Associations between grandparental involvement and psychological outcomes in adolescents facing family adversity.

SARAH ANNE WESTWOOD

WSTSAROO2

A dissertation submitted in partial fulfilment of the requirements for the award of the degree of Master of Arts (Psychological Research)

Department of Psychology

Faculty of the Humanities

University of Cape Town

Supervisor: Associate Professor Lauren Wild

February 2016

COMPULSORY DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature: Signed by candidate Date: 15 February 2016

Author's Note:

The financial assistance of the National Research Foundation (NRF) towards this research is hereby acknowledged. Opinions expressed and conclusions arrived at, are those of the author and are not necessarily to be attributed to the NRF.

Table of Contents

List of Tables

List of Figures

Acknowledgements

I would like to thank the following people:

My supervisor, Associate Professor Lauren Wild, thank you for your gentle and reliable support. Your patience and encouragement are deeply appreciated. It has been a privilege to work with someone as knowledgeable as you.

My statistics hero, Prof. Colin Tredoux, your insight and expertise have been invaluable.

The principals at the schools where data were collected for kindly granting us access to their pupils.

The participants in this study who took time to fill out the survey for us.

My student colleagues who helped with the data collection, particularly Jessica Levetan, Katharina Keck, Bianca Burridge and Wade Profe.

My “team”, Kate, Michéle, Claire and Kerryn, you have been extraordinary. Thank you for believing in me.

My family and friends, for cheering me on when things were going well and when they were overwhelming.

Soli Deo Gloria

Abstract

With an increase in life expectancy, there is greater potential for grandparents to be involved in the lives of their grandchildren. The aim of this study was to investigate whether grandparental involvement was related to fewer negative psychological outcomes (i.e. peer, emotional, hyperactivity and conduct problems), and whether this association remained as a protective effect when adolescents faced high levels of family adversity. A cross-sectional study consisting of 536 Black and Coloured adolescents (ages 13-15 years) from two schools located in the greater Cape Town area was conducted. The results of bivariate and SEM analyses demonstrated that grandparental involvement was associated with a reduction in the presence of all negative psychological outcomes, which shows that grandparental involvement can play a compensatory role in adolescents' lives. The results of a path analysis indicated that grandparental involvement only has a protective effect for reducing peer problems for female adolescents who are experiencing high levels of family adversity. No other association between grandparental involvement and negative psychological outcomes was significant when the adolescent was facing high levels of family adversity. Together the results of this study suggest that grandparental involvement can have a positive effect in adolescents' lives, and therefore future research should move beyond simply looking at an adolescent's immediate family as a source of support.

Keywords: Grandparent, adolescent, intergenerational relationships, SDQ, family adversity

Introduction

Adolescence is the developmental phase that characterises the teenage years, and is traditionally viewed as a period of transition (Attar-Schwartz, 2015; Coleman, 2011). From a psychosocial perspective, adolescence is a phase distinct from childhood wherein individuals, though still dependent on their parent or guardian, begin to take steps toward adulthood and independence (Steinberg & Morris, 2001). This phase must be negotiated carefully, as it is a particularly important phase in identity development. Erikson (1959) suggests in his theory of psychosocial development that the key conflict that occupies an adolescent's development process is the tension between identity development and role confusion. In order for an adolescent to successfully navigate this stage, the social structures in which they find themselves must allow for change while retaining connection and communication. For the most part adolescents have a positive relationship with their nuclear family, extended family and peer group which aids in their successful navigation of this stage (Coleman, 2011; Masten & Shaffer, 2008; Peterson & Bush, 2013). If however an adolescent experiences a large number of stressors during this phase of their lives, the chance of their developing negative psychosocial outcomes increases (Flouri, Buchanan, Tan, Griggs, & Attar-Schwartz, 2010).

Adolescents under stress

It is well established in the literature that exposure to cumulative stressful life events is associated with an increase in negative outcomes (e.g. Burchinal, Roberts, Hooper, & Zeisel, 2000; Carter, Garber, Giesla, & Cole, 2006; Peterson & Bush, 2015). These negative outcomes include psychopathology (e.g. conduct and emotional difficulties), substance abuse, anti-social behaviour and negative educational outcomes (Simmons, Burgeson, Carlton-Ford, & Blyth, 1987). All these negative outcomes have been observed in both male and female adolescents. However, males tend to show higher incidence of conduct difficulties and substance use, whereas females show higher incidence of emotional difficulties (Flouri et al., 2010; Hankin & Abramson, 2001).

The stressors that can lead to the negative outcomes described above can originate in a number of different domains of an adolescent's life. For example, stressors may emanate from their relationship with their parents, stressors affecting other family members, problems with their peers or traumatic events taking place in the community (Tiet et al., 1998). Knowing the specific source or combination of sources of stressors is

essential for intervention and prevention programmes, as it is unfeasible to design programmes to reduce stress and thus negative outcomes that target too diverse an array of stressors (Probst, 2013). Thus it is advisable that researchers look at specific types of stress to see which adverse outcomes they are related to, and then to design programmes to reduce the occurrence of that stressor.

The recent trend in research concerning children and families has been to move away from a focus on the parent-child dyad, and rather to focus on the individual in the context of the whole family system (Cox & Paley, 2003). However, it seems that in family stress research there is still a larger focus on the stress emanating from parent-child dyad than there is on stress emanating from the family system as a whole (Bornstein & Sawyer, 2005). Adolescence is a time when an individual becomes more embedded in their social environment and relationships with other family members become more important sources of social support alongside that they receive from their parents (Barrera & Li, 1996). This study will therefore, in line with recent trends in children and families research, particularly look at the effects of stressors that stem from problems in the family system, not just the child-parent dyad.

The relationship between stress and negative outcomes is not a simple one; a positive linear relationship does not exist between the two. Rather a threshold model better explains the relationship. That is, there comes a point where the quantity and intensity of stressors no longer increases the emergence of negative outcomes. For example, Flouri et al. (2010) showed that the relationship between proximal life stressors and broad-based psychopathology is best described as a curvilinear relationship. A second reason that the relationship between stressors and negative outcomes is not straightforward is because in the face of multiple stressors some adolescents do not develop negative outcomes. These adolescents are described as resilient.

Resilience is defined as a dynamic process wherein an individual, although exposed to adversity, still displays positive outcomes (Luthar, Cicchetti, & Becker, 2000; Masten, 2001). This begs the question why some adolescents develop poor outcomes and others do not, assuming they had all been exposed to more or less the same amount of adversity. One way to study resilience to try and answer this question is by using a variable-focused approach. In a variable-focused approach the researcher uses multivariate methods to establish which variables (individual or environmental) “function to compensate for or

protect the individual from negative consequences of risk or adversity" (Masten, 2001, p. 229). A compensatory effect is one in which positive assets counterbalance the effect of negative stressors. Those individuals who have more positive assets than stressors show better adjustment. Statistically, compensatory effects are significant main effects in a multivariate statistical analysis. On the other hand, a protective effect is detected statistically when a moderator or interaction effect significantly predicts positive psychological adjustment. The interaction effect would indicate that under stressful conditions a particular variable is associated with better outcomes, but this same variable is not necessarily associated with better outcomes when the individual is not under stress. In order to develop hypotheses about which variables may promote resilience appropriate theoretical models were consulted.

Theoretical Frameworks

For the purposes of this dissertation there are four theoretical models that are useful for developing specific hypotheses about potential protective factors for adolescents in the context of adversity. These theories are 1) ecological systems theory, 2) social capital theory, 3) social support theory, and 4) family systems theories. These theories will be discussed from broadest to most specific.

Ecological systems theory. Urie Bronfenbrenner (1979) proposed a theory of human development that differed from traditional stage theories of development that had dominated human development sciences for the most part of the twentieth century. Bronfenbrenner's theory emphasises the role that the environment plays in shaping the developmental course of an individual. The environment, Bronfenbrenner claims, can be understood as four different systems. They are the microsystem, mesosystem, exosystem and macrosystem. The microsystem refers to the immediate environment of the child. The players in the immediate environment (e.g. parents, siblings or peers) interact with and react to an individual which in turn influences how they will develop. The mesosystem incorporates the way in which players in the microsystem interact with one another. The exosystem includes individuals or organisations with whom the individual has less frequent or direct contact and that influence the individual indirectly. This may include the extended family or the neighbourhood. Finally, the macrosystem refers to the culture of the environment that the individual grows up in. Things that help to determine culture such as laws and the economy can have a direct or indirect bearing on the individual's

developmental outcomes. At each of these levels of an individual's environment there are myriad variables that may have a protective effect for an adolescent under stress. It is essential that when trying to determine what variables may promote resilience, all the levels of Bronfenbrenner's model are taken into consideration. Bronfenbrenner's model is a very broad spanning model; this is both a strength and a limitation. It is a strength in that it shows that human development is a broad process made up of multiple components, but is a limitation in that it does not show *how* these components work together to form protective developmental processes. As a result of this limitation other theories must be consulted to help to develop hypotheses about how compensatory and protective processes come about.

Social capital theory. Social capital has been a fashionable concept in the social science literature for the last few decades and the edges of its definition have become blurred. Based on a review of the work of three social capital theorists - Bourdieu, Loury and Coleman - Portes (1998) defines social capital as "the ability of actors to secure benefits by virtue of their membership in social networks or other social structures" (p. 6). It is theorised that individuals who have higher levels of social capital are more easily able to access these "benefits" when they encounter stressors. There are three dimensions of social capital that Schaefer-McDaniel (2004) identified as being particularly important for young people. The first dimension is that young people must have and maintain a social network from which they can draw knowledge and support. Secondly, there must be trust and reciprocity between the individual and their contacts within the social network in order for the support to be actualised and not just theoretically available. Thirdly, young people must possess inward confidence of their acceptance in the social networks in which they find themselves. It is therefore theorised that adolescents who are in possession of greater social capital are more likely to demonstrate resilience in the face of stressors that they encounter.

Social support. Much of an individual's positive social capital is drawn from the support they receive from others in their social networks. These networks include groups from all levels of Bronfenbrenner's theory such as family, peers, school, residential community and governmental structures. It is of course possible that inter-relations between an individual and their social networks can be negative, but by definition social support has a positive effect on well-being (Heaney & Israel, 2008). House (1987) proposed

four different types of social support which have remained valid categories for the better part of three decades. These types of support are emotional, instrumental, informational and appraisal support. Emotional support refers to the love and care that an individual receives from someone close to them. Instrumental support takes the form of tangible support that a person may receive. An example of instrumental support is financial support that a parent with a sick child may receive. Informational support refers to the advice a person may receive from a professional or friend who has had similar experiences to them. Lastly, appraisal support pertains to an individual's attention being drawn to qualities and skills they possess that they can harness to handle a difficult situation. In the social support literature the buffering hypothesis is often referred to. This hypothesis states that social support can act as a moderator of the relationship between stressors and their possible outcomes. In line with this hypothesis, social support has been repeatedly shown to be a factor that reduces various negative effects of psychosocial stressors that adolescents experience (Sterrett, Jones, McKee, & Kincaid, 2011).

Family systems theories. The family is often the most readily and reliably accessible form of social support that an adolescent can draw on. According to family systems theories, families are deeply emotionally connected (Cox & Paley, 2003). Family systems theories suggest that the words and behaviours of one family member automatically elicit change in another family member by virtue of this deep emotional connection. One of the novel things about family systems theories is that it conceptualises the family as a system rather than focusing on the parent-child dyad. In this theory family connections of this deep emotional sort can exist between an individual and their extended family too. Based on family systems theories we can hypothesise that relationships with both nuclear and extended family members can act as a significant form of social support that incites change in the thoughts and behaviours of the individual adolescent.

Social support as a protective factor

The theoretical frameworks described above indicate that it is important to look to the environment of an individual to try and identify factors that may protect them from the negative effects of stress. In particular, it seems that drawing support from social connections, specifically family connections, may be especially important.

Piko, Luszczynska, and Fitzpatrick (2013) found that adolescents of a low socioeconomic status (SES) were less likely to develop depressive symptoms if they had

good quality and quantity of parental social support, compared to their counterparts who had low levels of parental social support. Parental support was also shown to reduce the incidence of internalising difficulties among adolescents who had been victimised by their peers (Davidson & Demaray, 2007). A study that investigated the differential role of mother and father social support in predicting substance use outcomes found that higher levels of perceived support from the mother and father each individually significantly decreased the probability of the adolescent smoking and using drugs (Piko, 2000). However, the magnitude of the effect of mother support was very small compared to the effect of father support. Additionally, high levels of perceived father support were shown to decrease the likelihood of an adolescent using alcohol, whereas mother support had no significant effect. This demonstrates that it is important to consider the individual as well as combined effect of parental support when conducting research aimed at understanding the role of parents in preventing or buffering the effect of psychosocial stressors.

Much of the research regarding the role of social support in adolescents' lives focuses on the role of parents. There is some research that has addressed the positive role other social relationships may play. This research indicates that different sources of social support (e.g. extended family, peer or significant non-parental adult) play a varied buffering role depending on the type of stressor. Helson, Vollebergh, and Meeus (2000) report different effects for peer and parental support in determining whether adolescents facing adversity develop emotional problems. Support from significant non-parental adults has been shown to improve psychosocial outcomes in adolescents whose parents are depressed or substance abusers (Beam, Chen, & Greenberger, 2002).

Generally, it seems that non-parental forms of social support can improve adolescent stress response outcomes, however many studies have found that the support from non-parental social relations is only a significant predictor of stress outcomes when it interacts with level of parental support. For example, Levitt et al. (2005) report that peer support and extended family support only affect adolescent adjustment when there is also a high level of parental support. It is probable that support from peers alone is not enough to have an effect on adjustment outcomes because peers may be going through the same difficulties or lack experience from which to draw their support efforts. Although this preliminary evidence suggests that the protective effect of the extended family may only be significant in an interaction with parental involvement, there are a few things that are worth

considering before writing off a possible main effect entirely. First, the composition of extended families is very variable in both size and type of relations, and it is therefore difficult to compare results between participants. Secondly, the geographic proximity of the extended family to the adolescent may affect the type and amount of support that they are able to offer (Griggs, Tan, Buchanan, Attar-Schwartz, & Flouri, 2010). In order to better understand this effect, it will be helpful to research the supportive role that particular members of the extended family have on adolescent adjustment outcomes, particularly in the face of psychosocial stressors.

Grandparental involvement as a compensatory factor.

Grandparents are important members of the extended family, and owing to changing demographic trends their role will change and possibly become increasingly important in decades to come. The proportion of the population that elderly people constitute is rising throughout the world. Global statistics estimate that in 2050 there will be 2000 million elderly people around the world - triple the number of elderly people alive in 2002 (United Nations, 2002). This phenomenon is true in South Africa too. In 2005 the growth rate of the elderly population in South Africa was 2.3%, which was four times higher than the general population growth rate (Joubert & Bradshaw, 2006). Because people are living longer and healthier lives, it is logical to conclude that grandparents will be part of their grandchildren's lives for a longer period of time, and that their involvement will be more active owing to the medical innovations that aid in keeping people healthy for longer. Therefore there is great potential for grandparents to have a positive impact on their grandchildren's lives, and thus understanding the mechanics of the relationship is important.

Previous research has shown that grandparental involvement in adolescents' lives is associated with prosocial behavioural outcomes (Attar-Schwartz et al., 2009). This association has also been observed in a South African sample (Wild & Gaibie, 2014; Levetan & Wild, 2015). Further research conducted in the United States and United Kingdom demonstrates that emotional closeness with grandparents is associated with fewer internalising and externalising problems (Attar-Schwartz, 2015; Lussier, Deater-Deckard, Dunn, & Davies, 2002; Silverstein & Ruiz, 2007). Additionally, Griggs et al. (2010) report that when grandparents take an interest in a child's education, hobbies and future plans, the child has fewer psychological difficulties. Research has also shown that the emotional involvement of grandparents is linked to improved engagement at school (Yorgason, Padilla-

Walker, & Jackson, 2011). The association between grandparental involvement and adolescent substance use has not been investigated to the same extent as other adjustment difficulties, however preliminary evidence suggests that grandparental involvement is not associated with substance (cigarette, cannabis and/or alcohol) use (Profe & Wild, 2015).

The variable "grandparental involvement" can be operationalised in many different ways. The most common operationalisation among the literature cited in this review is to use the score for the grandparent who is most involved. This is based on the assumption put forth in social capital theory that the quality of social relationships is more valuable that the quantity of relationships. There is also a collection of research that has only focused on the specific involvement of maternal grandmothers, as they tend to be the grandparent with whom adolescents have the most contact (e.g. Deleire & Kalil, 2002; Griggs et al., 2010; Levetan & Wild, 2015). No conclusions have been drawn as to whether there is a difference between grandmother involvement and grandfather involvement in predicting adolescent outcomes.

Grandparental involvement as a protective factor.

Smith and Drew (as cited in Barnett, Scaramella, Neppl, Ontai, & Conger, 2010) state that the role of grandparents in adolescent's lives becomes particularly important when the adolescents face adversity. During the last decade some preliminary research has been conducted to investigate the protective role of grandparents in the lives of adolescents who are facing adversity.

Grandparents have been shown to play a particularly protective role when a family is going through financial difficulties (Barnett et al., 2010; Botcheva & Feldman, 2004). Research in Bulgaria has shown that when a mother uses harsh parenting methods, within the context of economic difficulties, the probability of an adolescent developing depression is relatively high. If however, grandparental involvement in the adolescent's life is of good quantity and quality, the chance of them developing depression significantly decreases (Botcheva & Feldman, 2004). This effect was not observed where fathers displayed harsh parenting. Similarly, Barnett et al. (2010) found that grandparental involvement reduced the incidence of problematic externalising behaviours in children whose mother displayed intrusive and harsh parenting

Grandparental involvement has also been shown to be a protective factor for children whose parents suffer from a mental health condition. For example, Silverstein and Ruiz

(2006) found that adolescents and young adults in families where the mother suffers from depression are much less likely to also develop depression if they have strong relationships with their grandparents. Sheridan, Haight, and Cleeland (2011) conducted semi-structured interviews with young adolescents from Methamphetamine-involved families. During these interviews a large proportion of the interviewees spontaneously brought up the supportive role that their grandparents played in their lives. The children who brought up their healthy relationship with their grandparents were significantly less likely to display aggressive behaviour, externalising problems and social difficulties.

The role of the grandparent may be particularly important for adolescents who have only one involved parent. Deleire and Kalil (2002) found that children who lived in a three-generation single parent household were more likely to succeed academically, and less likely to partake in substance abuse than those who reside in a two-generation single parent household. This is particularly important in South Africa where the incidence of single parent households is high (Amoateng, Heaton, & Kalule-Sabiti, 2007).

As was discussed earlier in this review, it is the cumulative effect of stressful life events that have an impact on adolescent well-being. In a descriptive analysis Flouri et al. (2010) found that the time at which the stressful events occurred was particularly important for an adolescent's level of closeness to their grandparent to have a protective effect. Initially they found that there was no significant correlation between grandparental involvement and adolescent mental health outcomes. However, for adolescents who report high levels of *proximal* psychosocial stressors (i.e. events that have occurred in the last six months), the level of grandparental involvement significantly reduced the presence of broad based psychopathology outcomes. This was particularly true for the reduction of behavioural problems characterised by hyperactivity.

In addition to the timing of the stressful events, another factor that could potentially influence whether grandparental involvement plays a protective role in the life of an adolescent who is facing adversity is the gender of the adolescent. No previous research has specifically looked at whether the protective effect of grandparental involvement differs according to the gender of the grandchild, but there are theoretical reasons for taking the adolescent's gender into account. Firstly, female adolescents have been shown to be more sensitive to what is going on in their social environment than males (Martel, 2013). Thus it is possible that females are more sensitive to the involvement of their grandparents, and thus

when this involvement is present they benefit more than males, but if it is absent they are more aware of the deficiency and thus more affected by it. Additionally, research suggests that gender differences in the emergence of psychopathology tend to be observable in early adolescence (Wichstrøm, 1999). Females are at least two times more likely to develop mood, anxiety, eating and borderline personality disorders than males are during early adolescence (Martel, 2013). It is possible then that there may be greater variation in the psychological difficulties that females display in comparison with their male counterparts, and thus there is greater scope for grandparental involvement to have a positive effect. It therefore makes sense to analyse males and females separately to ensure that a lack of effect for males does not mask the effect for females.

The present research

The research conducted for this dissertation extended the work of Flouri and colleagues (2010). Many of the same measures were used so the results of the studies can be easily compared. There were two main ways that the results of this study sought to expand on the work done by Flouri and colleagues. Firstly, this study took place in a South African context, and consequently one of the aims of this study was to see whether grandparental involvement was protective in a South African sample of Black and Coloured adolescents aged thirteen to fifteen years. Secondly, Flouri and colleagues used a cumulative adverse life events scale as their measure of stress. This cumulative measure of stress included many different types of stressors namely, family, parental, community and peer stressors. It is possible that grandparental involvement may be protective in the face of some of these types of stressors, but not all. The primary aim of this study was therefore to determine if grandparental involvement is a protective or compensatory factor for adolescents in the context of family adversity.

Hypotheses

The hypotheses for this study were as follows:

H_1: Cumulative adverse family events will have a direct and positive association with a) emotional, b) conduct, c) peer and d) hyperactivity difficulties

H_2: Grandparental involvement will have a direct and negative association with a) emotional, b) conduct, c) peer and d) hyperactivity difficulties.

H_3: Grandparental involvement will negatively moderate the relationship between cumulative adverse family events and a) emotional, b) conduct, c) peer and d) hyperactivity difficulties.

H_4: Grandparental involvement will negatively moderate the relationship between cumulative adverse family events and a) emotional, b) conduct, c) peer and d) hyperactivity difficulties more strongly for females than for males.

Methods

Design and setting

This research forms part of a large-scale research project investigating grandparental involvement in adolescents' lives and its association with psychological well-being. The present research and associated projects were all conducted in the Cape Metropolitan area of the Western Cape in the Republic of South Africa (Levetan & Wild, 2015; Profe & Wild, 2015; Wild & Gaibie, 2015). Data were collected from adolescent participants using a pen-and-paper survey. The survey was handed out to participating adolescents in a classroom setting at the school they attended.

This study made use of a quantitative method. That is, all variables are quantified, measured and statistically analysed. A quantitative design is more appropriate than a qualitative design for this project because the research aims to investigate what the *effect* of grandparental involvement is on adolescent psychological well-being, as opposed to detailing the experiences of a small sample of adolescents (Bryman, 2012). A non-experimental cross-sectional design was used to establish the framework within which the quantitative data were collected. A cross-sectional design was used as it is an efficient way of collecting a large amount of data, and it is non-experimental as it would be unethical and impractical to randomly assign people to a stress condition (Bryman, 2012).

There were six main variables used in this study. Family adversity was the only exogenous variable. Grandparental involvement and the four psychological well-being variables (emotional, peer, conduct and hyperactivity) are all endogenous variables.

Participants

Sampling procedure. The sampling procedure used in this study was a combination of purposive and convenience sampling. The researchers invited eight high schools (Grades 8-12) in the Cape Metropolitan area to participate in the study. These eight schools were purposively selected based on the racial makeup of their student populations. That is, the learners in the schools' populations predominantly identified as Black African or Coloured. Schools where children were predominantly Black and Coloured were chosen because the vast majority (87%) of children in the Western Cape Province are Black or Coloured (Statistics South Africa, 2013). Additionally, these children have been shown to be more likely to be exposed to family disruption than White, Indian or Asian children (Statistics South Africa, 2013). There was however a convenient aspect to the sampling procedure.

That is that all the schools that were approached were within reasonable travelling distance for the researchers.

The principals of two of the eight schools consented to participate in the study. Both of these schools were co-educational and had a total learner population of between 1 000 and 1 200 adolescents. The first school is a dual-medium (English and Afrikaans) school located in the Cape Metropolitan Central District. The second school is an English-medium school located in the Southern District of the Cape Metropolitan area. The students at the second school were expected to be of a higher socio-economic status than the students at the first school. This assumption is based on the areas of the Cape Metropolitan in which these schools are situated and the annual school fees of each school. The annual school fees at the first school are ZAR1 800 per child, whereas the fees at the second school are ZAR15 500.

Selection criteria. Within each of the two schools only students in grades eight and nine were asked to participate in the study. These students were expected to be 13-15 years old. Students in these particular grades were selected because they are particularly likely to have experienced cumulative stressors around this time owing to events such as the transition from junior school to high school and the onset of puberty (Cameron & Wright, 1990 as cited in Richter, 2006; Cicchetti & Rogosch, 2002). These adolescents are more likely to be sensitive to family stressors than those who are not going through significant social and biological transitions.

Post-hoc exclusion criteria. A total of 671 surveys were returned, and the data were captured and checked. Once data capture was completed, the data were cleaned according to various criteria. Participants who were younger than 13 years or 16 years or older were excluded (*n* = 45). All participants who did not identify as Black African or Coloured were excluded from the sample (*n* = 39). Participants who had no living grandparents were also removed from the sample (*n* = 27). Finally, participants who completed less than 80% of either the grandparental involvement, adverse life events or Strengths and Difficulties questionnaires were excluded (*n* = 24). This left a total sample size of 536 participants.

Sample size calculation. According to Jackson (2003) and Kline (2011) the N:q hypothesis for estimating sample size is the most reliable sample size estimation when using the maximum likelihood method of estimation in structural equation modeling. The N:q hypothesis states that the ratio between the sample size (N) and the number of parameters

(q) should ideally be between 10:1 and 20:1. The SEM in this study has 47 parameters therefore the minimum sample size for this study is 470 participants.

Participant characteristics. The total sample size for this study was 536 participants. The average age of the participants was 13.94 years (*SD* = 0.70). The remaining participant characteristics of the sample are displayed in Table 1.

Table 1
Demographic Information about Study Sample

Characteristic		*n* (%)
Sex [a]		
	Male	221 (41.2)
	Female	310 (57.8)
Race		
	Coloured	480 (89.6)
	Black African	56 (10.4)
Home language [b]		
	English	464 (86.6)
	isiXhosa	31 (5.8)
	Afrikaans	22 (4.1)
	Other	7 (1.3)
Religion[c]		
	Christian	380 (70.9)
	Muslim	145 (27.1)
	Other	7 (1.3)

Notes.
[a] 5 participants did not report their sex
[b] 12 participants did not report their home language
[c] 4 participants did not report their religion

Measures

All measures were combined into a 13-page survey called *My grandparents and me* (Appendix A). The survey was made up of 12 measures. Four of these measures (described below) were used in this study.

Demographic information. Participants were asked to indicate their age, race, home language and religion.

Grandparental involvement. Participants were required to indicate which of their four grandparents they still have living and to which grandparent they feel they have the closest relationship. Following this, for each living grandparent, participants answered 11 questions about their relationship with that grandparent. These questions were based on a measure used by Griggs et al. (2010), and modified to ensure that the six domains of grandparental involvement (i.e. face-to-face contact, shared activities, intimacy, helping, instrumental, assistance and authority) noted by Mueller and Elder (2003) were assessed. Participants responded to each of the 11 questions using a three point Likert scale ("Not much", "Some" and "A lot"). These responses were scored 0, 1 or 2 respectively. A participant could score a minimum of 0 and a maximum of 22 on the grandparental involvement scale. Data from previous studies conducted in South Africa showed that this scale has an acceptable level of internal reliability for each of the four possible grandparents. The Cronbach's alpha scores ranged from 0.84 to 0.91 (Levetan & Wild, 2015; Profe & Wild, 2015; Wild & Gaibie, 2014). The score of the most involved grandparent was used to operationalise the grandparental involvement variable. The Cronbach's alpha for the most involved grandparent in this study is 0.87, which is an acceptably high value (Kline, 1999).

Psychological well-being. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used to measure adolescent psychological well-being. The SDQ contains 25 items that are assessed using a three point Likert scale. Response options for each statement are "Not true", "Somewhat true" and "Certainly true", and were scored 0, 1 or 2 respectively. Items 7, 11, 14, 21 and 25 were reverse coded.

The SDQ comprises five subscales. Four of these subscales were used in this study. The four psychological well-being subscales are hyperactivity, conduct problems, peer problems and emotional problems. The higher a participant's score on each of these subscales the lower their level of psychological well-being on the specific subscale. For each

subscale a participant can score a minimum of 0 and a maximum of 10. The SDQ can also be scored as a measure of internalising (emotional problems and peer problems) and externalising (conduct problems and hyperactivity problems) problems. Goodman and colleagues have published numerous studies that report good psychometric properties for the SDQ. The scale has been shown to be internally consistent (mean Cronbach α = .73) and to have good convergent, discriminant and concurrent validity (Goodman, 2001; Goodman, Meltzer, & Bailey, 1998; Goodman & Scott, 1999). This scale has previously been used successfully in South Africa (Cluver & Gardner, 2006; Cluver, Gardner, & Operario, 2009; Wild & Gaibie, 2014). The Cronbach's alphas for the current study were acceptable for emotional problems (α = 0.67) and hyperactivity (α = 0.66). The Cronbach's alpha levels for conduct problems (α = 0.51) and peer problems (α = 0.47) are low. However, for scales like this that measure personal attributes, alpha levels of 0.50 can be accepted, and as α = 0.47 is not far from 0.50 this measure will still be used in this study (Streiner, 2003).

Family adversity. A subset of items from the Adverse Life Events Scale (ALES; Tiet et al., 1998) was used to measure family adversity. The scale was based on the Life Events Checklist (LEC), which was originally used to diagnose Post-Traumatic Stress Disorder (Coddington, 1972). The LEC has been shown to have good test-retest reliability scores (mean kappa = .47) and the convergent validity is also acceptable (mean kappa = .55) (Gray, Litz, Hsu, & Lombardo, 2004). The ALES is a self-report measure and comprises 25 possible life events. These life events fall into four main categories: parental, family, peer or community. Only those questions referring to adverse family events were used in this study. Participants were asked to indicate whether they have *ever* experienced the event (distal event) and whether they have experienced the event in the *last six months* (proximal events). Only the scores from the proximal life events category were used because Flouri et al. (2010) found that these life events were stronger predictors of adverse outcomes than distal life events. Scores on this measure can range from 0 to 8. Cronbach's alpha is not the correct measure of reliability for this scale as it is for the other scales because the response options for this scale were only "yes" or "no" options as opposed to a Likert type scale (Field, 2009). However, the LEC on which this scale is based has acceptable levels of validity and test-retest reliability (Gray et al., 2004). Flouri et al. (2010) used the ALES and demonstrated that distal and proximal life stress were associated with psychopathology. This suggest that the scale has good construct validity.

Procedure

The Western Cape Department of Education gave permission to conduct this research (Appendix B) and the Faculty of Humanities at the University of Cape Town provided ethical approval (Appendix C). The principals of eight schools were approached and access to their students was requested by the researchers. Principals of two schools granted the researchers' request. The participants in the study were minors and as such parents were asked to consent to their child's participation in the study. The study was deemed to be of minimal risk and thus a passive method of obtaining parental consent was used. That is, a consent form (Appendix D) was sent home with each child a few days prior to data collection. Parents were asked to return the form only if they did not consent to their child participating in the study; parents who did not return the form were assumed to have given their consent. On the day of data collection the adolescents were given an assent form (Appendix E) to complete where they could indicate whether or not they would like to participate in the study. Both the consent form and the assent form provided information about the purpose of the study and the procedure that would be followed during data collection. Additionally, the forms alerted the participants and their parents that participation in this study was voluntary and that they could withdraw from the study at any time. They were also assured that their responses would be confidential and would remain anonymous.

The author and other researchers collected the data at a time that was most convenient for the schools. At the first school data collection took place during Life Orientation lessons, and at the second school data collection took place during a morning study period. At least one researcher or research assistant was present in the classroom while the learners completed the survey. Participants were offered the choice of completing the English, Afrikaans or isiXhosa version of the survey. One participant elected to answer the questionnaire in Afrikaans, the rest opted to answer the English version. Participants were given a maximum of 50 minutes to complete the survey, but most finished well within this time. Once the learners had completed the questionnaires, the researchers collected the surveys. The learners were then thanked for their participation and given an opportunity to ask any questions.

All the completed surveys were then stored safely at one of the researchers' homes while the author entered the data into a Microsoft Excel spreadsheet.

Data analysis

The aims of this study were to investigate whether grandparental involvement has any effect on psychological well-being in adolescents, and whether under conditions of adversity grandparental involvement can act as a protective factor against the development of negative psychological outcomes. These questions were investigated using structural equation modelling (SEM) and path analysis (PA). The analysis was conducted using R Studio version 0.99.489. In particular, the *lavaan* package (Rosseel, 2012) for R Studio was used to conduct the SEM and PA. An alpha level of 0.05 was used throughout this analysis.

Missing data. Missing data in the sample appeared to be missing at random, therefore the Maximum Likelihood method was used to estimate those missing data points (Kline, 2011).

Descriptive and bivariate statistics. Means, standard deviations, skewness and kurtosis scores were calculated for all numeric variables. A table of correlations between all latent variables was also produced.

Structural equation model. A SEM was run to test hypotheses one and two as depicted in the graphic model in Figure 1. There were six latent variables in this model. They were family adversity, grandparental involvement, emotional difficulties, peer problems, conduct difficulties and hyperactivity. Covariance terms were included between emotional and peer problems (i.e. internalising difficulties) and between conduct and hyperactivity problems (i.e. externalising difficulties). Initially the measurement models for each latent variable were tested using confirmatory factor analyses. If a measured variable did not load significantly on the latent variable and could justifiably be removed based on the nature of the question it was dropped from the analysis. The modification indices for each path in the SEM were also calculated, and any paths where the index value was over 20.00 were entered into the model as correlated pairs. The model was then re-run, and the new model and old model were tested to see whether the new model was statistically better than the first model when the Akaike information criteria were compared. Following this the overall structural model was evaluated to assess the statistical fit of the model. Kline (2011) suggests that more than one fit statistic be used when evaluating the fit of an SEM or PA thus four different tests were used in this study. The minimum function chi-square test, comparative fit index (CFI), root mean square error of approximation (RMSEA) and standardised root mean square residual (SRMR) were used to test the overall model fit. CFI,

RMSEA and SRMR are rules of thumb; the ideal scores for them are as follows: CFI > .90, RMSEA < .05 and SRMR < .05. The beta path coefficients were then evaluated in order to determine whether the relationships in hypotheses one and two were significant.

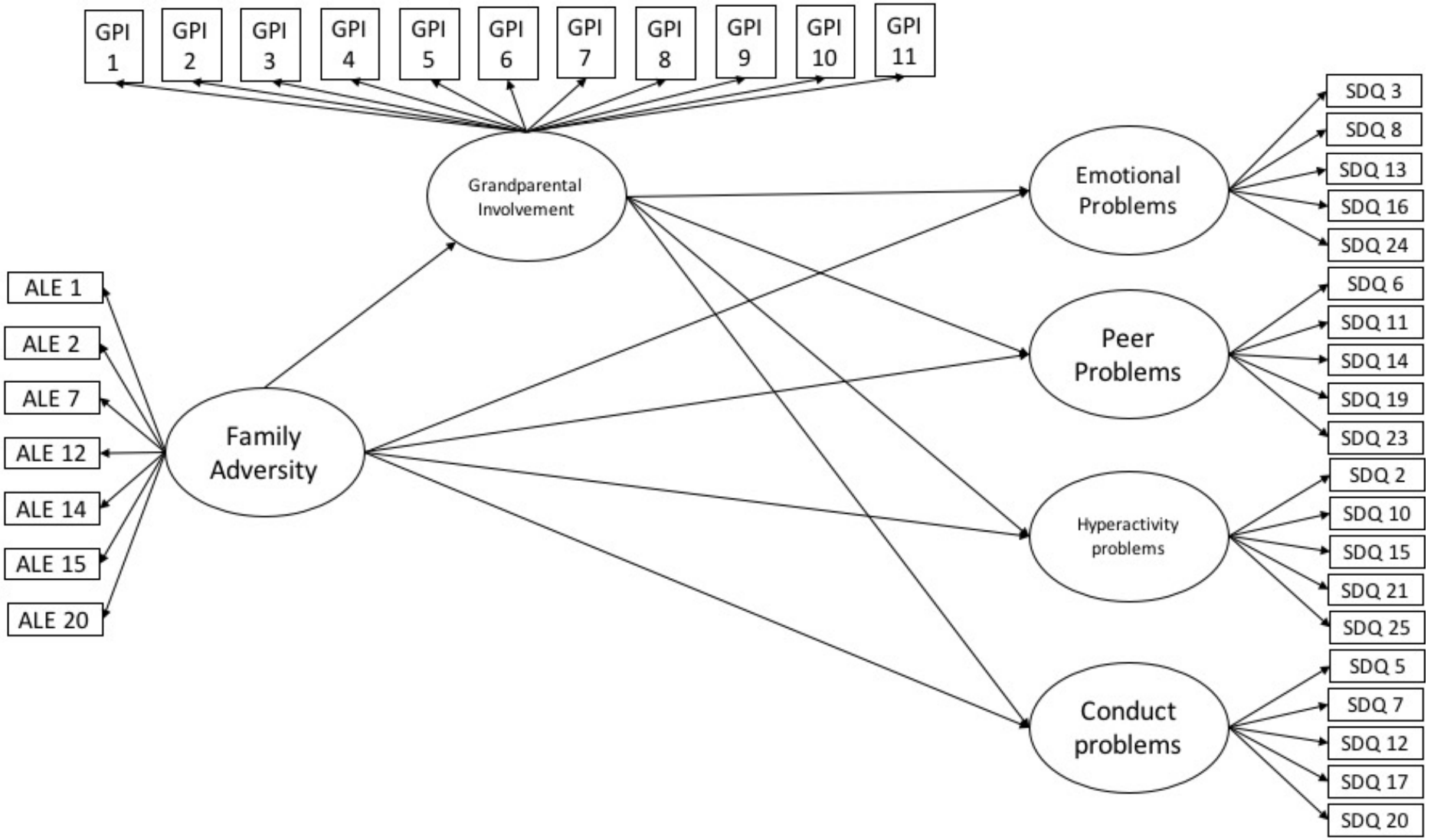


Figure 1. Measurement and Structural Components evaluated in the SEM. Measured variables (rectangles) refer to questions found in the questionnaires in Appendix 1.

Path analysis. In order to test hypotheses three and four, path analyses were conducted. A SEM could not be used to test this hypothesis because adding the interaction term to the model increased the number of parameters to such an extent that the size of the sample was not large enough for the model to converge. Therefore, only the structural model was tested using path analysis. This model can be seen in figure 2. The interaction term was computed by multiplying the total scores of the grandparental involvement scale with the total score of the family adversity scale. This path analysis model was run three times each using a different participant group, that is both males and females (*n* = 536), males (*n* = 221) and females (*n* = 310). The overall fit of the models was evaluated using the minimum function chi-square test, CFI, RMSEA and SRMR. The same cutoff scores apply as in the SEM. The beta path coefficients between the interaction term and the four psychological well-being variables were evaluated to test hypotheses four and five in their respective models.

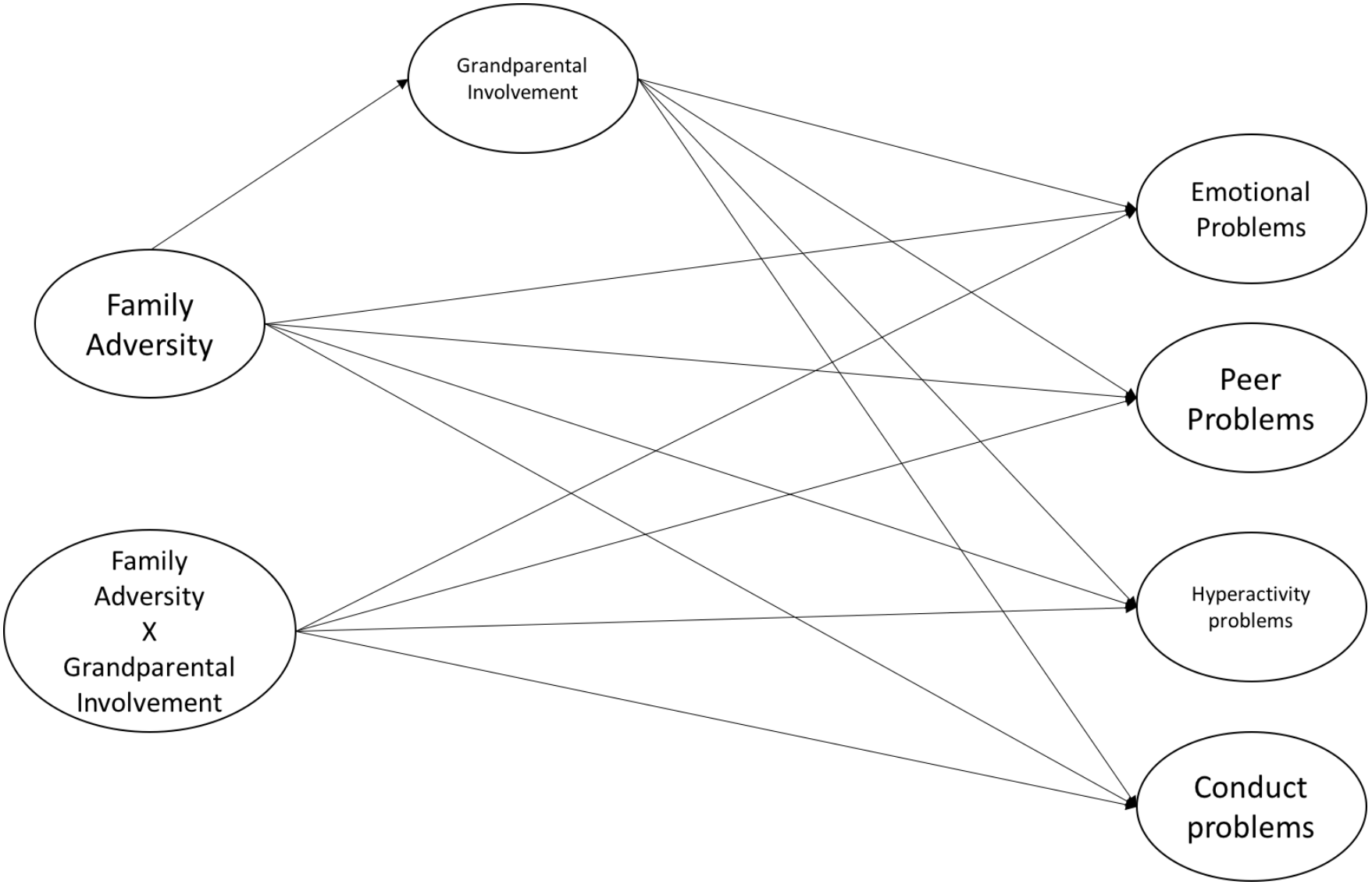


Figure 2. Structural Model for estimating Paths in Path Analysis.

Assumptions. There are a number of assumptions underlying a SEM. The assumptions of temporal precedence, univariate normality, multivariate normality, positive definite matrix and linearity were all tested.

Temporal precedence. It was assumed that family adversity took place before the day on which the psychological well-being of the adolescent was assessed. This means that it is possible that any adverse family events could have had an influence on psychological well-being.

Univariate normality. The histograms in figure 3, skewness scores, and kurtosis scores were used to assess univariate normality. Looking at the histograms the variables emotional, peer, conduct and hyperactivity difficulties as well as family stress are positively skewed, and grandparental involvement is negatively skewed. Skewness scores ranged from -0.65 to 1.38. Grandparental involvement, hyperactivity and emotional difficulties all have slightly negative or platykurtic kurtosis, whereas family stress, peer and conduct difficulties have positive or leptokurtic kurtosis. The range of the kurtosis scores were -0.47 to 2.71. None of the variables in this data set were perfectly normally distributed however, it was decided that no data transformation would be undertaken. This decision was based on Kline's (2011) statement that data only seriously violate the normality assumptions when their skewness index is greater than 3.0, and their kurtosis indices are greater than 8.0. Although rules of thumb are not foolproof, Kline does state that based on previous work, these cut-off points are quite conservative.

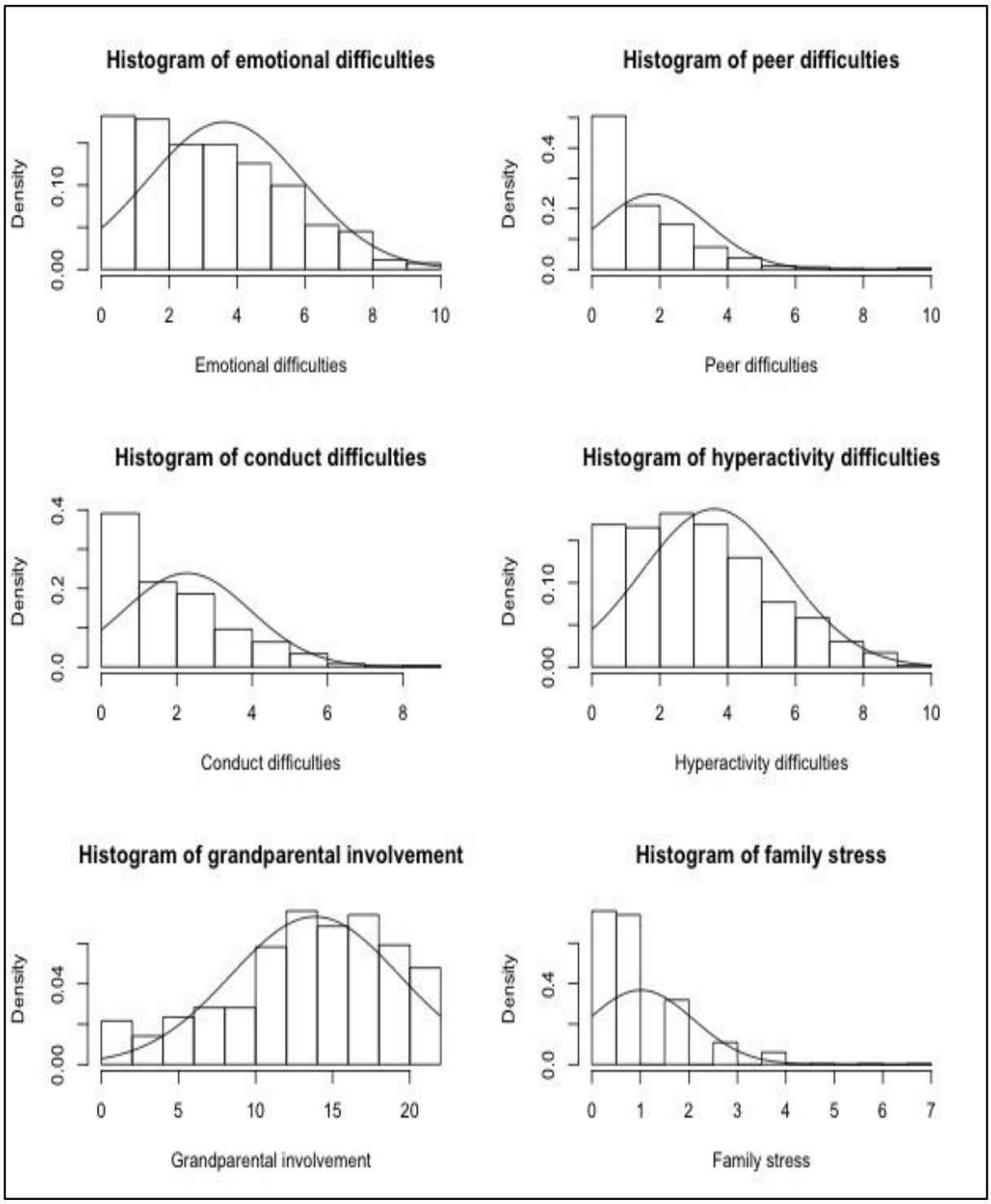


Figure 3. Histograms with a Normal Curve overlay to demonstrate Skewness and Kurtosis

Multivariate normality. In order to test for multivariate normality the Shapiro-Wilk and Mardia tests were computed. Both the Shapiro-Wilk (W = .95, p < .05) and the Mardia (*g1p* = 5.38, p < .05; *g2p* = 55.20, p < .05) tests indicated that the data were not multivariately normal. This result is not altogether surprising as the univariate normality for each variable was not perfect. Additionally, because this is a large sample size, any small deviation from normality is likely to cause the Shapiro-Wilk and Mardia statistics to be significant (Kline, 2011). In the social sciences, it is very rare that data perfectly meets the assumption of multivariate normality especially when the sample size is relatively large (Barnes, Cote, Cudeck, & Malthouse, 2001; Kline 2011). Multivariate normality is seen as important in SEM because it is generally put forth as a requirement for the use of Maximum Likelihood estimation. However, research has indicated that Maximum Likelihood estimation is relatively robust to violations of multivariate normality as long as the skewness and kurtosis scores for each variable are within a reasonable range, which has been demonstrated to be true in this data set in the previous section (Bollen, 1989).

***Positive definite matrix*.** The four steps outlined by Schumacker (2016) to check for a positive definite matrix were followed in this study. First it was determined, using the Bartlett test, that the covariance matrix formed an identity matrix. The results indicated that the covariance matrix was an identity matrix, $X^2(15) = -4\ 388$, $p > .05$. Secondly, the determinant of the covariance matrix was positive. Thirdly, all the eigenvalues were positive. Finally, the matrix is multivariately normal, $W = 0.90$, $p > .05$.

***Linearity*.** Six multiple regressions were run, each with a different variable as the criterion variable and the other five variables as predictors. R^2_{smc} values for the regressions ranged from 0.02 to 0.17, indicating that there is no extreme multivariate collinearity in the data (Kline, 2011).

Results

Descriptive statistics

The mean scores for the difficulties factors on the SDQ showed that in this sample emotional and hyperactivity problems were the most prevalent difficulties, followed by conduct and then peer problems. No South African norms exist for the SDQ, but compared to United Kingdom norms for children age 11-15 this sample had particularly high rates of emotional difficulties (3.63 vs 2.80) (Meltzer, Gatward, Goodman, & Ford, 2000). The rest of the mean scores were virtually the same as the norms from the UK.

Table 2
Descriptive Statistics

	Mean	*SD*	Min.	Max.
Emotional difficulties	3.63	2.28	0	10
Peer difficulties	1.81	1.61	0	10
Conduct difficulties	2.29	1.67	0	9
Hyperactivity difficulties	3.60	2.13	0	10
Grandparental involvement	13.84	5.45	0	22
Family adversity	1.01	1.09	0	7

Correlations

The correlations indicate that there was a positive relationship between family adversity and the four psychological problem variables (i.e, emotional, conduct, hyperactivity and peer problems). That is, the more family adversity an adolescent experienced the more likely they were to exhibit symptoms related to the four psychological problem variables. There was a significant negative relationship between grandparental involvement and all the psychological problem variables other than emotional problems. This suggests that the more involved the grandparents were, the less likely the adolescent was to exhibit psychological problems. However, none of the relationships between the problem variables and family adversity or grandparental involvement are very strong as the correlations range from 0.09 to 0.22

Table 3
Pearson Correlations

	1	2	3	4	5	6
1. Family adversity	1.00					
2. GPI	0.04	1.00				
3. Emotional problems	0.13**	-0.08	1.00			
4. Conduct problems	0.22***	-0.10*	0.10*	1.00		
5. Hyperactivity problems	0.09*	-0.10*	0.19***	0.37***	1.00	
6. Peer problems	0.10*	-0.11*	0.28***	0.12**	0.08	1.00

Notes.
GPI = Grandparental involvement
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

The measurement model

Overall fit of CFA model. In order to evaluate the measurement model (i.e. How the observed variables map onto the latent variables) a confirmatory factor analysis (CFA) was run. The results of the overall fit of the CFA were mixed based on the cutoff scores suggested by Kline (2011) and Schumaker (2016). The minimum function test statistic was significant, X_M^2 (650) = 1136.08, $p < .05$. This indicates that the sample covariance matrix was not close to the model's covariance matrix, which is not desirable. The comparative fit index is 0.86, which is not far from the desirable level of 0.90. The root mean square error of approximation statistic was within the desirable range, RMSEA = 0.037, 90% CI: 0.034-0.041. The standardised root mean square residual was also within the desirable range, SRMR = 0.05.

CFA model modification. The fit statistics reported above indicate that the model is not a perfect fit to the data. In order to see if the model could be improved the modification index for each pair of variables was evaluated to see if any extra covariance terms should be included in the model. In order for an extra covariance term to be added the modification index needed to be high and it should make theoretical sense that the two variables would co-vary (Schumaker, 2016). The two highest modification indices were between item 3 and 4 on the grandparental involvement scale (*mi* = 57.85) and between items 7 and 8 on the

same scale (*mi* = 22.88). It made theoretical sense that there should be correlated error covariance between these pairs of items. Item 3 asks about grandparental involvement in personal matters, and item 4 asks about grandparents giving the adolescents advice or helping with problem solving. It makes theoretical sense that these would be correlated as giving advice or problem solving is a form of grandparents being involved in personal matters. Item 7 asks about grandparental involvement in things the adolescent likes, and item 8 asks about grandparents coming to events that are important to the adolescent. These two items are theoretically related as the grandparent attending events would be a form of the grandparent being involved in things that are important to the adolescent. Additionally, both these items fall under the dimension of grandparental involvement that Mueller and Elder (2003) refer to as "activities done together. The adjustments to the model can be seen in Figure 4.

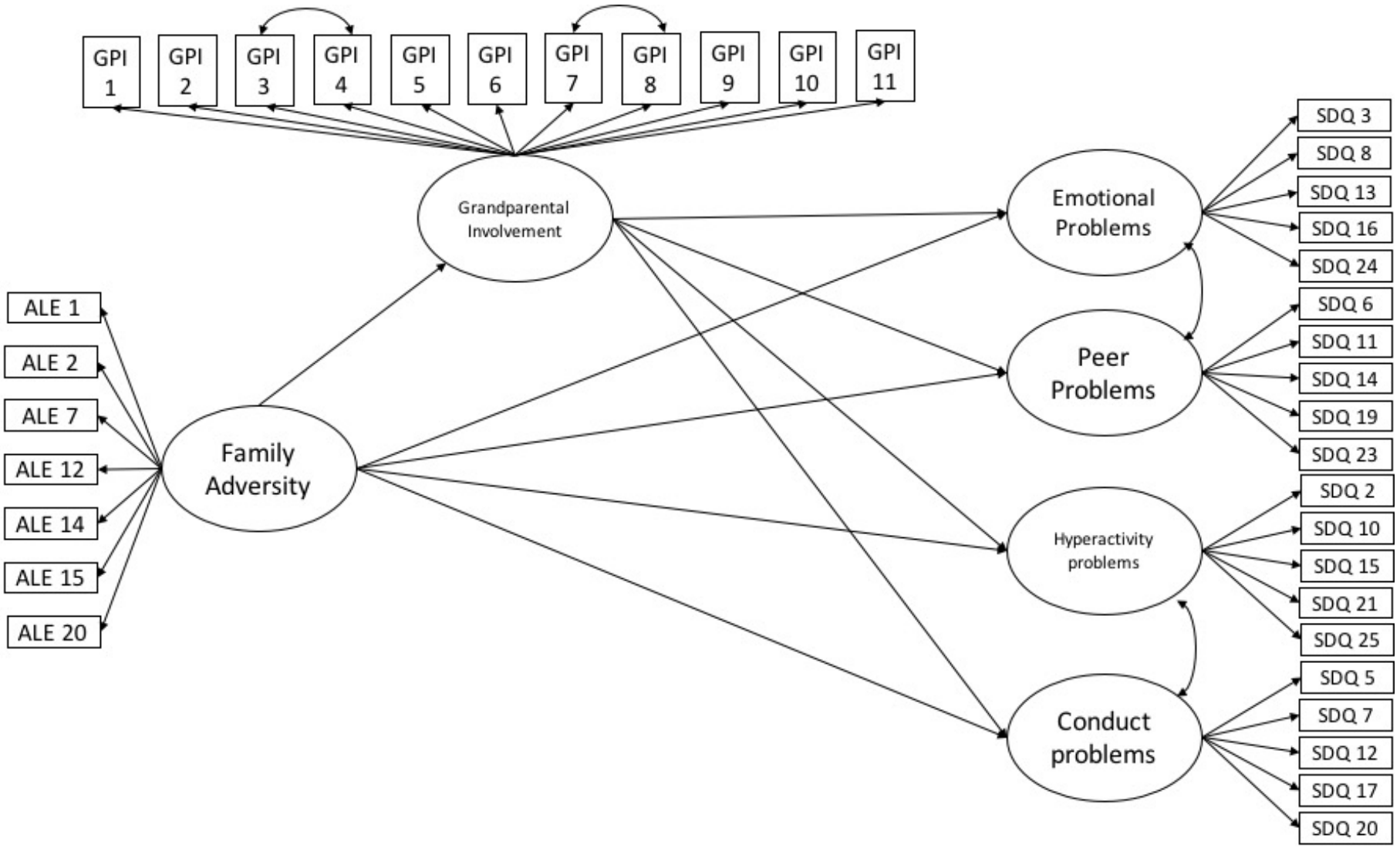


Figure 4. Measurement and Structural Components of SEM including new Covariance Terms based on Modification Indices.

Modified CFA model. Two covariance terms were therefore added to the measurement model and the CFA re-run. The minimum function test statistic was still significant even with the modifications, X_M^2 (648) = 1074.68, $p < .05$. All the measures of model fit improved. The CFI was 0.88, the RMSEA was 0.035 (90% CI: 0.031-0.038), and the SRMR was 0.05. This new modified model fitted the sample data significantly better than the unmodified data and therefore it was retained, ΔX^2 (2) = 74.68, $p < .05$.

Although the modified model did not perfectly represent the sample covariance matrix according to the Chi-Square statistics it was nevertheless used as the basis for the SEM. This is because the chi-square statistic is often inflated when the sample size is large. Tennant and Pallant (2012) state that when the RMSEA statistic is below 0.20 for sample sizes larger than 500 the data do fit the model even though the chi-square statistic indicates that it does not.

CFA path coefficients. As can be seen in table 4 all the observed variables were significantly related to their respective latent variable factors. As a result, no observed variables were dropped from the model.

Table 4
Table showing the Unstandardised and Standardised Coefficients pertaining to each Observed Variable and their Probability Values.

		Unstandardised (*SE*)	Standardised	*p*
Family adversity [a]				
	Question 1	.078 (.028)	.169	.006
	Question 2	.084 (.026)	.196	.001
	Question 7	.152 (.022)	.435	.000
	Question 12	.099 (0.15)	.410	.000
	Question 14	.136 (.021)	.405	.000
	Question 15	.070 (.014)	.331	.000
	Question 20	.044 (.017)	.159	.009

Table 4 cont.

Grandparental involvement [b]				
	Question 1	.453 (.030)	.627	.000
	Question 2	.344 (.024)	.605	.000
	Question 3	.513 (.032)	.655	.000
	Question 4	.542 (.031)	.699	.000
	Question 5	.568 (.032)	.714	.000
	Question 6	.541 (.029)	.741	.000
	Question 7	.463 (.032)	.612	.000
	Question 8	.411 (.034)	.524	.000
	Question 9	.442 (.029)	.641	.000
	Question 10	.387 (.033)	.507	.000
	Question 11	.231 (.027)	.389	.000
Hyperactivity [c]				
	Question 2	.419 (.033)	.595	.000
	Question 10	.477 (.033)	.686	.000
	Question 15	.490 (.033)	.697	.000
	Question 21	.149 (.029)	.256	.000
	Question 25	.213 (.029)	.369	.000
Conduct [c]				
	Question 5	.352 (.041)	.492	.000
	Question 7	.160 (.029)	.306	.000
	Question 12	.224 (.027)	.483	.000
	Question 18	.335 (.039)	.498	.000
	Question 22	.144 (.025)	.327	.000
Peer [c]				
	Question 6	.299 (.036)	.494	.000

Table 4 cont.

	Question 11	.115 (.025)	.271	.000
	Question 14	.213 (.034)	.368	.000
	Question 19	.238 (.033)	.438	.000
	Question 23	.243 (.040)	.359	.000
Emotional [c]				
	Question 3	.315 (.032)	.478	.000
	Question 8	.429 (.038)	.563	.000
	Question 13	.439 (.032)	.688	.000
	Question 16	.362 (.036)	.500	.000
	Question 24	.301 (.036)	.425	.000

Note.
[a] Appendix A, p. 62
[b] Appendix A, p. 72
[c] Appendix A, p. 63

Structural equation model

The structural equation model was used to test hypotheses one and two First the overall fit of the model is reported, and then the path coefficients are reported in order to determine whether to accept or reject the null hypotheses associated with hypotheses one and two.

SEM fit. The minimum function test statistic was significant indicating that the model was significantly different from the sample covariance matrix which is not desirable, X_M^2 (648) = 1060.84, $p < .05$. However, all other fit measures were within or very close to generally acceptable ranges. The CFI was 0.88, the RMSEA was 0.35 (90% CI: 0.31-0.38), and the SRMR was 0.05. Overall the fit measures indicate that the model fits the data reasonably well.

SEM path coefficients.

Table 5
Standardised and Unstandardized Path Coefficients for the Structural Component of the SEM.

	Unstandardised (*SE*)	Standardised	*p*
Family adversity → Grandparental involvement	.031 (.410)	.005	.941
Family adversity → Hyperactivity	1.039 (.570)	.192	.068
Family adversity → Conduct	2.183 (.900)	.481	**.015**
Family adversity → Peer	1.063 (.575)	.275	.065
Family adversity → Emotional	1.424 (.637)	.350	**.025**
Grandparental involvement → Hyperactivity	-.115 (.052)	-.124	**.027**
Grandparental involvement → Conduct	-.133 (.052)	-.172	**.011**
Grandparental involvement → Peer	-.128 (.050)	-.193	**.011**
Grandparental involvement → Emotional	-.064 (0.41)	-.092	.112

Hypothesis one. Hypothesis one stated that cumulative adverse family events will have a direct and positive association with a) emotional, b) conduct, c) peer and d) hyperactivity difficulties. This hypothesis was partially confirmed. All the path coefficients were positive, but not all were statistically significant (Table 5). An increase in adverse family events significantly increased the presence of conduct and emotional difficulties. An increase in adverse family events did predict an increase in hyperactivity and peer problems, but this increase was not statistically significant.

Hypothesis two. Hypothesis two stated that grandparental involvement would have a direct and negative association with a) emotional, b) conduct, c) peer and d) hyperactivity difficulties. This hypothesis was partially confirmed. Grandparental involvement was negatively related to each of the four difficulties, and this relationship was significant for all difficulties except emotional difficulties (Table 5).

Path analysis

Path model fit. The fit statistics in table 6 indicate that the datasets for males only and both males and females fitted the path model well. When data from only female participants were used the model fits the data less well. That is, the chi square and RMSEA statistics were not within desirable range, but the CFI and SRMR were within a desirable range. The modification indices for this model were calculated but none of the indices were very high so no modifications were made to the model. In order to decide whether it is feasible to test hypothesis four using this model some additional fit statistics were calculated. The Goodness of Fit index was 0.99 and the norm-fit index was .94, both of which are well within the acceptable range. Given that four of the six fit indices calculated indicate that the model fits the data, analyses to test hypothesis four were conducted using data obtained from females, as well as those obtained from males and from the sample as a whole.

Table 6
Fit Statistics for Path Analyses run with male only, female only and both male and female participants

Fit statistic	Male	Female	Male and female
X_M^2	1.09, *df* =1, *p* = .30	7.74, *df* = 1, *p* = .01	3.01, *df* = 1, *p* = .08
CFI	.99	.94	.99
RMSEA	.02	.15	.06
SRMR	.01	.03	.01

Path model coefficients. The path coefficients for the relationship between an interaction term (family adversity x grandparental involvement) and each of the four different psychological well-being variables are presented in table 7. The coefficients for three separate models are presented, they are 1) Males only, 2) females only, and 3) males and females.

Table 7.
Path Coefficients for the effect of the Family Adversity X Grandparental Involvement interaction on measures of PsychologicalWwell-Being.

	Male			Female			Male and Female		
	Unstd. (*SE*)	Std.	*p*	Unstd. (*SE*)	Std.	*p*	Unstd. (*SE*)	Std.	*p*
Interaction → Hyperactivity	-.01 (.01)	-.01	.527	.00 (.01)	.02	.718	-.00 (.004)	-.02	.726
Interaction → Conduct	.00 (.01)	.01	.944	-.01 (.01)	-.10	.080	-.00 (.003)	-.06	.169
Interaction → Peer	.01 (.01)	.08	.241	-.01 (.01)	-.14	**.020**	-.00 (.003)	-.05	.258
Interaction → Emotional	.00 (.01)	.01	.527	.01 (.01)	.04	.536	.00 (.005)	.02	.657

Notes.
Unstd. = Unstandardised
Std. = Standardised
SE = Standard Error

Hypothesis three. The aim of hypothesis three was to determine whether grandparents played a protective role in the lives of their grandchildren within the context of family adversity. This was investigated by determining whether an interaction between family adversity and grandparental involvement predicted a reduction in the presence of psychological difficulties (i.e. hyperactivity, conduct, emotional and peer problems). The results of the path analysis did not support hypothesis three as they show that the interaction term does not significantly predict a change in any of the psychological outcomes.

Hypothesis four. The aim of hypothesis four was similar to that of hypothesis three. The aim was still to determine whether grandparental involvement had a protective effect in the lives of adolescents in the context of family adversity, but this time the effect for males and females would be assessed separately in order to determine whether the protective effect was gender dependent. When the model was run using only the data collected from males none of the path coefficients connecting the interaction term and the four types of psychological well-being were significant. However, when the model was run with only data collected from females the interaction term significantly predicted a decrease in peer problems, $\beta = -0.14$, $p < .05$. None of the other psychological well-being variables were significantly associated with the interaction term. The decrease in peer problems predicted by the interaction term can be termed a protective effect because it means that when the adolescent is experiencing a high level of family adversity, having a high level of grandparental involvement can mitigate what would usually be a significant and positive relationship between family adversity and peer problems, $\beta = 0.14$, $p < .05$. This effect can be seen in figure 5, where red indicates high levels of peer problems, and blue low levels.

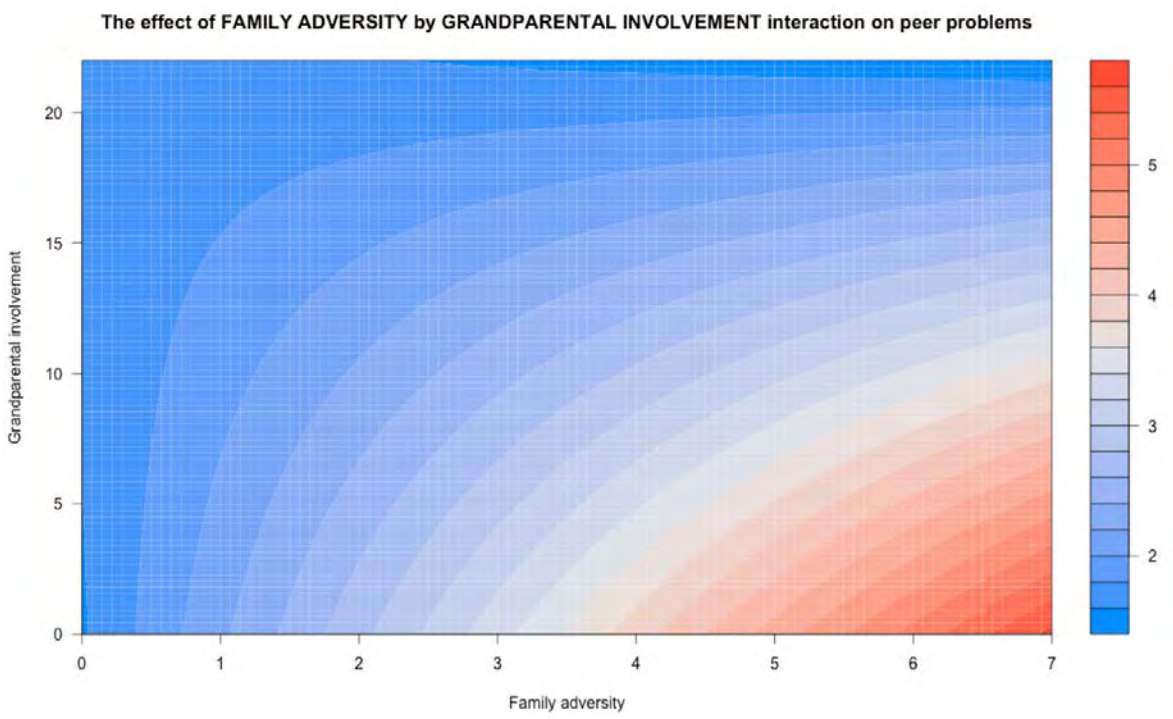


Figure 5. Graph showing the Interaction Effect of Family Adversity and Grandparental Involvement on Peer Problems.

Discussion

The primary aim of this study was to determine whether, under conditions of family adversity, grandparental involvement could act as a compensatory or protective factor to decrease the likelihood of adolescents developing psychological difficulties (i.e. conduct, hyperactivity, peer and emotional difficulties). A structural equation model was used to test the first two specific hypotheses which stated firstly that family adversity would predict an increase in psychological difficulties, and secondly that grandparental involvement would predict a decrease in psychological difficulties (i.e. grandparental involvement as a compensatory factor). A path analysis was then conducted to test the third hypothesis which stated that grandparental involvement would be a protective factor for adolescents experiencing high levels of family stress. A fourth hypothesis extended this to investigate whether grandparental involvement had a differential protective effect for male and female adolescents. In this study, the SEM analysis largely supported the compensatory nature of grandparental involvement, whereas the path analysis showed little support for the protective nature of grandparental involvement.

The relationship between family adversity and psychological difficulties

The first finding of this study was that proximal family adversity was associated with a significant increase in the likelihood that an adolescent would display emotional and conduct problems. The relationships between family adversity and hyperactivity and peer problems fell just short of significance at $p < .07$ in the SEM, but were significant in the bivariate correlation analysis. These results are in line with social support theory which suggests that adverse changes in an individual's social network (in this case, the family) can result in the individual experiencing psychological difficulties (Heaney & Israel, 2008). To a large degree this result was also in line with Flouri et al.'s (2010) research which found, using a multilevel model analysis, that cumulative adversity was significantly related to all four psychological difficulty outcomes. The fact that the SEM did not pick up a significant relationship between family adversity and hyperactivity and peer problems could be due to one of two factors. Firstly, it could be that because Flouri and colleagues used a larger sample size their model was better powered to pick up an association between these variables. Alternatively, it could be that family adversity in particular does not account for as

much variation in these outcomes as do the other types of adversity that are captured in Flouri and colleagues' measure of adversity.

Grandparental involvement as a compensatory factor

The results of the SEM largely supported the second hypothesis of this study as it showed that grandparental involvement was directly and negatively associated with conduct, hyperactivity and peer difficulties. That is, grandparental involvement acts as a compensatory factor for adolescents irrespective of the amount of family adversity they have experienced. There are two interesting things to note regarding this finding. First, grandparental involvement was not significantly associated with a decrease in emotional problems. This is unexpected as Family Systems Theories suggest that healthy relationships with family members should increase emotional well-being. It may be that because grandparents were not usually co-resident with the grandchild in this sample, they have less opportunity to interact with their grandchildren on a daily basis and are thus less likely than those who live in the adolescent's household to have an effect of the emotional wellbeing of the grandchild. For example, Levetan & Wild (2015) found that grandmother involvement was independently associated with fewer internalising problems in adolescents only when grandmothers and grandchildren lived in the same household. Secondly, these findings do not concur with the findings of Profe and Wild (2015) who used a very similar sample to this study. Although this study found a significant bivariate correlation between grandparental involvement and adolescents' externalising difficulties, grandparental involvement was not independently associated with any adolescent psychological difficulties in the multivariate analyses. There are three possible reasons for this. The first reason is that Profe and Wild (2015) controlled for parental involvement, whereas this study did not. It is possible, in the case of the present study, that were parental involvement included in the SEM, grandparental involvement would not have made a significant contribution to well-being over and above parental involvement. This is because parental involvement and grandparental involvement tend to be highly correlated (Attar-Schwartz, 2015). A second reason that may account for the differing results is that different analysis techniques were used. Profe and Wild (2015) used multiple regression (MR), whereas the present study used SEM to determine these relationships. SEM is a much more powerful technique than MR, and is particularly appropriate for this data given that the variables are made up of latent and measured components (Kline, 2011). A third difference between this research and that

of Profe and Wild (2015) is that this research used maximum likelihood imputation to deal with missing data whereas Profe and Wild used listwise deletion. There were 52 cases that had missing data in this study, and thus whether or not they are included in the sample could have a significant influence on the results of the study.

There is a large amount of congruency between the results of the second hypothesis and the findings of international research looking at the compensatory effect of grandparental involvement. Many other studies also report a negative relationship between the emotional support given by a grandparent and internalising and externalising psychological difficulties (Attar-Schwartz, 2015; Lussier et al., 2002; Ruiz & Silverstein, 2007). Additionally, Griggs et al. (2010) found that where grandparents were involved in hobbies or activities with their grandchildren, the grandchildren displayed fewer psychological difficulties. The measure of grandparental involvement in this study captured both the emotional and practical dimensions of the grandparents' relationship with the grandchild, and the findings therefore support those of previous research.

Grandparental involvement as a protective factor

The final investigation in this study concerned whether grandparental involvement negatively moderated the relationship between family adversity and any one of the psychological problems measured using the SDQ, and whether this moderating effect was different for males and females. This moderating effect is also termed a protective effect as a significant result indicates that the involvement of a grandparent is associated with a reduction or protects the grandchild from developing negative psychological outcomes under conditions of family adversity. Analyses run in this study indicated that grandparental involvement is not a protective factor for reducing the presence of psychological problems among adolescents when males and females are investigated together. In other words, there was no evidence that family adversity had a greater negative effect when grandparental involvement was low, nor was there evidence that grandparental involvement had a particularly beneficial effect when family adversity was high. This result differs from the results Flouri et al. (2010) obtained in their similar study. Flouri et al. (2010) found that closeness to a grandparent reduced hyperactivity difficulties and the combined effect of hyperactivity, conduct, emotional and peer difficulties when adolescents were facing high levels of proximal adversity. The differences in these results may be due to methodological differences between the two studies.

When assessing grandparental involvement as a moderating factor for males and females separately a slightly different pattern of results emerges. The results of this study showed that for female adolescents grandparental involvement moderated the association between family adversity and peer problems. That is, where levels of family adversity are high in a female adolescent's life, they can still experience low levels of peer problems if they have a very involved grandparent. This effect was not true for any of the other difficulty factors for females or for males. This is in line with Masten's (2001) comment that it is rare to find interaction effects in resilience research. The fact that grandparental involvement can play a protective role in preventing peer problems for females who encounter large amounts of family adversity is an encouraging finding as previous research has shown that female adolescents are more sensitive to social problems than their male counterparts (Oldehinkel, Rosmalen, Veenstra, Dijkstra, & Ormel, 2007). Knowing that grandparental involvement can mitigate these problems under conditions of family adversity is helpful for designing interventions to reduce social and peer problems experienced by adolescent females.

Research limitations and directions for future research

As with all research this study has a number of limitations that future research should seek to address. The first limitation of this study concerns the cross-sectional nature of the design. A cross-sectional design limits the extent to which causal conclusions can be made about the relationship between variables (Bryman, 2012). Additionally, the researcher did not have any control over any of the variables in the study, which once again makes it difficult to determine the exact effects taking place. This study used a cross-sectional design because it is an effective way of gathering large amounts of data to conduct initial analyses. However, it is advisable that future studies make use of a longitudinal approach in order to demonstrate that it certainly is the effect of grandparental involvement that is making the difference. An example of such a study may be an intervention trial where grandparental involvement is changed in one group through the introduction of a grandparenting programme (e.g. Grandparent Triple-P; Kirby & Sanders, 2014), and its effect on psychological wellbeing variable compared to those in the control group.

A second limitation of this study is that all the data is self-report. While this is appropriate for investigating the teenagers' attitudes and perceptions, this type of data is

vulnerable to biases such as the social desirability bias and there is potential for participants to respond with response sets. Future research would benefit from also collecting data from adolescents' grandparents and parents. This will help researchers to determine how reliable their measures are by analysing all three responses to see if they report congruent experiences.

A third limitation is that the analyses conducted in this study did not differentiate between grandfather and grandmother involvement, and whether the grandparent was part of the maternal or paternal side of the family. It is possible that just as father involvement and mother involvement have different effects on psychological well-being, so too might grandfather and grandmother involvement. For example, Day and Padilla-Walker (2009) found that an adolescent's connectedness with and involvement of their mother (and not their father) was positively related to pro-social behaviours and hopefulness. Furthermore they found that connectedness with and involvement of their father (and not their mother) was negatively related to internalising and externalising problems. It could therefore be hypothesised that grandmother involvement be associated with pro-social behaviour and hopefulness, and grandfather involvement be more closely associated with a reduction in internalising and externalising problems.

It is both a strength and a limitation of this study that the sample was limited to Black and Coloured participants. This is a limitation as the sample does not represent the ethnically diverse population of South Africa, however Black and Coloured people are the two largest racial groups of people in South Africa. Even though they are the largest population groups in South Africa, they are also the most under studied, and thus a study that focuses solely on these groups is useful (Department of Social Development, 2012). Future studies should however aim to recruit a larger more representative sample using a more sophisticated random sampling method.

A fifth limitation of this study is that it did not take into account any measures of parents' involvement, parents' relationship with their adolescents and the parents' relationship with the adolescent's grandparents. All this is important for two reasons. First, it is important to determine whether grandparental involvement makes a significant difference over and above parental involvement. If this is the case it is worth developing interventions that strengthen the relationship between adolescents and their grandparents, but if not, energy is perhaps better directed at programmes that improve the relationship

between parents and their children. Second, parents will often act as gate keepers determining who will have access to their children, therefore if the relationship between parents and grandparents is not a good one, the grandparent may not have access to the grandchild (Attar-Schwartz, 2015). Furthermore, this study did not take the structure of the adolescents' household into account. This is important because Deleire and Kalil (2002) showed that the effect of grandparental involvement varied depending the structure of the family, particularly if the child lived in a one parent or two parent household.

Implications and contributions of the study

The results of this study add to the growing body of literature that demonstrates that grandparental involvement can have a compensatory effect in the lives of adolescents (e.g. Attar-Schwartz et al., 2009; Flouri et al., 2010). That is, it has now been fairly well established that the more grandparents are positively involved in their adolescent grandchildren's lives, the less likely the grandchildren are to display negative psychological outcomes such as peer, emotional, conduct and hyperactivity problems. The use of a relatively large sample size and a robust statistical technique such as SEM to determine that this relationship exists adds particular credence to the conclusions about this relationship.

A less well established body of literature surrounds whether grandparents can play a protective role in the lives of adolescents who are facing conditions of adversity. The results of this study suggest that for female adolescents facing large amounts of family adversity, grandparental involvement can protect them from developing problems with their peers. Based on this finding, it is suggested that perhaps when female adolescents who are living in adverse family environments are identified as having problems with their peers, steps should be taken where possible to improve their relationship with their grandparents in order to see if this improves their adverse peer related behavior.

Conclusion

The proportion of the population made up of elderly people is set to rise both globally and in South Africa. It is therefore interesting to think about the roles that older people may play in society. This study sought to determine if the involvement of grandparents in the lives of adolescents could act as compensatory and protective factors. In a sample of Black and Coloured South African adolescents aged between 13 and 15, varying levels of support for the compensatory and protective effects of grandparental involvement were discovered. Using bivariate correlations and a SEM this study largely supported the hypothesis that grandparental involvement has a compensatory effect on adolescent wellbeing. That is, the results demonstrated an association between high levels of grandparental involvement and low levels of peer, emotional, conduct and hyperactivity problems. In order to determine whether grandparental involvement could have a protective effect, the relationship between grandparental involvement and adverse outcomes was considered in the context of family stress. This investigation was conducted using a path analysis, and only minimal evidence of a protective effect was found. That is, grandparental involvement reduced female adolescents' peer related psychological problems especially when they were under high levels of family stress. This protective effect did not hold true for the sample as a whole, males alone or the other female outcomes. Together the results of this study indicate that grandparents can play a key social support role in the lives of adolescents, and this support is associated with better psychological outcomes. It is however, unclear whether grandparents can have a substantial protective effect for adolescents experiencing high levels of family stress, and more research needs to be conducted to determine whether this protective effect is worth harnessing for the purpose of interventions.

References

Amoateng, A. Y., Heaton, T. B., & Kalule-Sabiti, I. (2007). Living arrangements in South Africa. In A. Y. Amoateng & T. B. Heaton (Eds.), *Families and households in post-apartheid South Africa: Socio-demographic perspectives* (pp. 43-59). Cape Town, South Africa: HSRC.

Attar-Schwartz, S. (2015). Emotional closeness to parents and grandparents: A moderated mediation model predicting adolescent adjustment. *American Journal of Orthopsychiatry*, *85*(5), 495-509.

Attar-Schwartz, S., Tan, J. P., Buchanan, A., Flouri, E., & Griggs, J. (2009). Grandparenting and adolescent adjustment in two-parent biological, lone parent, and step-families. *Journal of Family Psychology, 23*, 67–75.

Barnes, J., Cote,J., Cudeck, R., & Malthouse, E. (2001). Checking Assumptions of Normality before Conducting Factor Analyses*. Journal of Consumer Psychology*, *10*(1/2), 79-81.

Barnett, M. A., Scaramella, L. V., Neppl, T. K., Ontai, L. L., & Conger, R. D. (2010). Grandmother involvement as a protective factor for early childhood social adjustment. *Journal of Family Psychology*, *24*(5), 635-645.

Barrera, M., & Li, S. A. (1996). The relation of family support to adolescents' psychological distress and behavior problems. In G. R. Pierce, B. R. Sarason, & I. G. Sarason (Eds.), *Handbook of social support and the family* (pp 313–343). New York, NY: Plenum Press.

Beam, M. R., Chen, C., & Greenberger, E. (2002). The nature of adolescents' relationships with their ''very important'' non-parental adults. *American Journal of Community Psychology*, *30*, 305–325.

Bollen, K. A. (1989)*. Structural equations with latent variables*. New York, NY: Wiley.

Bornstein, M.H., & Sawyer, J. (2005). Family systems. In K. McCartney, & D. Philips (Eds.), *Blackwell handbook of early childhood development* (pp. 381-398). Oxford, UK: Blackwell Publishing.

Botcheva, L. B., & Feldman, S. S. (2004). Grandparents as family stabilizers during economic hardship in Bulgaria. *International Journal of Psychology*, *39*(3), 157-168.

Bronfenbrenner, U. (1979). *Ecology of human development: Experiments by nature and design*. Cambridge, MA, USA: Harvard University Press.

Bryman, A. *Social research methods* (4th ed.). Oxford, UK: Oxford University Press.

Burchinal, M. R., Roberts, J. E., Hooper, S., & Zeisel, S. A. (2000). Cumulative risk and early cognitive development: A comparison of statistical risk models. *Developmental Psychology*, *36*(6), 793-807.

Carter, J. S., Garber, J., Ciesla, J. A., & Cole, D. A. (2006). Modeling relations between hassles and internalizing and externalizing symptoms in adolescents: A four-year prospective study. *Journal of Abnormal Psychology*, *115*(3), 428-442.

Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology*, *70*(1), 6-20.

Cluver, L., & Gardner, F. (2006). The psychological well-being of children orphaned by AIDS in Cape Town, South Africa. *Annals of General Psychiatry*, *5*(1), 8-16.

Cluver, L., Gardner, F., & Operario, D. (2009). Poverty and psychological health among AIDS-orphaned children in Cape Town, South Africa. *AIDS Care*, *21*(6), 732-741.

Coddington, R. D. (1972). The significance of life events as etiologic factors in the diseases of children - II a study of a normal population. *Journal of Psychosomatic Research*, *16*(3), 205-213.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94,* 95-120.

Cox, M. J., & Paley, B. (2003). Understanding families as systems. *Current Directions in Psychological Science*, *12*(5), 193-196.

Davidson, L. M., & Demaray, M. K. (2007). Social support as a moderator between victimization and internalizing-externalizing distress from bullying. *School Psychology Review*, *36*(3), 383-405.

Day, R. D., & Padilla-Walker, L. M. (2009). Mother and father connectedness and involvement during early adolescence. *Journal of Family Psychology*, *23*(6), 900-904.

DeLeire, T., & Kalil, A. (2002). Good things come in threes: Single-parent multigenerational family structure and adolescent adjustment. *Demography*, *39*(2), 393-413.

Department of Social Development. (2012). White paper on families in South Africa [Online Report]. Retrieved from http ://www.dsd.gov.za/index.php?option=com_docman& task=cat_view&gid=33Itemid=39.

Erikson, E. H. (1959). Identity and the life cycle: Selected papers. *Psychological Issues*, *1,* 1-171.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London, UK: SAGE Publications.

Flouri, E., Buchanan, A., Tan, J. P., Griggs, J., & Attar-Schwartz, S. (2010). Adverse life events, area socio-economic disadvantage, and adolescent psychopathology: The role of closeness to grandparents in moderating the effect of contextual stress. *Stress*, *13*(5), 402-412.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry*, *38*(5), 581-586.

Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire (SDQ). *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 1337-1345.

Goodman, R., Meltzer, H., & Bailey, V. (1998). The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry*, *7,* 125-130.

Goodman, R., & Scott, S. (1999). Comparing the Strengths and Difficulties Questionnaire and the Child Behavior Checklist: Is small beautiful? *Journal of Abnormal Child Psychology*, *27*, 17-24.

Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the life events checklist. *Assessment*, *11*(4), 330-341.

Griggs, J., Tan, J. P., Buchanan, A., Attar-Schwartz, S., & Flouri, E. (2010). 'They've always been there for me': Grandparental involvement and child well-being. *Children & Society*, *24*(3), 200-214.

Hankin, B. L., & Abramson, L. Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability–transactional stress theory. *Psychological Bulletin*, *127*(6), 773-796.

Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. *Health Behavior and Health Education: Theory, Research, and Practice*, *4*, 189-210.

Helsen, M., Vollebergh, W., & Meeus, W. (2000). Social support from parents and friends and emotional problems in adolescence. *Journal of Youth and Adolescence*, *29*(3), 319-335.

House, J. S. (1987). Social support and social structure. *Sociological Forum*, *2,* 135–146.

Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N:q hypothesis. *Structural Equation Modeling, 10,* 128-141.

Joubert, J., & Bradshaw, D. (2006). Population ageing and health challenges. In K. Steyn, J. Fourie & N. Temple (Eds.). *Chronic lifestyle diseases in South Africa 1995-2005.* Cape Town, RSA: South African Medical Research Council.

Kirby, J. N., & Sanders, M. R. (2014). A randomized controlled trial evaluating a parenting program designed specifically for grandparents. *Behaviour Research and Therapy*, *52*, 35-44.

Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London, UK: Routledge.

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). New York, NY: The Guilford Press.

Levetan, J. L., & Wild, L. G. (2015). The implications of maternal grandmother coresidence and involvement for adolescent adjustment in South Africa. *International Journal of Psychology*. Advanced online publication.

Levitt, M. J., Levitt, J., Bustos, G. L., Crooks, N. A., Santos, J. D., Telan, P., ... & Milevsky, A. (2005). Patterns of social support in the middle childhood to early adolescent transition: Implications for adjustment. *Social Development*, *14*(3), 398-420.

Lussier, G., Deater-Deckard, K., Dunn, J., & Davies, L. (2002). Support across two generations: Children's closeness to grandparents following parental divorce and remarriage. *Journal of Family Psychology, 16,* 363–376.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, *71*(3), 543-562.

Martel, M. M. (2013). Sexual selection and sex differences in the prevalence of childhood externalizing and adolescent internalizing disorders. *Psychological Bulletin*, *139*(6), 1221-1259.

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist*, *56*(3), 227-238.

Masten, A. S., & Shaffer, A. (2006). How families matter in child development: Reflections from research on risk and resilience. In A. Clarke-Stewart, J. Dunn, (Eds.), *Families count: Effects on child and adolescent development* (pp. 5-25). New York, NY, US: Cambridge University Press.

Meltzer, H., Gatward, R., Goodman, R., and Ford, F. (2000) *Mental health of children and adolescents in Great Britain*. London, UK: The Stationery Office.

Mueller, M. M., & Elder, G. H. (2003). Family contingencies across the generations:

Grandparent-grandchild relationships in holistic perspective. *Journal of Marriage and Family, 65*(2), 404-417.

Oldehinkel, A. J., Rosmalen, J. G., Veenstra, R., Dijkstra, J. K., & Ormel, J. (2007). Being admired or being liked: Classroom social status and depressive problems in early adolescent girls and boys. *Journal of Abnormal Child Psychology, 35,* 417– 427

Peterson, G. W., & Bush, K. R. (2015). Families and adolescent development. In T. P. Gullotta, R.W. Plant, & M. Evans (Eds.), *Handbook of adolescent behavioral problems* (pp. 45-69). New York, New York: Springer.

Piko, B. (2000). Perceived social support from parents and peers: Which is the stronger predictor of adolescent substance use?. *Substance Use & Misuse*, *35*(4), 617-630.

Piko, B. F., Luszczynska, A., & Fitzpatrick, K. M. (2013). Social inequalities in adolescent depression: The role of parental social support and optimism. *International Journal of Social Psychiatry*, *59*(5), 474-481.

Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, *24*, 43-67.

Probst, T. M. (2013). Conducting Effective Stress Intervention Research: Strategies for Achieving an Elusive Goal. *Stress and Health*, *29*(1), 1-4.

Profe, W., & Wild, L.G. (2015). Mother, father, and grandparent involvement: Associations with adolescent mental health and substance use. *Journal of Family Issues.* Advance online publication.

Richter, L. M. (2006). Studying adolescence. *Science*, *312*(5782), 1902-1905.

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software, 48*(2), 1-36.

Schaefer-McDaniel, N. J. (2004). Conceptualizing social capital among young people: Towards a new theory. *Children Youth and Environments*, *14*(1), 153-172.

Schumacker, R.E. (2016). *Using R with multivariate statistics.* Los Angeles, CA: SAFE Publications.

Sheridan, K., Haight, W. L., & Cleeland, L. (2011). The role of grandparents in preventing aggressive and other externalizing behavior problems in children from rural, methamphetamine-involved families. *Children and Youth Services Review*, *33*(9), 1583-1591.

Silverstein, M., & Ruiz, S. (2006). Breaking the chain: How grandparents moderate the transmission of maternal depression to their grandchildren. *Family Relations*, *55*(5), 601-612.

Simmons, R. G., Burgeson, R., Carlton-Ford, S., & Blyth, D. A. (1987). The impact of cumulative change in early adolescence. *Child Development*, *58*(5), 1220-1234.

Statistics South Africa. (2013). Social profile of vulnerable groups 2002-2012. Retrieved from: http://www.statssa.gov.za/publications/Report-03-19-00/Report-03-19-002012.pdf.

Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Journal of Cognitive Education and Psychology*, *2*(1), 55-87.

Sterrett, E. M., Jones, D. J., McKee, L. G., & Kincaid, C. (2011). Supportive non-parental adults and adolescent psychosocial functioning: Using social support as a theoretical framework. *American Journal of Community Psychology*, *48*(3-4), 284-295.

Streiner, D. L. (2003). Starting at the beginning: an introduction to coefficient alpha and internal consistency. *Journal of Personality Assessment, 80,* 99-103.

Tennant, A., & Pallant, J. F. (2012). The root mean square error of approximation (RMSEA) as a supplementary statistic to determine fit to the Rasch model with large sample sizes. *Rasch Measurement Transactions, 25*(4), 1348-1349.

Tiet, Q. Q., Bird, H. R., Davies, M., Hoven, C., Cohen, P., Jensen, P. S., & Goodman, S. (1998). Adverse life events and resilience. *Journal of the American Academy of Child & Adolescent Psychiatry*, *37*(11), 1191-1200.

United Nations. (2002) World Population Ageing: 1950-2050. Retrieved from http://www.un.org/esa/population/publications/worldageing19502050/pdf/preface_web.pdf

Wichstrøm, L. (1999). The emergence of gender difference in depressed mood during adolescence: the role of intensified gender socialization. *Developmental psychology*, *35*(1), 232-245.

Wild, L. G., & Gaibie, F. (2014). Grandparental involvement and South African adolescents' psychological well-being. *Journal of Intergenerational Relationships*, *12*(4), 425-441.

Yorgason, J. B., Padilla-Walker, L., & Jackson, J. (2011). Nonresidential grandparents' emotional and financial involvement in relation to early adolescent grandchild outcomes. *Journal of Research on Adolescence*, *21*(3), 552-558

My grandparents and me

Teen survey

What do you think?

Your views matter!

A. Can you tell us something about yourself?

1. How old are you? (please tick one)

13 ☐
14 ☐
15 ☐
16 ☐
17 ☐

u do not fit any of the above, please tell us your age in years .....

2. Are you a boy or a girl? (please tick one)

Boy ☐
Girl ☐

3. What is the language that you speak most often at home? (please tick one)

Afrikaans ☐
English ☐
isiXhosa ☐
isiZulu ☐

If you do not fit any of the above, please tell us what language you speak

.....

4. Are you.... (please tick one)

Black African ☐
Coloured ☐
Indian ☐
White ☐

If you do not fit any of the above, please tell us how you would describe your population group …….

Don't want to answer ☐

5. What is your religion? (please tick one)

Christian ☐
Hindu ☐
Jewish ☐
Muslim ☐
No religion ☐

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

…….....

B. About your household

1. Who do you live with most of the time? (please tick as many as necessary)

- Mother ☐
- Father ☐
- Stepfather or your mother's partner ☐
- Stepmother or your father's partner ☐
- Grandmother(s) ☐
- Grandfather(s) ☐
- Aunt(s) ☐
- Uncle(s) ☐
- Sister(s) ☐
- Brother(s) ☐

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

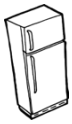
…….....

2. Which of the following do you have in your household at the present time? (please tick as many as necessary)

 Running water inside home ☐

 Flush toilet inside the home ☐

 Motor vehicle ☐

 Fridge ☐

 Microwave ☐

 Washing machine ☐

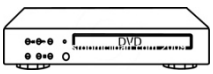
 Landline telephone ☐

 Cell phone ☐

 Electricity inside home ☐

 Radio/Hi-fi ☐

 Television ☐



Video machine/DVD ☐

 DSTV/Satellite ☐

 Computer ☐

 Internet ☐

C. School

1. What grade are you in at school?

Grade 8 ☐
Grade 9 ☐

2. Have you ever repeated a school year?

Yes ☐
No ☐

3. Are your school marks better than the marks of most of the children in your class?

Yes ☐
No ☐

D. These questions are all about you.

For each of these items, please mark the box for Not True, Somewhat True or Certainly True.
It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of how things have been for you over the last six months.

	Not true	Somewhat true	Certainly true
I try to be nice to other people. I care about their feelings	☐	☐	☐
I am restless, I cannot stay still for long	☐	☐	☐
I get a lot of headaches, stomach-aches or sickness	☐	☐	☐
I usually share with others (food, games, pens etc.)	☐	☐	☐
I get very angry and often lose my temper	☐	☐	☐
I am usually on my own. I generally play alone or keep to myself	☐	☐	☐
I usually do as I am told	☐	☐	☐
I worry a lot	☐	☐	☐
I am helpful if someone is hurt, upset or feeling ill	☐	☐	☐
I am constantly fidgeting or squirming (wriggling)	☐	☐	☐
I have one good friend or more	☐	☐	☐
I fight a lot. I can make other people do what I want	☐	☐	☐
I am often unhappy, down-hearted or tearful	☐	☐	☐
Other people my age generally like me	☐	☐	☐
I am easily distracted, I find it difficult to concentrate	☐	☐	☐
I am nervous in new situations. I easily lose confidence	☐	☐	☐
I am kind to younger children	☐	☐	☐
I am often accused of lying or cheating	☐	☐	☐
Other children or young people pick on me or bully me	☐	☐	☐
I often volunteer to help others (parents, teachers, children)	☐	☐	☐
I think before I do things	☐	☐	☐
I take things that are not mine from home, school or elsewhere	☐	☐	☐
I get on better with adults than with people my own age	☐	☐	☐
I have many fears, I am easily scared	☐	☐	☐
I finish the work I'm doing. My attention is good	☐	☐	☐

E. And now some questions about some things that young people may have experienced.

	Have you ever experienced any of these?		If yes, did you experience these in the last six months?	
	Yes	No	Yes	No
Someone in the family died	☐	☐	☐	☐
Family member was seriously injured	☐	☐	☐	☐
Saw a crime or an accident	☐	☐	☐	☐
Lost a close friend (broke/split up)	☐	☐	☐	☐
Close friend was seriously sick or injured	☐	☐	☐	☐
Negative change in parent's financial situation	☐	☐	☐	☐
Family had drug/alcohol problem	☐	☐	☐	☐
Got seriously sick or injured	☐	☐	☐	☐
Parents argued more than previously	☐	☐	☐	☐
Mother/father figure lost job	☐	☐	☐	☐
One parent was away from home more often	☐	☐	☐	☐
Someone in the family was arrested	☐	☐	☐	☐
Close friend died	☐	☐	☐	☐
Family member had mental/emotional problem	☐	☐	☐	☐
Brother or sister left home	☐	☐	☐	☐
Being a victim of crime/violence/assault	☐	☐	☐	☐
Parents separated	☐	☐	☐	☐
Parent(s) got into trouble with the law	☐	☐	☐	☐
Attended a new school	☐	☐	☐	☐
Family moved	☐	☐	☐	☐
Parents got divorced	☐	☐	☐	☐
One of the parents went to jail	☐	☐	☐	☐
Got a new stepmother or stepfather	☐	☐	☐	☐
Parent got a new job	☐	☐	☐	☐
Broke up with boyfriend/girlfriend	☐	☐	☐	☐

	Yes	No
In the *past month,* have you smoked a whole cigarette?	☐	☐
In the *past month*, did you use alcohol other than a few sips?	☐	☐
In the *past year*, did you smoke dagga?	☐	☐

In the *past year*, did you use tik?	☐	☐
In the past year, did you use Ecstasy?	☐	☐
Have you ever used any other illegal drug, such as cocaine, heroin, stimulants, hallucinogenics such as LSD, Nexus, MMDA?	☐	☐

G. Can you tell us something about your parents?

		Mother	Father
1.	What parents do you have living? (tick those that apply)	☐	☐

With all the following questions, only answer for those parents who are still alive

2. Do they work?

Yes part time	☐	☐
Yes full time	☐	☐
No	☐	☐
Don't know	☐	☐

3. How good is their health?

Very good	☐	☐
Good	☐	☐
Poor	☐	☐
Very poor	☐	☐
Don't know	☐	☐

4. What is the highest level of education they have completed?

No schooling	☐	☐
Primary school only	☐	☐
Some high school	☐	☐
Grade 12/Std. 10	☐	☐
At least some college/university	☐	☐
Don't know	☐	☐

H. Can you now tell us something about your relationship with your parents?

(Remember, we only need you to answer about your parents who are still alive)

	Mother	Father

1. How often does each of your parents talk over important decisions with you?

Never	☐	☐
Hardly ever	☐	☐
Sometimes	☐	☐
Often	☐	☐

2. How often does each of your parents listen to your side of the argument?

Never	☐	☐
Hardly ever	☐	☐
Sometimes	☐	☐
Often	☐	☐

3. How often does each of your parents know whom you are with when you are when not at home?

Never	☐	☐
Hardly ever	☐	☐
Sometimes	☐	☐
Often	☐	☐

4. How often does each parent miss the events or activities that are important to you?

Never	☐	☐
Hardly ever	☐	☐
Sometimes	☐	☐
Often	☐	☐

5. How close do you feel to each of your parents?

Not at all close	☐	☐
Not very close	☐	☐
Quite close	☐	☐
Very close	☐	☐

6. How well do each of your parents and you share ideas or talk about things that really matter?

Not at all well	☐	☐
Not very well	☐	☐
Quite well	☐	☐
Very well	☐	☐

I. Can you tell us something about your grandparents?

		Mother's mother	Mother's father	Father's mother	Father's father
1.	What grandparents do you have living? (tick all that apply)	☐	☐	☐	☐
2.	Which grandparent do you have the closest relationship with? (tick one)	☐	☐	☐	☐

With all the following questions, only answer for those grandparents who are still alive.

3. How often do you see them?

Just about every day	☐	☐	☐	☐
About once a week	☐	☐	☐	☐
About once a month	☐	☐	☐	☐
Several times a year	☐	☐	☐	☐
Once a year or less	☐	☐	☐	☐
Never	☐	☐	☐	☐

4. How often do you have contact with them by telephone, the internet (e.g., email, Facebook) or letter?

Just about every day	☐	☐	☐	☐
About once a week	☐	☐	☐	☐
About once a	☐	☐	☐	☐

month				
Several times a year	☐	☐	☐	☐
Once a year or less	☐	☐	☐	☐
Never	☐	☐	☐	☐

5. Where do they live?

With me	☐	☐	☐	☐
In Cape Town (but not with me)	☐	☐	☐	☐
Further away (in South Africa)	☐	☐	☐	☐
Further away (in another country)	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

6. How often do they look after you?

Just about every day	☐	☐	☐	☐
About once a week	☐	☐	☐	☐
Several times a year	☐	☐	☐	☐
Never	☐	☐	☐	☐
	Mother's mother	Mother's father	Father's mother	Father's father

7. Have you ever lived in your grandparent's home, without either parent?

Yes	☐	☐	☐	☐
No	☐	☐	☐	☐

If yes, how long did you live with your grandparent? _____ _____ _____ _____

8. How old are your grandparents?

Younger than 50	☐	☐	☐	☐

In their 50s	☐	☐	☐	☐
In their 60s	☐	☐	☐	☐
In their 70s	☐	☐	☐	☐
Over 80	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

9. Do they still work?

Yes part time	☐	☐	☐	☐
Yes full time	☐	☐	☐	☐
No	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

10. Are they married?

Yes	☐	☐	☐	☐
No	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

11. What is the highest level of education they have completed?

No schooling	☐	☐	☐	☐
Primary school only	☐	☐	☐	☐
Some high school	☐	☐	☐	☐
Grade 12/Std. 10	☐	☐	☐	☐
At least some college/university	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

(Remember, we only need you to answer about your grandparents who are still alive)

	Mother's mother	Mother's father	Father's mother	Father's father

12 How good is their health?

.

Very good	☐	☐	☐	☐
Good	☐	☐	☐	☐
Poor	☐	☐	☐	☐
Very poor	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

13 How many grandchildren do they have?

.

Just you	☐	☐	☐	☐
2 or 3	☐	☐	☐	☐
4 or 5	☐	☐	☐	☐
6 or more	☐	☐	☐	☐

14 How well does your mother get on with your grandparents?

.

Very well	☐	☐	☐	☐
Well	☐	☐	☐	☐
Not so well	☐	☐	☐	☐
Not well at all	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

Don't have this parent ☐

15 How well does your father get on with your grandparents?

.

Very well	☐	☐	☐	☐
Well	☐	☐	☐	☐
Not so well	☐	☐	☐	☐
Not well at all	☐	☐	☐	☐
Don't know	☐	☐	☐	☐

Don't have this parent ☐

16 Do your parents encourage you to spend time with your grandparents?

.

Yes	☐	☐	☐	☐
No	☐	☐	☐	☐

J. Can you now tell us something about your relationship with your grandparents?
(Remember, we only need you to answer about your grandparents who are still alive)

	Mother's mother	Mother's father	Father's mother	Father's father

1. How much can you depend on your grandparent to be there when you really need him/her?

Not much	☐	☐	☐	☐
Some	☐	☐	☐	☐
A lot	☐	☐	☐	☐

2. How much does your grandparent make you feel appreciated, loved, or cared for?

Not much	☐	☐	☐	☐
Some	☐	☐	☐	☐
A lot	☐	☐	☐	☐

3. How often do you talk to them about personal matters or things that are important to you?

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

4. How often does your grandparent help you by giving you advice or helping solve problems you have?

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

5. Do you talk to them about your future plans?

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

6. Do they help you to learn or understand things? (for example, school work, your family history)

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

	Mother's mother	Mother's father	Father's mother	Father's father

7. Do they get involved with things you like? (for example, sport, making things, doing enjoyable things together)

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

8. Do they come to school events or other activities that are important to you? (for example, sporting matches, plays, religious activities)

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

9. How often do you help your grandparent with something they are doing or making? (for example, household jobs)

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

10. Does your grandparent get involved in telling you what you can and cannot do?

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

11. Do they give you or your family money or gifts?

Never	☐	☐	☐	☐
Occasionally	☐	☐	☐	☐
Often	☐	☐	☐	☐

K. And finally, it would be good if you could tell us…

What is the best thing about your grandparent(s)?

……

……

……

……

……

Thank you for your help! Your views matter!

Appendix B: WCED approval letter

Audrey.wyngaard2@pgwc.gov.za
tel: +27 021 467 9272
Fax: 0865902282
Private Bag x9114, Cape Town, 8000
wced.wcape.gov.za

REFERENCE: 20130516-11237
ENQUIRIES: Dr A T Wyngaard

Dr Lauren Wild
Department of Psychology
UCT
Rondebosch
7701

Dear Dr Lauren Wild

RESEARCH PROPOSAL: GRANDPARENTAL INVOLVEMENT AND ADOLESCENT MENTAL AND BEHAVIOURAL HEALTH

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

1. Principals, educators and learners are under no obligation to assist you in your investigation.
2. Principals, educators, learners and schools should not be identifiable in any way from the results of the investigation.
3. You make all the arrangements concerning your investigation.
4. Approval for projects should be conveyed to the District Director of the schools where the project will be conducted.
5. Educators' programmes are not to be interrupted.
6. The Study is to be conducted from **27 May 2013 till 21 June 2013**
7. No research can be conducted during the fourth term as schools are preparing and finalizing syllabi for examinations (October to December).
8. Should you wish to extend the period of your survey, please contact Dr A.T Wyngaard at the contact numbers above quoting the reference number?
9. A photocopy of this letter is submitted to the principal where the intended research is to be conducted.
10. Your research will be limited to the list of schools as forwarded to the Western Cape Education Department.
11. A brief summary of the content, findings and recommendations is provided to the Director: Research Services.
12. The Department receives a copy of the completed report/dissertation/thesis addressed to:

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

We wish you success in your research.

Kind regards.
Signed: Dr Audrey T Wyngaard
Directorate: Research
DATE: 17 May 2013

Appendix C: Ethical approval

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town Rondebosch 7701 South Africa
Telephone (021) 650 3414
Fax No. (021) 650 4104

13 May 2013

Dr Lauren Wild
Department of Psychology
University of Cape Town
Rondebosch 7701

Dear Dr Wild,

I am pleased to inform you that ethical clearance has been given by an Ethics Review Committee of the Faculty of Humanities for your project:

Grandparental involvement and adolescent mental and behavioural health.

Please use the reference PSY2013-009 if required. I wish you all the best for your study.

Yours sincerely,

Signed

Johann Louw PhD
Professor
Chair: Ethics Review Committee

Appendix D: Consent form

UNIVERSITY OF CAPE TOWN

Department of Psychology

University of Cape Town, Rondebosch, 7701, South Africa
Telephone: (021) 650-4605
Fax: (021) 650-4104

Date

Dear Parent

My grandparents and me: Research study at your child's school

Researchers from the Department of Psychology at the University of Cape Town have arranged to conduct a study of grandparental involvement and child well-being at your child's school.

Many grandparents play an important role in South African families. International research suggests that support from grandparents can help to protect adolescent children from many stresses that occur in their lives, and contribute to their well-being. To date, however, children's relationships with their grandparents have received little research attention in South Africa.

We would like to invite your child to fill in a questionnaire during an ordinary school period. They will be asked questions about their relationships, experiences and behaviours. This is a voluntary exercise and your child will be able to choose whether or not to participate. If they do participate, they will be free to withdraw from the study at any time, or to leave out certain questions. If they choose not to participate, this will have no effect on how your child will be treated at school.

All information provided by your child will be anonymous and confidential. They will not be asked to put their name on the questionnaire, and the information from all learners who participate will be combined in the presentation of the results. As a result, no child who participates in the research will be personally identifiable.

If you do *not* want your child to participate in this study, please fill in the reply slip below and return it to school by date. If you do not respond we will take that as permission for your child to participate.

Thank you for your cooperation.

Yours sincerely

Dr Lauren Wild

Principal Investigator

If you have any questions or complaints about this study, please contact:

Dr. Lauren Wild
Principal Investigator
Tel: (021) 650 4607
Email: lauren.wild@uct.ac.za

I do not wish for my son / daughter to participate in the research study being conducted by the UCT Psychology Department at my child's school.

Child's Name:
_____

Class: _____

Parent's / Guardian's Name: _____

Signature: _____ Date: _____

Appendix E: Assent form

Information Sheet and Assent Form for Adolescents

My grandparents and me: Teen survey

Please take time to read this sheet carefully and decide whether you do or don't want to take part. Ask the researcher if there is anything that is not clear, or if you have questions. Thank you for reading this.

What is the study about?

We would like to know more about young people and their relationships with their grandparents.

What would I have to do?

If you decide to take part, you will first sign a consent form (on the next page), and then spend about 45 minutes answering a questionnaire. The questions will ask about your relationships, experiences, and behaviours.

What are the risks?

Some of the questions may talk about things that some people find quite personal. If any of the questions make you feel uncomfortable or you don't want to answer them, you do not have to. If any of the questions upset you, or if you would like to talk to someone about the feelings you experienced, please let your school counsellor know, or call Childline on 080 005 5555.

What are the benefits?

You will not benefit directly from participating in this study. However, we may learn something that will help other children at some point in the future. Your thoughts and opinions are very valuable.

Do I have to take part?

Not at all. It is up to you to decide whether or not to take part. You will not get in any trouble if you do not want to take part. If you decide to take part, you are still free to stop at any time. You don't have to give a reason.

Will what I say be kept confidential?

Anything you tell us about yourself will be kept strictly confidential. This means it will be private between you and the research team, and will not be told to anyone else. You will not be asked to put your name on the questionnaire.

Who is conducting the research? The research is being conducted by the Department of Psychology at the University of Cape Town.

Contact for further information

If you have any questions or complaints about this study, you can contact Dr Lauren Wild, Department of Psychology, University of Cape Town, Rondebosch 7701, South Africa. Tel. (021) 650-4607. Email: Lauren.Wild@uct.ac.za

Thank you for reading this sheet. If you have any questions, please raise your hand now. If you feel comfortable with everything, you can fill in the box below:

	Tick
1. I have read and understand the information sheet for this study and have had the chance to ask questions.	☐
2. I understand that I have chosen to take part and that I am free to stop at any time, without giving any reason.	☐
3. I agree to take part in the study	☐

Name of participant .....

Signature ..... Date.....