteristics of the setting in which these children live, as well as information obtained from the demographic survey, most people living close to the children's households were not related by blood or marriage. Therefore, there is a high probability that the majority of the children's network members were in fact nonrelatives.

Second, the sample was relatively small, limiting the generalizability of the findings, which in turn did not allow the use of more complex analyses (e.g. multi-group SEM) to examine potential moderators. However, the aim of these studies was not to generalize the findings to broader populations, but rather to examine how children's social support networks have cultural and ecologically specific characteristics. Thus, generalization cannot go beyond these ethnic groups in this one community, since the findings may be related to particular characteristics of this setting. Nevertheless, the findings of these studies provide valuable insights about the characteristics of these children's social networks and the support they are receiving from multiple social partners. Future research with a larger sample size is needed to detect potential moderators in how children's social networks are structured in this type of setting. Also, further research is needed to examine if these trends extend to other contexts and cultures. Lastly, due to the high mobility of the people in this type of setting (moving in and out of the settlements), it is impossible to predict that the same characteristics of children's social networks and support systems observed during the three observation days would be observed in the future. Thus, longitudinal research is recommended to further examine the extent to which the same trend observed in children's social networks and support systems is maintained as children age.

Strengths of the Study

Despite these limitations, the contributions of this collection of manuscripts have important implications for practice. Results from chapter III and IV indicate that the social networks of participating children included a considerable proportion of non-relative social partners, particularly non-relative children. Children's participation in larger peer groups creates an important developmental context for them (Rubin, et al., 2006). In these contexts, children have the possibility to elaborate, adapt, or change the social skills learned during caregiver-child interactions with individuals who are relatively similar to them (Hartup, 1989; Ladd, 1999). For instance, young children may employ strategies such as pointing, fussing, or crying to obtain a resource from adults and these strategies may be successful most of the time; however, these same strategies may not be effective when employed with peers, and children need to acquire a new set of strategies such as helping, sharing, lying, and even aggression to obtain the desired resource (Miller, 2002). Therefore, children are capable of elaborating their social skills while enabling abilities to distinguish which strategies are more effective in various contexts of peer interaction. Since the participating children spend substantial amount of time outside their home interacting with other children, they have great natural exposure to these learning experiences. In contrast, for young children in highly industrialized societies, participation in large peer groups becomes somewhat limited to the role that parents take in creating these types of social opportunities, particularly before children start attending educational settings (Ladd & Golter, 1988).

Moreover, due to the ecological characteristics in which the participating children live, children have great exposure to multiethnic mixed-age groups. Presumably, this leads to considerable exposure to an array of cultural patterns, which may facilitate children's ability to

interact with people from different cultural backgrounds and perhaps enhance multicultural awareness. Since immigration and the incremental cultural diversity are phenomena that many countries are experiencing, more and more non-immigrant children are sharing classrooms with culturally diverse immigrant children (Arzubiaga, Noguerón, & Sullivan, 2009). Thus, it is important to consider the implications for early education. For instance, participation in multiethnic groups can lead to: a) the reduction of prejudice and stereotypes of children from different ethnic backgrounds (Hal- linan & Smith, Aboud & Levy, 2000; Feddes et al 1984), b) higher levels of social competence and self-esteem (Fletcher, Rollins, & Nickerson, 2004), c) greater exposure to variations in play and interactional styles (Howes, Wu, 1990), and d) academic achievement (Newgent, Lee, & Daniel, 2007).

However, intergroup exposure by itself does not necessarily lead to the formation of inter-race friendships (Pettrigrew et al., 2011). In fact, some studies have reported that school-age children form significantly more same-race relationships than inter-racial relationships (Bagci, Kumashiro, Smith, Blumberg, & Rutland, 2014; Currarini, Jackson, & Pin, 2010), and their perceptions of same-race relationships are more positive compared to perceptions of inter-racial relationships (Pica-Smith, 2011). Therefore, school counselors and teachers need to be trained to foster inter-race relationships, which in turn, may reduce the occurrence of race-based bullying and violence.

Lastly, results from the two studies of children in Kenya indicated that children's social partners were not only great sources of social/companionship support, but they were also sources of the different types of support. According to Vygotsky (1978), cognitive growth and development are a function, in large part, of interpersonal exchange. Vygotsky presented the principle of the "zone of proximal development" (ZPD) to explain the significance of social

interaction, which represents the distance between what the child could do independently and what he/she can do with the collaboration or assistance of others. While assistance may be presumably provided by a child's parents or other adults, children's peers may also play an important role in assisting children through the provision of various types of support. Thus, future research should examine how different types of support provided by children's various social partners impact children's development.

In summary, this collection of manuscripts contributes to the literature in several ways. First, a novel model for the study of children's social networks and support systems was proposed; this model not only included the children's most immediate interactional relationships, but also considered distal relationships which are generally less studied. Second, the importance of children's social networks and the adequacy of their support systems can only be understood after considering the characteristics of the ecological context in which children live and understanding the way these characteristics interact with the characteristics of the child, especially in a context of high mortality rates and poverty. Thus, Bronfenbrenner's bioecological perspective offers an appropriate framework for the study of these constructs.

The third contribution is the understanding that the features of young children's social networks and what constitutes support are not universal. Each culture has their own notions and beliefs about what young children's needs are, and what types of support are more important. For instance, the results of chapter III suggested that the provision of emotional support over other types of support is not as common as it is in other societies, such as in industrialized western societies. Four, the results from chapter III and IV further highlighted the potential role that culture plays in children's social experiences, since ethnic group differences were found in the amount of support children received from adult social partners and in the total social network

size in proportion to the non-relative children. Thus, the functional as well as the structural aspects of children's social networks seem to take culture-specific forms.

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Appendices

Appendix A

Table 1. Primary studies focusing on Social Network.

Author, year	Sample	Research Setting; Country	Main method of data collection
Farver (1996)	Size: 64 (32 girls, 32 boys) Age: 4 Race/Ethnicity: 29 White, 35 Hispanic	Classroom; US	Child observations
van den Oord and Rispsens (1999)	Size: 1162 (572 girls, 590 boys) Age: 4 to 5 Race/Ethnicity: 88.4% had Dutch parents. The rest were from Turkey, Morocco, Surinam, or European countries	Classroom; The Netherlands	Sociometric assessments
Daniel, Santos, Peceguina, and Vaughn (2013)	Size: 242 (122 girls, 120 boys) Age: 3,4, and 5 Race/Ethnicity: Portuguese	Classroom; Portugal	Child observations
Torrens and Griffin (2013)	Size: 84 (42 boys, 42 girls) Age: 3.7 Race/Ethnicity: 58% White. The rest were Asian-, Mexican-, and African American.	Classroom; US	Child observations
Fujisawa, Kutsukake, and Hasegawa (2009)	Size: 58 (33 boys, 25 girls) Age: 3 and 4 Race/Ethnicity: Japanese.	Classroom; Japan	Child observations
Santos, Daniel, Fernandes, and Vaughn (2015)	Size: 240 (226 boys, 229 girls) Age: 3, 4, and 5 Race/Ethnicity: Portuguese	Classroom; Portugal	Child observations
Schaefer, Light, Fabes, Hanish, and Martin (2010)	Size: 195 (106 boys, 89 girls) Age: 3.1 to 5 Race/Ethnicity: 77.3% Hispanic, 5.1% Black, 10.8% White, 65.8 Others.	Classrooms; US	Child observations

Table 1. Continued.

Author, year	Sample	Research Setting; Country	Main method of data collection
P. Miller and Harwood (2001)	Size: 60 (30 boys, 30 girls approx.) Age: 0.67 Race/Ethnicity: 53.3% Anglo-American, 46.7% Puerto Rican	Outside classroom; US and Puerto Rico	Mother interviews
Guralnick (1997)	Size: 210 (boys) Age: 4 to 5.9 Race/Ethnicity: 92% European-American.	Outside classroom; US	Mother interviews
Thompson (2001)	Size: 10 (5 boys, 5 girls) Age: 4.1 to 6 Race/Ethnicity: Ethnically diverse	Outside classroom; Australia	Mother interviews
van den Oord, Rispen, Goudena, and Vermande (2000)	Size: 1,082 (545 boys, 537 girls) Age: 4.77 (mean) Race/Ethnicity: 89% had Dutch parents. The rest were from Turkey, Morocco, Surinam, or European countries.	Classroom; The Netherlands	Sociometric assessments
Hanish, Martin, Fabes, and Barcelo (2008)	Size: 97 (51 boys, 46 girls) Age: 3.1 to 5.3 Race/Ethnicity: 55% White, 32% Hispanic White; 6% Asian-American, 3% Native-American, 3% African-American. 1% not reported.	Classroom; US	Child observations
Barbu (2003)	Size: 24 (15 boys, 9 girls) Age: 3.8 to 5.3 Race/Ethnicity: 87.5% French, 12.5% ethnically diverse.	Classroom; France	Child observations

Table 1. Continued.

Author, year	Sample	Research Setting; Country	Main method of data collection
Vermande, van den Oord, Goudena, and Rispens (2000)	<i>Size:</i> 1,090 (551 boys, 539 girls) <i>Age:</i> 4 to 5 <i>Race/Ethnicity:</i> 89% had Dutch parents. The rest were from Turkey, Morocco, Surinam, or European countries.	Classroom; The Netherlands	Sociometric assessments
Vespo, Kerns, and O'Connor (1996)	<i>Size:</i> 97 (54 boys, 43 girls) <i>Age:</i> 3 - 4 <i>Race/Ethnicity:</i> Majority Caucasian.	Classroom; US	Child observations
Feiring and Lewis (1987)	<i>Size:</i> 85 (42 boys, 43 girls) <i>Age:</i> 3 (time 1) and 6 (time 2) <i>Race/Ethnicity:</i> European descendent.	Outside classroom; US	Mother and children interviews
Brighi, Mazzanti, Guarini, and Sansavini (2015)	<i>Size:</i> 84 (41 boys, 43 girls) <i>Age:</i> 5.2 (mean) <i>Race/Ethnicity:</i> 91% Italian, 5% Eastern-European, 3% Asian, 1% South-American.	Classroom; Italy	Sociometric assessments
Fujisawa, Kutsukake, and Hasegawa (2008)	<i>Size:</i> 58 (33 boys, 25 girls) <i>Age:</i> 3 to 4 <i>Race/Ethnicity:</i> Japanese.	Classroom; Japan	Child observations.
Johnson et al. (1997)	<i>Size:</i> 65 (34 boys, 31 girls) <i>Age:</i> 3 to 5 <i>Race/Ethnicity:</i> 6 African-American, 59 White	Classroom; US	Child observations
Martin et al. (2013)	<i>Size:</i> 292 (156 boys, 136 girls) <i>Age:</i> 3.2 to 4.9 <i>Race/Ethnicity:</i> 69% Mexican-, 8% Anglo-, 7% African-, 2% Asian-, 1% Native-American, and. 13% Unknown.	Classroom; US	Child observations

Table 2. *Primary studies focusing on Social Support.*

Author, year	Sample	Research Setting; Country	Main method of data collection
Baydar et al. (2014)	<i>Size:</i> 1052 (583 boys, 469 girls; children-mother dyads) <i>Age:</i> 3 to 3.9 <i>Race/Ethnicity:</i> Turkish.	Home; Turkey	Parental social support scales
Schoeppe and Trost (2015)	<i>Size:</i> 173 (88 boys, 85 girls; children-parent dyads) <i>Age:</i> 2 to 5 <i>Race/Ethnicity:</i> 94.2% White	Home; US	Parental social support scales
Taylor and Machida (1994)	<i>Size:</i> 79 (41 boys, 38 girls) <i>Age:</i> 3.8 to 5.1 <i>Race/Ethnicity:</i> Majority White.	Classroom; US	Child observations
Benigno and Ellis (2004)	<i>Size:</i> 35 (15 boys, 20 girls; 19 children-parent dyad; 16 children-parent-sibling triad) <i>Age:</i> 4 (mean) <i>Race/Ethnicity:</i> 91.4% Caucasian, 2.9% Indian-American, and 5.7% Hispanic.	Home; US	Dyad and Triad Board game videotape observation

Table 3. *Primary studies focusing on Social Support and Social Network.*

Author, year	Sample	Research Setting; Country	Main method of data collection
Baumgartner, Burnett, DiCarlo, and Buchanan (2012)	Size: 10. Subsample of 5 (3 boys, 2 girls) was used for more in-depth analyses. Age: 4 Race/Ethnicity: 40% White, 40% Black, 20% Asian.	Child microsystems; US	Parent and child interviews
Miller, VanZomeren- Dohm, Howell, Hunter, and Graham- Bermann (2014)	Size: 120 (63 boys, 57 girls) Age: 4.94 (mean) Race/Ethnicity: 48% European-, 37% African-, 8% Biracial, 6% Hispanic-, 1% Asian-American.	Child microsystems; US and Canada	Mother interviews
Bost (1995)	Size: 65 (43 boys, 22 girls) Age: 4 to 5.55 Race/Ethnicity: 84.6% White, 12.3% African-, 3.1% Asian-American.	Child microsystems; US	Mother and child interviews
Bost, Cielinski, Newell, and Vaughn (1994)	Size: 185 (109 boys, 76 girls) Age: 4 to 4.92 Race/Ethnicity: African-American.	Child microsystems; US	Parent and child interviews
Bost, Vaughn, Boston, Kazura, and O'Neal (2004)	Size: 106 (55 boys, 51 girls) Age: 3 to 5 Race/Ethnicity: African-American.	Classroom; US	Child interviews
Levitt, Guacci, and Coffman (1993)	Size: 32 (18 boys, 14 girls; children-mother-network member triad) Age: 1 to 1.25 Race/Ethnicity: White.	Child microsystems; US	Child, mother, and network member observations

Table 3. *Continued.*

Author, year	Sample	Research Setting; Country	Main method of data collection
Gleason (2002)	<i>Size:</i> 60 (29 boys, 31 girls) <i>Age:</i> 4 <i>Race/Ethnicity:</i> 94.9% White, 1.7% African- American, 1.7% Asian, 1.7% Hispanic/Latino- American.	Child microsystems; US	Child interviews
Franco and Levitt (1997)	<i>Size:</i> 56 (26 boys, 30 girls) <i>Age:</i> 4 to 5 <i>Race/Ethnicity:</i> Caucasian	Child microsystems; US	Parent and children interviews

Appendix B

Table 4. *Descriptive Statistics of Type of Support.*

Types of support	Mean	SD	Min	Max
Emotional Support	0.83	1.19	0	5
Informational Support	1.16	1.27	0	5
Instrumental Support	1.88	2.45	0	14
Material Support	1.64	1.60	0	9
Social Support	25.45	11.91	8	64

Means represent the average number of instances in which the focal child received any of the different types of support from a social partner within the total 270-minute observation.

Table 5. *Descriptive Statistics of Sources of Emotional Support.*

Sources	Mean	SD	Min	Max
Mother	0.38	0.70	0	3
Father	0.02	0.13	0	1
R. Adult	0.07	0.32	0	2
NR. Adult	0.07	0.26	0	1
R. Children	0.14	0.40	0	2
NR. Children	0.16	0.62	0	4

Means represent the average number of instances in which the focal child received emotional support from a social partner within the total 270-minute observation.

Table 6. *Descriptive Statistics of Sources of Informational Support.*

Sources	Mean	SD	Min	Max
Mother	0.53	0.98	0	4
Father	0.02	0.13	0	1
R. Adult	0.05	0.22	0	1
NR. Adult	0.16	0.59	0	4
R. Children	0.24	0.51	0	2
NR. Children	0.22	0.53	0	2

Means represent the average number of instances in which the focal child received informational support from a social partner within the total 270-minute observation.

Table 7. *Descriptive Statistics of Sources of Instrumental Support.*

Sources	Mean	SD	Min	Max
Mother	0.84	1.41	0	6
Father	0.16	0.70	0	5
R. Adult	0.17	0.82	0	6
NR. Adult	0.26	0.55	0	2
R. Children	0.22	0.59	0	3
NR. Children	0.40	1.17	0	6

Means represent the average number of instances in which the focal child received instrumental support from a social partner within the total 270-minute observation.

Table 8. *Descriptive Statistics of Sources of Material Support.*

Sources	Mean	SD	Min	Max
Mother	0.74	1.09	0	6
Father	0.05	0.22	0	1
R. Adult	0.12	0.46	0	2
NR. Adult	0.19	0.54	0	3
R. Children	0.24	0.63	0	3
NR. Children	0.29	0.70	0	3

Means represent the average number of instances in which the focal child received material support from a social partner within the total 270-minute observation.

Table 9. *Descriptive Statistics of Sources of Social Support.*

Sources	Mean	SD	Min	Max
Mother	4.90	6.75	0	26
Father	0.78	2.25	0	13
R. Adult	0.97	1.86	0	7
NR. Adult	1.03	1.66	0	7
R. Children	2.95	4.58	0	20
NR. Children	16.81	11.41	0	46

Means represent the average number of instances in which the focal child received social support from a social partner within the total 270-minute observation.

Appendix C

Table 10. *Descriptive Statistics of Size of Relationship Categories.*

Relationship categories	Mean	SD	Min	Max
R. Adult	1.07	.40	0	2
NR. Adult	2.82	1.90	0	8
R. Children	1.55	1.41	0	6
NR. Children	5.07	3.80	0	18
Total Network Size	10.50	5.02	1	22

Means represent the average number of network individuals within a relationship category (size), during the total observation time of 270-minute.

Table 11. *Descriptive Statistics of Density of Relationship Categories.*

Relationship categories	Mean	SD	Min	Max
R. Adult	16.05	17.94	0	100
NR. Adult	26.39	17.32	0	63
R. Children	14.75	13.52	0	67
NR. Children	42.86	19.89	0	82

Means represent the average number of individuals within a relationship category relative to the total size of the network (density), during the total observation time of 270-minute.

Table 12. *Descriptive Statistics of Strength of Relationship Categories.*

Relationship categories	Mean	SD	Min	Max
R. Adult	97.20	75.22	0	312
NR. Adult	42.89	40.62	0	156
R. Children	79.20	90.66	0	303
NR. Children	215.77	178.38	0	742

Means represent the average number of interactions between a network member within a relationship category and the focal child (strength of the relationship), during the total observation time of 270-minute.

Vita

Daniela Salinas is from Santiago, Chile. She graduated with a B.A. in Social Work from Universidad Tecnológica de Chile and earned a M.S. in Child and Family Studies from the University of Tennessee. At the University of Tennessee Daniela will receive her Doctorate of Philosophy in Child and Family Studies under the guidance of Dr. Fouts. Daniela's research is primarily focused on children's social interactions and to what extent parenting, culture, and ecological factors impact their social networks and support systems.