The implications of maternal grandmother coresidence and involvement for adolescent adjustment

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Abstract

Maternal grandmothers residing in three-generation households often provide support to their adult children and care to their adolescent grandchildren. However, the implications of grandmother coresidence and involvement for adolescent adjustment have been neglected in the South African literature. This study examined whether the involvement of maternal grandmothers who coreside with grandchildren and their parents differed to that of non-coresident grandmothers, and assessed the associations between maternal grandmother coresidence and adolescents' behavioural, emotional and social adjustment. It also examined whether grandmother involvement had different associations with the adjustment outcomes of adolescents living in three-generation and two-generation households. Cross-sectional survey data was obtained from a sample of 384 coloured and black African grade 8 and 9 learners (ages 13 -15 years) from two schools in greater metropolitan Cape Town. The results of an independent samples *t*-test revealed that there were no significant differences in the level of involvement of coresident and non-coresident grandmothers. Findings of hierarchical regression analyses indicated that adolescents in three-generation and two-generation households displayed similar levels of prosocial behaviour, as well as hyperactivity, conduct problems, emotional problems, peer problems and total adjustment difficulties. In addition, greater maternal grandmother involvement was significantly associated with more adolescent prosocial behaviour ($p < .001$) across the whole sample, even after controlling for parental involvement and demographic characteristics. Findings underscore the need to move beyond the immediate family to consider how extended kin may influence adolescent development.

Keywords: three-generation household, coresidence, maternal grandmother, involvement, adolescents, adjustment

Background

Multigenerational living is a culturally entrenched norm among certain ethnic groups in South Africa (SA) and has become an adaptive strategy in the face of financial hardship (Sibanda, 2011; Ziehl, 2001). Since the country's democratic transition in 1994, there has been a steady increase in three-generation living arrangements, as the HIV/AIDS epidemic has compounded the existing stressors of single parenthood and migrant labour effecting SA families (Amoateng & Heaton, 2007; Department of Social Development, 2012).

Maternal grandmothers in SA are especially likely to coreside with their adult children and grandchildren in three-generation households (Statistics South Africa, 2010). Coresident grandmothers often assume a substantial role in taking care of their grandchildren and in providing the family with emotional, financial and instrumental support (Amoateng & Heaton, 2007). Research in economically developed countries in the global North has demonstrated that the presence of an emotionally close and involved grandmother in the household is likely to be beneficial to the adjustment of adolescent grandchildren (Bengtson, 2001; Botcheva & Feldman, 2004; Dunifon, 2013). Although three-generation living arrangements are far more normative in the South, the implications of maternal grandmother coresidence and involvement for adolescent adjustment have seldom been explored in the SA research literature.

Three-generation Living Arrangements in South Africa

Multigenerational living arrangements are common in both urban and rural SA (Department of Social Development, 2012). Although the majority of SA adolescents (ages 12 -17 years) live in two-generation households with either one or both parents, approximately 36% reside in three-generation households with at least one parent and at least one grandparent (Department of Social Development, 2012). This pattern varies according to population group, as coloured and black African youth are far more likely to reside with three or more generations than Indian/Asian and white adolescents (Statistics South Africa, 2010). In the SA context, the term "coloured" primarily refers to persons of mixed-race descent (Sibanda, 2011).

Multigenerational coresidence is a long-standing tradition and remains a preference for many black African families (Sibanda, 2011). Intergenerational living reflects a strong communalist ethos and the cultural value of kin solidarity (Ziehl, 2001). However, it is also a response to persistent financial hardship stemming from the past discriminatory practices of Apartheid - South Africa's legally enforced system of racial segregation (Amoateng & Heaton, 2007; Budlender & Lund, 2011). Under the Apartheid regime, black African and

coloured populations were granted limited access to basic amenities and resources (Amoateng & Heaton, 2007). As a result, multiple generations often resided on the same property or in the same household, sharing in resources and caregiving responsibilities (Budlender & Lund, 2011; Sibanda, 2011). Despite notable changes in the socioeconomic or wealth status of these population groups since the advent of democracy in 1994, communal living arrangements have remained intact (Statistics South Africa, 2010).

In addition, over the past two decades, there has been a small but steady increase in three-generation living arrangements for all ethnic groups, although this has been most pronounced amongst black African and coloured families (Department of Social Development, 2012). This trend has been linked to a number of socio-demographic changes. Due to the high prevalence of single parenthood, teenage motherhood and HIV/AIDS, which have added to the burdens of migrant labour and desertion, the urban black African family has become increasingly "matri-focal," with many single mothers coresiding with their mothers (Amoateng & Heaton, 2007; Richter, Norris, Swart, & Ginsburg, 2006). Increased life expectancy and women's greater participation in the labour force appear to be responsible for the higher proportion of grandmothers coresiding in three-generation households in the coloured community (Richter et al., 2006; Ziehl, 2001). In black African families, grandmothers tend to substitute for one parent's absence (Ziehl, 2001). However, in coloured families, grandmothers are more likely to coreside in two-parent households and therefore tend to play a more supplementary role (Sibanda, 2011).

The Grandmother-Grandchild Relationship

The grandmother-grandchild relationship is an emerging area of study in the developmental literature (Pittman, 2007). This relationship is commonly measured in terms of the "quantity" or amount of face-to-face contact that grandmothers have with their adolescent grandchildren (Dunifon, 2013; Hamilton, 2005; Monserud & Elder, 2011; Pittman, 2007). Interactions between grandmothers and grandchildren have been found to range on a continuum from no contact to frequent or daily contact (Attar-Schwartz, Tan, Buchanan, Flouri, & Griggs, 2009; Griggs, Tan, Buchanan, Attar-Schwartz, & Flouri, 2010). Another central feature of this relationship is the "quality" or nature of grandmothers' involvement in their grandchildren's lives. Grandmothers often provide emotional support and encouragement to grandchildren (Attar-Schwartz et al., 2009; Mueller & Elder, 2003). They frequently spend time educating, advising, mentoring and caring for them, and sharing in their interests and hobbies (Griggs et al., 2010; King & Elder, 1997). Furthermore, grandmothers may indirectly influence grandchildren, by providing financial and emotional

support and advice about caregiving to parents (Botcheva & Feldman, 2004; Chen, Liu, & Mair, 2011; Yorgason, Padilla-Walker, & Jackson, 2011).

In both the global South and North, grandmothers on the mother's side are a particularly important source of support for grandchildren (Al Awad & Sonuga-Barke, 1992; DeLeire & Kalil, 2002; Hunter, 1997). Maternal grandmothers tend to see grandchildren on a more regular basis than grandfathers or paternal grandmothers, and are more likely to talk to them about future plans, advise them when they have a problem, monitor their behaviour and attend school events (DeLeire & Kalil, 2002; Griggs et al., 2010; Pearson, Hunter, Ensminger, & Kellam, 1990). Grandchildren also tend to report closer relationships with maternal grandmothers than with their other grandparents (Griggs et al., 2010; Smith, 2005).

The three-generation household structure may provide a context where maternal grandmothers have frequent contact and are intimately involved with their grandchildren in a way that differs somewhat from the dominant two-generation paradigm (Chen et al., 2011). Coresident grandmothers often play more active roles in caregiving than non-coresident grandmothers and are more likely to determine and carry out discipline, talk to grandchildren about problems and help them with homework (Bengtson, 2001; Hamilton, 2005; Pebley & Rudkin, 1999). They are also more likely to be involved in carrying out a number of domestic chores (Pong & Chen, 2010). This may relieve parents and grandchildren of some of their household duties. As a result, parents may have more time to spend with their children and children may be able to dedicate more of their attention to school work (Pong & Chen, 2010). In the idealised multigenerational family structure, the family may share a sense of "intergenerational closure," whereby a system of interconnected adults across several generations maintain and convey various social norms, while providing grandchildren with consistent affection, physical monitoring and instruction (Smith, 2005; Widmer, 2007).

However, some multigenerational households do not approximate the ideal. Low levels of contact do not necessarily preclude a high-quality relationship with grandmothers, while frequent interactions may produce some unwanted experiences (Hamilton, 2005; King & Elder, 1995). For instance, coresident grandmothers may interfere in childrearing and diffuse parental responsibility (Lavers & Sonuga-Barke, 1997). They may also cause considerable stress in the household if there is conflict with parents or grandchildren, or if the grandmother requires care due to poor health or disability (Hamilton, 2005). Under these circumstances, grandmothers may drain family resources such as finances, parental attention and residential space (Hamilton, 2005; Lavers & Sonuga-Barke, 1997).

Grandmother Coresidence and Adolescent Adjustment

Little is known about how grandmother coresidence may relate to the adjustment of adolescent grandchildren. Adjustment is a highly variable and multidimensional construct (Lent, 2004). It has been studied and measured in samples of adolescents from a variety of cultural backgrounds, communities and countries, resulting in an assortment of definitions (Shek, 2002). The term has variously been used to refer to aspects of adolescents' physical, emotional, cognitive, behavioural and social well-being (Lent, 2004; Wenk, Hardesty, Morgan, & Blair, 1994).

The few available studies exploring the relationship between grandmother coresidence and adolescent adjustment have been predominantly conducted in the United States (US) and the United Kingdom (UK) (Pittman, 2007). These studies suggest that adolescents in single-mother families are likely to benefit from having a grandmother in the household, especially in low-income communities (Mollborn, Fomby, & Dennis, 2011; Pittman, 2007; Pittman & Boswell, 2007). Mainly due to risk factors such as lack of partner support and limited financial resources, single mothers often experience a number of stressors, which may interfere with childrearing (Dunifon, 2013). Adolescents who reside with both a single mother and a grandmother have been found to exhibit better mental health, greater educational attainment, less deviant behaviour and fewer depressive symptoms that those who reside solely with a single mother (DeLeire & Kalil, 2002; Monserud & Elder, 2011; Pittman, 2007) Thus, the "absence of the father may be less important than the aloneness of the mother in relation to risk" (Pittman & Boswell, 2007, p.92).

Comparisons to adolescents residing in two-parent biological families have yielded a more ambiguous pattern of results. In nationally representative studies in the US and several countries in Western Europe, grandchildren coresiding with grandmothers and both parents have been found to display similar, worse and in some cases better social, emotional and school adjustment than those living in two-parent families (Dunifon, 2013; Elder & Conger, 2000; Hamilton, 2005). However, many of these findings appear to be accounted for by co-occurring risk and protective factors related to the family of origin, such as the nature of the parent-child relationship, rather than household structure per se (Pittman, 2007).

The literature on grandmother coresidence in economically developing countries of the global South is extremely scarce. In several small-scale studies conducted in China, where there is a strong cultural value placed on filial piety, few negative and some positive academic and psychological outcomes have been observed for primary school children coresiding with grandmothers in three-generation households compared to children in two-

generation households (Chang, Yi, & Lin, 2008; Falbo, 1991; Pong & Chen, 2010). In addition, in one of the few studies on multigenerational coresidence conducted in Africa, Al Awad and Sonuga-Barke (1992) found that in the Sudanese capital, Khartoum, the principles of intergenerational harmony and interdependence inform family life. Children ages 4-9 in three-generation households had fewer emotional, conduct and peer problems than children in two-generation households. The researchers relate these benefits to the central role of the grandmother as socialisation agent and maternal adviser. However, much of the aforementioned studies have primarily been based on samples of infants, preschool and primary school children (Al Awad and Sonuga-Barke, 1992; Falbo, 1991; Pong & Chen, 2010).

Grandmother Involvement and Adolescent Adjustment

Research exploring the associations between the quality or nature of grandmother involvement and adolescent adjustment is also limited. In the few existing studies conducted in the US and the UK, adolescents with highly involved and emotionally close grandmothers have been found to display fewer depressive symptoms and behavioural difficulties and to exhibit more prosocial behaviours and better academic achievement than their peers (Attar-Schwartz et al., 2009; Griggs et al., 2010; Yorgason et al., 2011). In addition, a supportive and nurturing grandmother may be particularly beneficial for adolescents at risk for maladjustment. For instance, among low-income ethnic minorities in the US, grandmother involvement has been found to moderate the association between harsh parenting and hyperactivity (Barnett, Scaramella, Neppl, Ontai, & Conger, 2010), as well as the association between proximal life stress and adolescent psychopathology (Flouri, Buchanan, Tan, Griggs, & Attar-Schwartz, 2010).

Much of the research relating grandmother involvement to adolescent adjustment has focused on non-coresident grandmothers. Few studies examining three-generation living arrangements have gone beyond measuring the mere presence or absence of the grandmother in the home, to take into account how the nature of the grandmother's involvement may be correlated with adolescent well-being (Chen et al., 2011). However, one might expect that more consistent contact with a positively involved grandmother would be associated with more positive outcomes for adolescent grandchildren (King & Elder, 1995). From a socio-cultural/ecological perspective, activities enacted within family routines have profound effects on adolescents' social, cognitive and emotional growth (Chen et al., 2011). Everyday interactions within the home facilitate learning and development through modelling, joint production and other forms of mediated social learning (Chen et al., 2011). In addition,

coresident grandmothers may be conferred greater respect, authority and status within the family and household than non-coresident grandmothers, who are often viewed by parents and grandchildren as ancillary figures (Chang et al., 2008; Pong & Chen, 2010; Smith, 2005). This may occur even when their level of involvement with grandchildren is comparable to that of coresident grandmothers (Pong & Chen, 2010). Children and adolescents are more likely to internalise the values, advice and instructions of a respected authority figure that is perceived to play an important role in the family (Chang et al., 2008). However, empirical studies in this area are presently lacking.

Limitations of Previous Studies

The results of previous studies should be interpreted with caution, given their limitations. First, what we know about the relationship between grandmother coresidence and adolescent adjustment is primarily limited to findings from Western Europe and North America, where three-generation living arrangements tend to be less normative than in economically developing countries, and tend to form out of need rather than cultural preference (DeLeire & Kalil, 2002; Dunifon, 2013; Mollborn et al., 2011; Pittman & Boswell, 2007). In addition, despite this cultural homogeneity, these results are difficult to compare as these studies have employed different measures of adjustment and different comparison groups.

Second, the few studies conducted in economically developing countries have largely neglected outcomes in adolescents (Al Awad and Sonuga-Barke, 1992; Falbo, 1991; Pong & Chen, 2010). Adolescence is a transitional stage marked by rapid biological and psychological change and is characterised by an increased risk for psychopathology (Barbarin & Richter, 2001; Dodge & Pettit, 2003; Patel, Flisher, Hetrick, & McGorry, 2007). The grandmother may be an important protective resource during this stage, in part, because she may restore a sense of continuity in her grandchild's life by serving as an integral link to the family's tradition and history (Pittman & Boswell, 2007).

Third, although coresident grandmothers may have frequent contact with their grandchildren, we know less about the quality of their involvement and its associations with grandchildrens' socio-emotional and behavioural adjustment. This is an important omission, as research on non-coresident grandmothers suggests that quality of involvement, rather than frequency of contact, may be more closely related to child outcomes (Flouri et al., 2010; Griggs et al., 2010).

Lastly, it appears that virtually no research has examined how living with a grandmother may influence adolescent well-being in SA. While there have been studies on

"skip-generation" households (consisting only of grandparents and grandchildren) (Smith & Palmieri, 2007), there is a dearth of research on three-generation households, although the latter are far more common than the former (Statistics South Africa, 2010).

Summary

Multigenerational living arrangements have been a norm historically for many families in SA and traditional kin support systems appear to be intact today (Ziehl, 2001). In both the global South and North, maternal grandmothers residing in three-generation households often share emotionally close relationships with their grandchildren, and are more likely to be intimately involved in their daily lives than non-coresident grandmothers (Bengtson, 2001; Hamilton, 2005; Pebley & Rudkin, 1999). In addition, several studies suggest that high levels of grandmother involvement may be beneficial to the emotional and behavioural well-being of adolescent grandchildren (Attar-Schwartz et al., 2009; Griggs et al., 2010; Yorgason et al., 2011). However, the implications of grandmother coresidence for adolescent adjustment are not straightforward. This is in part because few studies have systematically addressed how the "quantity" relative to the "quality" of contact between coresident grandmothers and their grandchildren may be differentially associated with adolescent outcomes. In addition, the extent to which findings from the international literature can be extrapolated to SA is questionable, considering the unique circumstances under which household living arrangements are formed in this country (Ziehl, 2001).

Aims and Hypotheses

Given the increasing number of SA adolescents growing up in three-generation households, in which the maternal grandmother is often a key source of emotional and instrumental support (Statistics South Africa, 2010), more research is needed to explore the grandmother-grandchild relationship in the local context. As such, this study was designed to investigate the implications of maternal grandmother coresidence and involvement for grandchild adjustment in a sample of adolescents in Cape Town, SA. By focusing on the maternal grandmother, this study will also be comparable with much of the available research in the field, which has tended to adopt this approach (Al Awad & Sonuga-Barke, 1992; DeLeire & Kalil, 2002; Dunifon, 2013; Pearson et al., 1990; Pittman, 2007).

This study had three primary objectives, the first of which was to explore whether there were differences in the involvement of coresident and non-coresident maternal grandmothers. A second objective was to investigate whether grandmother coresidence and involvement were associated with adolescents' behavioural, emotional and social adjustment, even after controlling for parental involvement and demographic characteristics. A third

objective was to determine whether the associations between maternal grandmother involvement and adolescent adjustment outcomes were moderated by the grandmother's residential status (i.e. her presence or absence in the home). For the purpose of this study, three-generation households were those in which adolescents reported that they were residing with one or both parents and the maternal grandmother. Two-generation households were those in which adolescents reported that they were residing with one or both parents and had a non-coresident maternal grandmother.

As with any relatively new research focus, conceptual and methodological groundwork needs to be laid in order to support continued research in this area. As such, a secondary objective of this study was to confirm the internal consistency of the maternal grandmother involvement scale, which has only been assessed once previously in a small pilot study conducted with 204 grade 8 and 9 learners at a public high school in Cape Town (Gaibie, 2012).

Guided by theory, international research findings, as well as a consideration of family circumstances within the local context, the following research hypotheses were tested:

H_1: Maternal grandmother involvement will be higher among coresident than non-coresident grandmothers.

H_2: The presence of the maternal grandmother in the three-generation household will be positively associated with adolescent adjustment outcomes.

H_3: The involvement of the maternal grandmother will be positively associated with adolescent adjustment outcomes.

H_4: The associations between maternal grandmother involvement and adolescent adjustment outcomes will be stronger for adolescents who coreside with their maternal grandmothers than for those who do not.

Method

Design and Setting

This study is positioned within an ongoing large-scale research project investigating the associations between grandparent involvement and grandchild adjustment outcomes from the perspective of school-going SA adolescents.

This study employed a quantitative, cross-sectional, correlational research design. Participant data was gathered in a classroom setting using an anonymous structured questionnaire. In cross-sectional research a cross-section of the population is studied at a single point in time (Wilson & MacLean, 2011). This was an appropriate design due to the time and financial constraints of this study. In addition, the correlational method is useful for

examining the strength and direction of relationships between naturally occurring variables (such as grandmother involvement and adolescent adjustment) when the manipulation of such variables is either not possible or ethically unsound (Wilson & MacLean, 2011). Survey research is a cost-effective approach to gathering relevant primary data on a large target respondent population in a short period of time (Cozby, 2009). Furthermore, well-structured surveys offer the advantage of generating standardized data, which may be replicated and compared to other samples (Cozby, 2009).

Participants

Sample characteristics. The study sample consisted of 384 grade 8 and 9 learners from two public secondary schools in greater metropolitan Cape Town, both serving predominantly coloured and black African communities. The first is a dual-medium school (English/Afrikaans) located in the Metropolitan Central Education District. School fees for the 2013 academic year for grades 8 and 9 are R1 300.00 per learner. The second is a former 'Model C' English-medium school located in the Metropolitan South Education District. School fees for the 2013 academic year for grades 8 and 9 are R13 150.00 per learner.

The study sample consisted of 224 female learners (58.3%) and 160 male learners (41.7%) ages 13-15 years (M = 13.96, SD = .70). School 1 comprised 143 learners (37.2%) and school 2, 241 learners (62.8%). The sample consisted of 267 coloured students (69. 5%) and 117 black African students (30.5%). In addition, 72.9 % of the learners resided in two-generation households (n = 280), while 27.1% resided in three-generation households (n = 104). Of the 384 learners, 28 (7.3%) had other non-parental adults (aunts and/or uncles) present in the home. Demographic characteristics of adolescent participants according to family household structure are presented in Table 1.

Sample size calculation. Sample size was calculated a priori for multiple regression analyses using G*Power (Version 3.1.7). Assuming $\alpha = .05$, directional hypotheses, 9 predictors, a target power of .80 and a medium effect size (Cohen's $f^2 = .15$), a minimum of 114 participants were required for the overall regression. Post-hoc power analyses revealed that with a final sample size of 384, a target power of .80 was achieved with an effect size of $f^2 = .05$. In addition, post-hoc power analyses revealed that for a one-tailed independent samples t-test, a power of .80 was achieved with a medium effect size (Cohen's $f^2 = .30$) at $\alpha = .05$ for a minimum of 64 participants.

Sampling procedure. Language-based and suburb-based stratified random sampling failed to yield schools that would provide the data needed to meet the study criteria. Therefore, convenience and purposive sampling techniques were employed.

Eight easily accessible schools serving communities that have traditionally enjoyed strong extended kin systems were contacted, two of which consented to participate in the study. While the sample is not nationally representative, considering the dearth of studies investigating three-generation living arrangements in SA, this small-scale study is a necessary starting point for research in this area.

Table 1

Demographic Characteristics of Adolescents in Two-generation and Three-generation Households

Characteristics	Two-generation household	Three-generation household
	n (%)	*n* (%)
Gender		
Male	122 (43.6)	38 (36.5)
Female	158 (56.4)	66 (63.5)
Age[a]		
13	66 (24.0)	34 (32.7)
14	139 (50.5)	53 (51.0)
≥15	70 (25.5)	17 (16.3)
School		
School 1	105 (37.5)	38 (36.5)
School 2	175 (62.5)	66 (63.5)
Race		
Coloured	191 (68.2)	76 (73.1)
Black African	89 (31.8)	28 (26.9)
Non-parental adults		
Coresident	3 (1.1)	25 (24.0)
Non-coresident	277 (98.9)	79 (76.0)

[a] Five learners did not indicate their age

Inclusion and exclusion criteria. Inclusion in this study was restricted to adolescent learners currently enrolled in grade 8 or 9 (approximately 13-15 years of age) with a living maternal grandmother. Participants were required to reside with either one or both biological parents. Adolescents with a stepparent in the household were excluded. In addition, proficiency in both reading and writing in either English, Afrikaans or isiXhosa was required.

Inclusion criteria regarding the (i) age of the participants (ii) family household structure and (iii) language requirements were guided by theoretical and practical decisions. First, in the developmental literature, the adolescent period is often regarded as a time of "storm and stress" that is marked by both closeness and conflict in parent-child relationships (Pittman, 2007). Adolescents may feel that extended family members, such as grandmothers, are more patient and flexible than parents (Pittman, 2007). Therefore, grandmothers may be especially influential figures in their grandchildren's lives during this period. Furthermore, by assessing outcomes in adolescents in grades 8 and 9, findings of this research may be

compared to those of several studies conducted in the UK that have examined this age group (Attar-Schwartz et al., 2009; Griggs et al., 2010; Yorgason et al., 2011).

Second, a great deal has been written about the importance of broadening the way in which family household structure is defined and measured to avoid elevating the two-parent biological family to the position of moral norm (Mollborn et al., 2011). This study deliberately uses a more inclusive and less culturally specific operationalisation, by considering the presence of not only parents, but also the maternal grandmother and other extended kin in the household. However, due to time constraints, it was regrettably not possible to extend the scope of the project to include stepparents, guardians or any other non-biological family members.

Third, due to SA's multicultural and multilingual society, this study sought to enhance the development and implementation of a culturally sensitive and language-appropriate assessment instrument. Therefore, the survey was translated from English to Afrikaans and isiXhosa by a group of bilingual graduate students using standard back-translation procedures.

The original eligible sample consisted of 722 grade 8 and 9 learners, from which 338 (46.8% of the eligible data) were excluded from the study. Excluded participants were those who had no living parents (n = 6); who did not have a living maternal grandmother (n = 102); who coresided with a grandparent other than the maternal grandmother (n = 66); who resided with the maternal grandmother, but no parent(s) (n = 12); who resided with siblings, other relatives or guardians, but no parent(s) (n = 62); who resided with a stepparent (n = 24); who failed to complete most items on the questionnaire (n = 23); who provided indiscernible or ambiguous responses (n = 23); who were not given parental consent to take part in the study (n = 2); and who neither identified as coloured or black African (n = 18). Other ethnic groups ("white," "Indian," "other," or "don't want to answer") were not large enough to include in the statistical analyses.

Measures

This study employed five measures from the self-report My Grandparents and Me Teen Survey (see Appendix A). This included a demographic questionnaire, a measure of family household structure, a parental involvement scale and a maternal grandmother involvement scale. Adolescents' behavioural, emotional and social adjustment outcomes were measured by the Strengths and Difficulties Questionnaire (SDQ).

Demographics. The learners were asked to state their age, gender and race.

Categorisation of family household structure. The learners were asked to indicate all the relatives with whom they primarily resided. Adolescents' reports on their living arrangements were subsequently classified into two mutually exclusive groups: (i) Three-generation households were those in which the learner coresided with at least one biological parent and the maternal grandmother; (ii) Two-generation households were those in which the learner coresided with at least one biological parent and had a living non-coresident maternal grandmother. In addition, the "non-parental adult" variable measured the presence or absence of aunt(s) and/or uncle(s) in the household.

Parental involvement. Mother and father involvement were assessed by learners' responses to 6 items derived from the US National Longitudinal Survey of Youth self-administered supplement (NLSY79). The items were asked for each living biological parent and were scored on a 4-point Likert scale with response options ranging from 0-3 (0 = *not at all well,* 1 = *not very well,* 2 = *quite well,* 3 = *extremely well*). A total score was then calculated for each parent. Higher scores indicate higher levels of positive parental involvement.

The scale assesses the *behavioural* involvement (engagement in positive activities), *emotional* involvement (parental warmth and emotional closeness) and *cognitive* involvement (parental discipline, control, and monitoring) of mothers and fathers (Flouri, 2005).

Several studies have indicated that the scale items load strongly on a single factor - high-quality parental involvement (Carlson, 2006; Pleck & Hofferth, 2008) - and data from a pilot study with learners in Cape Town support the internal reliability of the English version of the father involvement scale ($\alpha = .82$) and the mother involvement scale ($\alpha = .66$) (Gaibie, 2012).

As adolescents' reports on mother and father involvement were strongly correlated ($r = .60$, $t = 2.91$, $p < .001$), the mean of both parents' scores were calculated to render a composite parental involvement score ($\alpha = .81$). This was used as the final scale score. In cases where there was only one living biological parent ($n = 84$) that parent's involvement score was used as the final scale score. This approach was employed to maximise sample size and there is some precedent for it in the literature (Yorgason et al., 2011).

Maternal grandmother involvement. Maternal grandmother involvement was assessed by a multidimensional scale. Respondents were only required to report on their living maternal grandmother. The scale is based on a measure employed by Griggs et al. (2010), which considers the extent to which grandparents care for and participate in their

grandchildren's social and school activities. Several items from the Griggs et al. (2010) measure were slightly amended to ensure the current scale's suitability for the SA population.

Modifications were made on the basis of an earlier pilot study (Mia, 2010), theoretical knowledge and existing measures, including Elder and Conger's (2000) 4-point emotional closeness scale.

The present maternal grandmother involvement measure consists of 11 questions with response options ranging from 0-2 on a 3-point Likert scale (0 = *not much/never*, 1 = *some/occasionally*, 2 = *a lot/often*). Higher scores indicate higher levels of positive grandmother involvement.

The scale draws upon six domains relating to both the extent and quality of grandmother involvement, as outlined by Mueller and Elder (2003). These include *face-to-face contact, shared activities* (such as working on a joint project), *intimacy* (role of the grandmother as a friend and confidante), *helping* (role of the grandmother as an advisor and mentor), *instrumental assistance* (provision of money and resources to grandchild), and *authority* (role of the grandmother as parent surrogate or disciplinarian).

South African data from a pilot study with grade 8 and 9 learners supports the internal reliability of the English version of this scale (α = .84) (Gaibie, 2012).

Adolescent adjustment. Adolescents' adjustment difficulties and prosocial behaviour were assessed using the Youth Self-Report form of the Strengths and Difficulties Questionnaire (SDQ), a 25-item 3-point Likert scale with scores on each item ranging from 0 to 2 (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*) (Goodman 1997, 1999).

The SDQ comprises five sub-scales measuring hyperactivity, conduct problems, emotional problems, peer problems, and prosocial behaviour, with each subscale consisting of 5 items (Attar-Schwartz et al., 2009). A total adjustment difficulties score was calculated for each learner by adding the scores for each of the four deficit-focused subscales, with higher scores indicating greater total difficulties (Attar-Schwartz et al., 2009). The total difficulties score was counted as missing if an entire scale was missing.

UK data on the original five-factor structure has suggested sound internal consistency and test-retest reliability, with a mean Cronbach alpha coefficient of .73 across each subscale (Hawes & Dadds, 2004). The concurrent and discriminant validity of the SDQ is well-established (Goodman, 1999; Hawes & Dadds, 2004). The SDQ is available internationally and has been validated extensively in over 40 languages (Hawes & Dadds, 2004). The scale has demonstrated moderate to strong internal reliability when evaluated in Dutch (*n*=562), Australian (*n*=1359), Arabic (*n*=322), Swedish (*n*=900), Bangledshi (*n*=261), German

(*n*=273) and South African samples (*n*=425) (Cluver, Gardner, & Operario, 2007; Hawes & Dadds, 2004; Muris, Meesters, & van den Bergh, 2003). In addition, the Youth Self-Report version of the SDQ has been validated for adolescent populations (Goodman, 1999).

Procedure

The present study followed the University of Cape Town's ethical guidelines for conducting research involving human participants. Permission to carry out the study was obtained from the Western Cape Education Department (see Appendix B), the Ethics Review Committee of the Faculty of Humanities (see Appendix C) and the school principals. All five classes from grade 8 and all five from grade 9 in the first school were surveyed. All seven grade 8 classes and all six grade 9 classes from the second school participated in the research.

As the study could not reasonably be assumed to create distress or harm, passive parental consent procedures were used. Consent forms were provided to the learners several days prior to the study to take home to parents (see Appendix D). Parents were only required to return the forms to the school if they were unwilling to allow their child to take part in the study. On the day of the research, all participants completed informed assent forms (see Appendix E). Both parental consent and adolescent assent forms detailed the purpose, procedures and expected duration of the research. The forms stipulated that participation in the study was voluntary, that participants could refuse to answer any question in the survey and could withdraw from the study at any point without any penalties. Participants were assured that their anonymity and the confidentiality of their responses would be protected

The surveys and assent forms were administered to the learners in the classroom during their Life Orientation period and took approximately 45 minutes to complete. Respondents were given the option of answering in English, Afrikaans or isiXhosa. The students were seated appropriately to ensure that they could not see the responses of their classmates. Verbal instructions for filling out the assent forms and surveys were provided at the start of the class. All members of the research team were available throughout the period to monitor the students and to answer any questions pertaining to the questionnaire. Adolescents who were not given parental consent to participate in the research occupied themselves with other school work.

The research was minimally disruptive to school learning and there were no financial costs to participating in the study. However, some of the items related to learners' relationships with parents and grandparents were of a sensitive nature and several students appeared to find these questions somewhat distressing. The students were reminded that they could discontinue the study and were referred to the school guidance counsellor.

Nevertheless, most of the students appeared to enjoy interacting with the research team and appreciated being given the opportunity to discuss the positive role that grandparents played in their lives.

Once the surveys were completed and collected, the research team provided the class with a prompt opportunity to have any additional queries or concerns addressed. To ensure that the students' responses remained confidential, the completed questionnaires were subsequently placed in one of the researcher's homes in a secure locked filing cabinet accessible only to the research team.

Data Analysis

Data were analysed using the statistical software package SPSS (Version 21.0). For all analyses, significance was set at $p < .05$. As a preliminary measure, Cronbach's alpha was calculated to determine the internal consistency of the maternal grandmother involvement scale. Descriptive statistics for the key predictor and outcome variables were assessed.

Hypothesis 1. A one-tailed independent samples *t*-test was conducted to determine whether maternal grandmother involvement was significantly greater for coresident than for non-coresident grandmothers. Levene's test for homogeneity of variance was not statistically significant, $p = .87$. To adjust for the negative skew of the maternal grandmother involvement variable, it was first reflected and then a natural logarithmic transformation was applied.

Hypotheses 2 and 3. Point biserial correlation coefficients were computed to investigate the associations between maternal grandmother *coresidence* and adolescent adjustment on each of the Strengths and Difficulties Questionnaire (SDQ) subscales assessing the adolescents' *hyperactivity, emotional problems, conduct problems, peer problems* and *prosocial behaviour*, as well as their *total difficulties*. Pearson correlation coefficients were used to investigate the associations between maternal grandmother *involvement* and adolescent adjustment on each of these scales.

Hypothesis 4. A series of hierarchical multiple regression models were used to investigate these associations, whilst controlling for adolescents' age (13, 14, ≥ 15), gender (0 = male; 1= female), race (0 = coloured; 1 = black African) and school (0 = School 1; 1 = School 2), as well as parental involvement and the presence of non-parental adults (aunts and/or uncles) in the home (0 = non-coresident; 1 = coresident). As the measure of household socioeconomic status (SES) included in the survey was not sensitive enough to detect fine distinctions in the study sample, school was used as a proxy for SES. The regression models were then used to assess whether associations between maternal grandmother involvement and adolescents' adjustment outcomes were moderated by the grandmother's residential

status. In order to reduce the risk of multicollinearity, the grandmother involvement variable was centred on its sample mean prior to computing the interaction term (grandmother coresidence × involvement). The variables were entered into the models in the following order: In the first step, all control variables were entered as a block. In the second step, grandmother coresidence was included in the model. In the third step, grandmother involvement was added. In the fourth step, the interaction term was entered. As only a small proportion of the data was missing completely at random (MCAR), the listwise procedure for treating missing values was used. Regression analyses is preferred over structural equation modelling when as in the present study, the sample is relatively small and the analyses are to be used inductively, rather than for testing a fully articulated theory (Botcheva & Feldman, 2004).

Separate regression analyses were conducted again for each SDQ outcome variable, this time removing each non-significant predictor variable from the models sequentially and rerunning the analyses. However, as these changes failed to yield any meaningful differences in the results, final regression models are not presented.

The selected control variables were those that have previously been shown to be associated with child and adolescent adjustment. For example, emotional problems, conduct problems and peer problems have been found to increase with age, while males have been found to have higher levels of conduct problems and peer problems than females (Attar-Schwartz et al., 2009). Children from lower SES families often have more total adjustment difficulties than those from higher SES families (Attar-Schwartz et al., 2009). Furthermore, outcomes on the SDQ tend to vary according to ethnicity, the level of parental involvement and the presence/absence of other adults such as aunts and uncles in the home (Hamilton, 2005; Shek, 2002).

There were no obvious outliers and the Variance Inflation Factor (VIF) and tolerance statistics indicated that there was no undue collinearity within the data. No heteroscedasticity was detected. The distribution of the standardized residuals for hyperactivity, emotional problems and total difficulties did not deviate sufficiently from normality (see *Figures F1, F2* and *F3* respectively in Appendix F). However, residual plots for prosocial behaviour, conduct problems and peer problems were slightly skewed. This is not surprising given that the sample is derived from a school-based study of adolescents. The prosocial residual distribution was first reflected and then a natural log transformation was applied, and this did improve the skew (see *Figure F4* in Appendix F). A natural logarithmic transformation

applied to the conduct and peer problem residual distributions improved the skew of the conduct problems variable, but had little effect on the peer problems variable (see *Figures F5* and *F6* respectively in Appendix F). Influential cases exceeding mahalanobis distances of 25 were removed from the dataset. A concern is that heteroscedasticity and inflated standard errors of the estimates in regression analyses can result from skewed variables, which can reduce the statistical power of significance tests (Cozby, 2009; Tabachnick, & Fidell, 1996). However, multiple linear regression does not require an assumption of normal distribution when the sample is sufficiently large, which in previous simulations is often under 100 cases (Lumley, Diehr, Emerson, & Chen, 2002)

Results

Descriptive Statistics

Descriptive statistics, including means (*M*) and standard deviations (*SD*) for the key study variables are presented in Table 2.

Table 2

Descriptive Statistics

Variables	*n*	*M*	*SD*
Parental involvement	384	12.57	3.27
Grandmother involvement	384	13.83	5.31
SDQ Hyperactivity	384	3.69	2.10
SDQ Emotional problems	382	3.46	2.43
SDQ Conduct problems	384	2.34	1.70
SDQ Peer problems	381	2.02	1.79
SDQ Prosocial behaviour	384	7.73	1.74
SDQ Total difficulties	379	11.49	5.07

Reliability of the Maternal Grandmother Involvement Scale

The maternal grandmother involvement scale was found to be highly reliable (11 items; $\alpha = .88$).

Independent Samples *t*-test

A one-tailed independent samples *t*-test indicated that there were no significant differences in the level of involvement of coresident maternal grandmothers ($M = 14.43$, $SD = 5.22$) and non-coresident maternal grandmothers ($M = 13.61$, $SD = 5.34$), $t\ (382) = -1.35$, $p = .10$

Correlations

Table 3 summarises the results of the correlational analyses. There were no significant correlations between maternal grandmother coresidence and adolescents' adjustment or prosocial behaviours. Maternal grandmother involvement was significantly positively correlated with prosocial behaviour and significantly negatively correlated with emotional problems, indicating that greater grandmother involvement was associated with more prosocial behaviours and less emotional problems among grandchildren. Maternal grandmother involvement was also significantly negatively correlated with adolescents' total adjustment difficulties. There were no statistically significant associations between maternal grandmother involvement and the other SDQ subscales.

There were some significant associations between the control variables and the outcome measures. Females showed significantly less hyperactivity and significantly more emotional problems than males. Older respondents reported significantly more total difficulties than younger respondents. Children in school 2 showed more hyperactivity, more emotional problems, and more total difficulties, but less peer problems than children in school 1. Black African adolescents reported significantly fewer emotional problems than coloured participants. The presence/absence of non-parental adults in the family home was not significantly correlated with adolescents' adjustment difficulties or prosocial behaviours. Greater parental involvement was significantly correlated with less hyperactivity and fewer emotional problems, conduct problems, peer problems and total difficulties, as well as with more prosocial behaviours in adolescents.

Hierarchical Multiple Regression Analyses

Table 4 summarises the results of the four-step hierarchical multiple regression analyses. Separate regressions were run for each SDQ subscale and for the total difficulties scale. However, findings are discussed here holistically, as many of the key study variables failed to explain a significant proportion of the variance associated with adolescents' reported outcomes.

Covariates. Step 1, which included the covariates, accounted for 9.3% of the observed variance in hyperactivity, F (6,372) = 6.36, p <.001. Greater parental involvement was significantly associated with fewer adolescent hyperactivity problems, as was being female and attending school 1.

The covariates explained 14.3% of the variance in emotional problems, F (6,370) = 10.28, p <.001. Greater parental involvement, being male and attending school 1 were significantly correlated with lower levels of emotional problems.

Table 3

Correlations between Covariates, Maternal Grandmother Coresidence, Maternal Grandmother Involvement, SDQ Subscales and SDQ Total Difficulties (*n* = 374)

Variables		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Gender[a]	-													
2.	Age	-.07	-												
3.	School[b]	-.15**	-.06	-											
4.	Race[c]	-.34***	-.01	-.36***	-										
5.	Non-parental adults[d]	-.03	-.01	-.08	.01	-									
6.	Parental involvement	-.03	-.14**	.01	-.16**	-.15**	-								
7.	Grandmother coresidence	.06	-.11*	.01	-.05	.39***	-.01	-							
8.	Grandmother involvement	-.02	-.09	-.09	.01	.05	.23***	.06	-						
9.	Hyperactivity	-.12*	.08	.20***	-.06	.03	-.19***	-.01	-.09	-					
10.	Emotional problems	.20***	.04	.17***	-.15**	.08	-.23***	.07	-.13*	.19***	-				
11.	Conduct problems	.02	.09	-.01	.09	.06	-.23***	.01	.02	.40***	.17**	-			
12.	Peer problems	.04	.06	-.15**	.09	.07	-.22***	-.03	-.07	.04	.24***	.13**	-		
13.	Prosocial behaviour	.09	.03	.08	-.04	-.01	.16***	-.05	.23***	-.15*	.03	-.10	-.06	-	
14.	Total difficulties	.07	.11*	.11*	-.04	.09	-.34***	.02	-.12*	.65***	.70***	.62***	.53***	-.10*	-

[a]0 = male, 1 = female. [b]0 = school 1, 1 = school 2. [c]0 = coloured, 1 = black.[d]0 = non-coresident non-parental adults, 1 = coresident non-parental adults.
*p < .05. **p < .01. ***p < .001.

The covariates accounted for 6.7% of the explanatory variance in adolescents' conduct problems, F (6,372) = 4.47, p <.001, with greater parental involvement as a significant predictor of fewer adolescent conduct problems.

The covariates explained 7.2% of the variance in adolescents' peer problems, F (6,369) = 4.79, p <.001. Greater parental involvement and attendance at school 2 were significantly associated with fewer peer problems.

The covariates accounted for 5.9% of the variance in adolescents' prosocial behaviours, F (6,372) = 3.92, p =.001. Greater parental involvement, being female and attendance at school 2 significantly predicted more adolescent prosocial behaviours.

Lastly, the covariates explained 14% of the variance in adolescents' total difficulties, F (6,367) = 9.76, p < .001. Both greater parental involvement and attendance at school 1 significantly predicted fewer total adjustment difficulties.

Grandmother coresidence. Taking the control variables into account, the addition of maternal grandmother *coresidence* at step 2 failed to explain additional variance associated with adolescents' adjustment difficulties or prosocial behaviours. There were therefore no significant differences in the reported adjustment outcomes of adolescents residing in three-generation households and those residing in two-generation households.

Grandmother involvement. After accounting for the variables in the previous steps, the addition of maternal grandmother *involvement* at step 3 explained a further 4.2 % of the variance in adolescents' prosocial behaviours, F (1,370) = 17.38, p <.001. Greater grandmother involvement was significantly correlated with more prosocial behaviour, even when the other variables in the model were partialled out. No significant associations were found between maternal grandmother involvement and the other SDQ measures.

Grandmother coresidence × involvement. The inclusion of the interaction term at step 4 failed to explain additional variance in the adolescent adjustment outcome variables. Therefore, no significant interactions were found between maternal grandmother residential status and involvement in predicting adolescents' reported adjustment on any of the SDQ subscales or the total difficulties scale.

Table 4

Hierarchical Multiple Regression Analyses Predicting Adolescent Adjustment from Covariates, Maternal Grandmother Coresidence and Maternal Grandmother Involvement

	Adolescent adjustment											
	Hyperactivity		Emotional problems		Conduct problems		Peer problems		Prosocial behaviour		Total difficulties	
Predictors	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	B	ΔR^2	β	ΔR^2	β
Step 1	.093***		.143***		.067***		.072***		.059***		.14***	
Gender		-.12*		.21***		.04		.03		.18***		.09
Age		.06		.03		.10		.02		.08		.08
School		.17**		.19**		.03		-.13*		.18**		.13**
Race		-.06		-.05		.10		.04		.09		-.02
Non-parental adults		.01		.06		.02		.05		.05		.03
Parental involvement		-.19***		-.21***		-.22***		-.19***		.15**		-.31***
Step 2	.001		.001		.000		.002		.005		.000	
Grandmother coresidence		.00		.04		-.00		-.04		-.08		.01
Step 3	.001		.003		.007		.001		.042***		.000	
Grandmother involvement		-.00		-.05		.08		-.01		.22***		.01
Step 4	.002		.001		.000		.005		.001		.005	
Coresidence × involvement		-.05		-.03		.02		-.08		-.03		-.08
	R = .31 Adj.R^2 = .07		R = .38 Adj.R^2 = .13		R = .27 Adj.R^2 = .05		R = .28 Adj.R^2 = .06		R = .33 Adj.R^2 = .11		R = .38 Adj.R^2 = .12	
n	379		377		379		376		379		374	

[a]0 = male, 1 = female. [b]0 = school 1, 1 = school 2. [c]0 = coloured, 1 = black.[d]0 = non-coresident non-parental adults, 1 = coresident non-parental adults.
*p < .05. **p < .01. ***p < .001.

Discussion

This study investigated the implications of maternal grandmother coresidence and involvement for adolescent adjustment in SA. It was hypothesised that maternal grandmothers who resided in three-generation households would be more involved with grandchildren than non-coresident grandmothers. In addition, it was expected that adolescents with a coresident maternal grandmother would be better adjusted than those with a non-coresident maternal grandmother. Furthermore, it was hypothesised that greater grandmother involvement would be associated with better adjustment outcomes for adolescents. Lastly, it was expected that these associations would be stronger for adolescents coresiding with than those not coresiding with a maternal grandmother. Within a sample of coloured and black African learners from two schools in Cape Town, limited support emerged for the study hypotheses.

First, no significant differences were reported between the involvement of coresident and non-coresident grandmothers. Most international studies have found that coresident grandmothers are typically more likely to be involved in caregiving, setting and enforcing rules, providing discipline to grandchildren and providing financial support to the family than non-coresident grandmothers (Bengtson, 2001; Hamilton, 2005; Pebley & Rudkin, 1999). There may be a number of reasons for these discrepancies. One possible reason is that many of these aforementioned studies have relied on samples of primary school children. Grandmother involvement may differ depending on the developmental stage of the child (Pittman & Boswell, 2007). For instance, coresident grandmothers may move into the home when grandchildren are young to help out with childcare and to assist the family financially (Pittman, 2007). However, as grandchildren and grandmothers get older, grandmothers may move in with their adult children due to their own health or financial needs and are more likely to be the recipients rather than the providers of caregiving support (Pittman, 2007). Consequently, they may assume a more ancillary role, similar to that of their non-coresident counterparts (Pong & Chen, 2010). Alternatively, there is a limited body of empirical work, which suggests that grandmothers remain important and active figures in their grandchildren's lives, irrespective of household living arrangements (Chen et al., 2011). This has been substantiated by a study conducted with grade 8 and 9 learners in Cape Town, which found that more than 50% of the participants saw non-coresident maternal grandmothers on a daily basis, and 82 % saw them either daily or weekly (Wild, Gaibie, & Mia, 2012).

Second, after controlling for adolescent demographics and characteristics of the family, adolescents who coresided with their maternal grandmothers reported similar levels of adjustment to adolescents who did not coreside with their grandmothers. Studies investigating the associations between grandmother coresidence and adolescent outcomes have yielded a mixed pattern of results, with adolescents in three-generation households variously displaying similar, worse and better adjustment than those in two-generation households (Dunifon, 2013; Elder & Conger, 2000; Hamilton, 2005). However, significant differences in adolescent outcomes between family household structures have been found to disappear when co-occurring factors in the family, such as parental involvement and household SES, are taken into account (Pittman, 2007). One implication of these findings is that factors in the family, rather than the living situation per se, may account for these differences.

Third, greater grandmother involvement was significantly associated with adolescent reports of more prosocial behaviour, even after controlling for adolescent demographics, parental involvement and the presence of non-parental adults and grandmothers in the home. The finding that grandmother involvement was associated with more prosocial behaviour is consistent with the results of similar studies conducted internationally (Attar-Schwartz et al., 2009; Yorgason et al., 2011), including that of a study conducted in a public high school in Cape Town (Gaibie, 2012). One possible interpretation of this finding is that the grandmother-grandchild relationship is important for fostering key socio-emotional skills in grandchildren that are central to prosocial development (Yorgason et al., 2011). How this occurs however, is largely speculative. Grandmothers may model prosocial behaviour to grandchildren or directly teach certain socio-emotional skills, such as sharing, cooperation, and helping others (Smith, 2005). This is corroborated by research, which suggests that regardless of their actual level of caregiving responsibility, grandmothers often view their primary function in the family as that of role model and personal mentor (Hayslip & Kaminski, 2005). In addition, there is some evidence, which suggests that through helping, comforting and caring for an elderly grandmother, grandchildren may learn to develop empathy and prosocial interpersonal skills (Hayslip & Kaminski, 2005).

Fourth, greater grandmother involvement was significantly correlated with adolescent reports of fewer emotional problems and fewer total adjustment difficulties. These results support previous research (Attar-Schwartz et al., 2009; Griggs et al., 2010). However, in the present study, this association disappeared when adolescent demographics, parental involvement and grandmother coresidence were taken into consideration. A limitation of

previous research is that in predicting adolescent adjustment from grandparental involvement, most studies have failed to control for parental involvement in the statistical model (Attar-Schwartz et al., 2009; Griggs et al., 2010).

In addition, no associations were found between grandmother involvement and adolescent conduct problems, peer problems, or hyperactivity. However, prior studies have found associations between grandparental involvement and these adjustment difficulties (Griggs et al., 2010; Ruiz & Silverstein, 2007). For instance, adolescents who confide in grandmothers about personal problems have been found to display heightened levels of hyperactivity and more conduct and peer difficulties (Hayslip & Kaminski, 2005; Ruiz & Silverstein, 2007). Conversely, grandmothers' involvement in adolescents' hobbies and interests has been associated with a lower incidence of peer problems, while involvement in schooling has been associated with a lower incidence of conduct problems (Griggs et al., 2010). The ambiguity of these findings underscores the need for future research in this area. One possible implication of these inconsistencies is that the importance of the grandmother-grandchild relationship for adolescent adjustment may depend on the extent to which grandmother involvement is sensitive to the characteristics, needs and developmental stage of the child and to changing family and social circumstances (Lavers & Sonuga-Barke, 1997).

Lastly, this study did not detect any significant interactions between grandmother coresidence and involvement. Therefore grandmother involvement was associated with more prosocial behaviour, but not with any other aspect of adjustment, regardless of the grandmother's residential status. This finding is potentially consistent with research on non-coresident grandmothers, which suggests that the quality of the grandmother-grandchild relationship, rather than proximity or frequency of contact, may be more important for understanding adolescents' prosocial development (Griggs et al., 2010; Ruiz & Silverstein, 2007).

Study Limitations and Directions for Future Research

This study has several limitations that should be considered and addressed by future research. One limitation of this study is that data are based solely on adolescent self-reports, without consideration of the perceptions of parents and grandmothers. On the one hand, determining the opinions and attitudes of young people is important, as there is limited research on the links between grandmother involvement and grandchild adjustment outcomes from the perspective of adolescents (Griggs et al., 2010). In addition, the way in which adolescents perceive the involvement of grandmothers may be more important for adolescent adjustment than the actual nature of this involvement (Attar-Schwartz et al., 2009; Griggs et

al., 2010). However, self-reports are often subject to response biases and grandchildren have been found to underestimate the degree of closeness to grandmothers in comparison to grandmothers' perceptions (Barnett et al., 2010; Flouri et al., 2010; Monserud & Elder, 2011). The reliability of future studies would be enhanced by supplementing adolescent reports with accounts from parents and grandmothers.

A second limitation is that due to convenience sampling, the study sample was relatively unrepresentative of the ethnic and cultural diversity of adolescents in SA. Potentially relevant subgroups were too small for meaningful analyses. However, there is good reason to restrict the sample to black African and coloured students, in that they constitute the majority of the SA population and yet are understudied populations (Department of Social Development, 2012). In addition, black African and coloured learners are far more likely to reside in three-generation households than any other ethnic group (Department of Social Development, 2012). Nevertheless, future studies could enhance the generalisability of these findings by recruiting more diverse samples.

A third limitation is that due to time constraints, this study made use of a cross-sectional correlational research design. Therefore, it is not possible to determine the direction of the relationships between study variables and draw firm conclusions about causality. For instance, grandmothers who are nurturing and supportive may help to foster the development of prosocial attitudes and behaviours in grandchildren. Alternatively, grandchildren who are caring, empathic and considerate may also encourage greater grandmother involvement. Studies adopting longitudinal designs are needed to determine the direction of these effects as well as the long-term implications of grandmother involvement and coresidence. Furthermore, future research should investigate the qualitative aspects of grandmother involvement, such as motivations for involvement and the nature of the grandmother-grandchild relationship, in order to determine the processes linking grandmother involvement to adolescents' prosocial behaviour.

A fourth limitation is that data on family household structure are based only on learners' current residential circumstances. Therefore, information on family and household transitions, including the length of time since entry into the present household and the age at which this transition occurred, is not available. The notion that households are relatively static and bounded domestic units, fails to take into account the complex and fluid nature of family living arrangements in SA (Sibanda, 2011). For instance, by the time they reach adolescence, many children may have moved between multiple households and between multiple caregivers (Ziehl, 2001). In addition, household composition is cyclical, rather than

linear and stable (Ziehl, 2001). For instance, a three-generation household may become a two-generation household when a grandmother passes away. When members of the younger generation have children, the household returns to its former composition (Ziehl, 2001). Furthermore, household structures are not only fluid, but they are also porous, in that children may be members of more than one household at the same time (Budlender & Lund, 2011). These family variations and transitions are likely to have an important bearing on the grandmother-grandchild relationship. Therefore, future research should contain more nuanced information about family living arrangements, including information about the history of the adolescent's family situation, the number of parents in the household and the length of time residing in the present household(s).

A fifth limitation is that this study focused solely on the involvement and coresidence of the maternal grandmother. This decision was guided by theoretical and practical considerations. A considerable body of research indicates that maternal grandmothers are more likely than paternal grandmothers to be involved with grandchildren on multiple dimensions, such as talking to grandchildren about future plans, providing advice and emotional support, providing discipline, attending events and providing financial assistance (Griggs et al., 2010; Yorgason et al., 2011). Maternal grandmothers are also far more likely to coreside with their adult children and grandchildren than grandfathers and paternal grandmothers (Hamilton, 2005; Hunter, 1997; Pearson et al., 1990). In addition, there was not sufficient data to analyse the involvement of each grandparent. However, some research suggests that grandfathers may play a qualitatively different role to grandmothers (Pearson et al., 1990). For instance, while grandmothers often become involved in grandchildren's education by assisting with homework and providing career advice, grandfathers may become involved in a less formal way, typically by taking children on historical or nature trips and passing on knowledge about certain places or historical events (Griggs et al., 2010). The extent to which the roles of maternal and paternal grandmothers differ remains largely untheorised. It may be useful to determine the involvement of all grandparents. In addition, future research should explore whether this involvement has different implications for adolescent adjustment outcomes.

A sixth limitation is that the present study only assessed certain aspects of adolescent adjustment, based on the SDQ subscales. As a result, other aspects of adjustment, such as adolescent academic achievement, were neglected. This is an important omission as adolescents with a coresident grandmother have been found to have higher and in some cases, lower educational attainment than adolescents without a coresident grandmother (Monserud

& Elder, 2011; Pong & Chen, 2010). A more comprehensive measure of adjustment would be important to probe these findings and to gain a more holistic understanding of the implications of grandmother coresidence and involvement for the well-being of adolescents.

An additional limitation is that factors that are likely to inform the nature of grandmother involvement and the grandmother-grandchild relationship, such as the reasons for coresidence, the owner of the household (i.e. parent or grandmother) and the age and health of the grandmother, were not considered in this study. Identifying the socio-demographic and family factors related to grandmother involvement may be a useful area of study for future research.

Study Contributions and Implications

In spite of its shortcomings, this study has provided some additional support for a growing body of international research pointing to the potential benefits of grandmother involvement for the prosocial development of adolescent grandchildren (Attar-Schwartz et al., 2009; Griggs et al., 2010; Yorgason et al., 2011). Grandmothers have traditionally been viewed as secondary or supplementary members of the family in the developmental literature (Monserud & Elder, 2011). However, the findings of this study suggest that grandmothers may have an important role to play, distinct from that of parents, in fostering key prosocial attitudes and behaviours in the younger generation during the often turbulent period of adolescence. However, as noted earlier, it is not clear whether or not this is a causal relationship. A possible implication of the present research is that grandmothers are valuable members of the family and should be encouraged to nurture positive and supportive relationships with grandchildren. Evidence from this study serves as a platform for exploring the grandmother-grandchild relationship further.

In addition, this study was able to assess the reliability of the maternal grandmother involvement scale in an urban sample of SA adolescents. Although this sample was relatively small and homogenous, the present study provides some preliminary evidence that the grandmother-grandchild relationship can be reliably measured in the local context, and may have similar implications for adolescent adjustment outcomes to those observed in the global North.

Further, this is one of the only local studies to assess how coresidence with a grandmother may be related to adolescents' behavioural, emotional and social adjustment. Although no significant associations were found between grandmother coresidence and adolescent outcomes, considering the high prevalence of three-generation living arrangements in SA, as well the cultural significance and financial importance of communal

living in this country, this remains an important area of study for future research (Sibanda, 2011). The findings suggest that the associations between grandmother coresidence and adolescent adjustment outcomes may not be as straightforward as often assumed. This study has provided some of the groundwork for more in-depth analyses of these complex dynamics.

Furthermore, this is one of the few studies to attempt to systematically address how the "quantity" relative to the "quality" of contact between grandmothers and their grandchildren may be differently associated with adolescent outcomes. Consistent with extant theories in the literature (Griggs et al., 2010), the results of this study imply that grandchildren may reap the benefits of a positive and nurturing relationship with a grandmother even if they do not coreside in the same household.

Conclusion

With enhanced life expectancy, marital breakdown and diversifying family structures, grandmothers are becoming increasingly involved in the lives of their grandchildren in the 21st century (Bengtson, 2001; Yorgason et al., 2011). However, adolescents' relationships with their grandmothers have been largely neglected in the SA research literature. This study assessed the implications of maternal grandmother coresidence and involvement for adolescent adjustment in a sample of grade 8 and 9 learners in Cape Town, SA. Findings indicated that there were no significant differences in the involvement of maternal grandmothers who coresided with grandchildren and their parents in three-generation households compared to non-coresident grandmothers. In addition, there were no significant differences in the adjustment outcomes of adolescents residing in three-generation and two-generation households. Greater grandmother involvement was associated with more adolescent prosocial behaviour among the whole sample, even after controlling for parental involvement and demographic characteristics. This study has added to the limited international research literature investigating the grandmother-grandchild relationship and has provided some insight into the complexities of family living arrangements in the SA context. These findings underscore the need to move beyond the family nucleus to consider how extended family members, including grandmothers, may influence adolescent well-being. In addition, further research is needed to provide a clearer understanding of how the association between grandmother involvement and prosocial behaviour might come about and to examine this in more diverse samples.

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