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Thesis Title: *Ascertaining the structural validity of the adapted English and translated Afrikaans versions of the Family Resilience Assessment (FRAS) Sub-scales*

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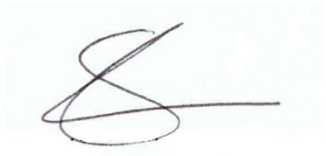
Key words: family resilience; family functioning; Family Resilience Assessment Scale; bias and equivalence theory; cross-cultural assessment; confirmatory factor analysis; validity; measurement invariance

Declaration

The author hereby declares that the following research report, 'Ascertaining the structural validity of the adapted English and translated Afrikaans versions of the Family Resilience Assessment (FRAS) sub-scales' is her own work, that it has not been submitted before for any degree or examination in any other university, and that all the sources used or quoted have been indicated and acknowledged through complete references following the American Psychological Association referencing convention.

Miss Shantay Carlson



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Abstract

Family resilience has become an important concept in mental health and family research over the past twenty years. An assessment tool that was found to assess this concept within western English-speaking populations is the Family Resilience Assessment Scale (FRAS). The FRAS was developed by Sixbey and is based on Walsh's model of family resilience, a prominent theorist in family resilience research. A recent study has translated and adapted the original scale into Afrikaans, which is one of the eleven official languages of South Africa. This was done for the FRAS to be utilised in a context other than the one it was developed for. As a recommendation from this recent study, the current study attempted to establish the validity of the Afrikaans version of the FRAS, as well as a South African-adapted English version. The current study was conducted within a low-socio-economic community in Cape Town, Western Cape. A final total of 884 participants (n=400 English; n=484 Afrikaans) between the ages of 18-80 years were used in the analysis. The data were analysed using Confirmatory Factor Analysis (CFA) and Multi-group Confirmatory Factor Analysis (MGCFA), which was conducted by means of the Analysis of a Moment Structures (AMOS) software (version 25). Results of the CFA and MGCFA revealed an acceptable fit for the modified 6-factor model with seven error covariances and 32 deleted items. Measurement invariance was tenable, which suggests that the South African-adapted English and Afrikaans version of the FRAS are comparable across the English and Afrikaans language groups. Specifically, meaningful comparisons can be made across the language groups by correlations, regression coefficients, and mean scores. Finally, this study found a 22-item FRAS to be applicable for use in the Western Cape, South African context.

CHAPTER OUTLINE

Chapter One

This chapter aims to introduce the concept of family resilience and discuss how family resilience has been conceptualised as a model measuring family functioning within the context of adversity. A brief description of models of the family, which adopt a strength-based perspective to the measurement of family functioning, is provided. These models exist among a multitude of other measures of the family that are employed in family and community research. One such measure is the Family Resilience Assessment Scale (FRAS) (Sixbey, 2005). A brief description of the FRAS is given along with the various translations of the scale that currently exist. The importance of multi-cultural assessment in family research is discussed providing the basis for the significance and relevance of the current study. This chapter concludes with this study's aim and objectives.

Chapter Two

This literature review chapter aims to provide an overall understanding of the concept of family resilience with a concise exploration of the evolution of the concept in literature on family studies. This chapter highlights the emphasis that the concept of resilience places on adopting a strength-based approach to family resilience. The specific themes that are explored in this chapter include an exploration of the history and evolution of the concept of family resilience. This is followed by a review on the existing family resilience assessments that are currently in the literature. Thereafter, Sixbey's (2005) Family Resilience Assessment Scale (FRAS) is described, along with the scale's current position in family literature. Lastly, the FRAS adaptations are discussed and expanded upon. This information is presented to provide a clear conceptualisation of the scale, which was employed in the current study.

Chapter Three

This chapter aims to define, explore, and discuss the theoretical framework which guided the current study. The current study is encased in the theoretical framework of bias and equivalence as outlined by van de Vijver and Leung (1997).

Chapter Four

This chapter aims to provide a description and rationale of the research design, research method, and procedures that the researchers of the larger study have utilised, along with the respective methods of data collection, data analysis, and continued ethics accountability of

the current study that were employed and followed. The current study used both secondary data from a cross-sectional survey and primary data collected through the current study.

Chapter Five

The results chapter presents the results obtained from the data analysis carried out in the current study. This presentation of the data analysis includes reports on the descriptive statistics, reliability analysis, and the mean scores and standard deviations of the FRAS, the results of the Confirmatory Factor Analysis (CFA) and model modification, the error covariances for the items on the overall sample, as well as the Fit Statistics for the overall model. This chapter concludes with the procedures and findings of the Multi-group Confirmatory Factor Analysis (MGCFA), and the standardised regression weights (scalar estimates) obtained in the current study.

Chapter Six

This chapter aims to provide a discussion on the key findings of the study concerning the proposed aim and objectives, the previously presented literature, as well as the theoretical framework. Key results of the Confirmatory Factor Analysis (CFA) and the Multi-group Confirmatory Factor Analysis (MGCFA) are also presented. This chapter concludes with a discussion of whether the aim and objectives of the current study were met.

Chapter Seven

This final chapter integrates the literature, results, the discussion of the research findings, and implications for research of the findings obtained in the current study. The essence of this concluding chapter entails answering the aim and objectives, and summarising the main findings of the current study. The significance of the current study is presented, along with the implications of the current research findings for future studies. A list of the current study's limitations is also presented along with recommendations on how to possibly address these limitations in future studies and research.

CHAPTER ONE

Introduction

The aim of this chapter is to introduce the concept of family resilience and discuss how family resilience has been conceptualised as a model measuring family functioning within the context of adversity. A description of models of the family, which adopt a strength-based perspective to the measurement of family functioning, is provided, such as the Family Resilience Assessment Scale (FRAS) (Sixbey, 2005). The FRAS and the translations of the scale are mentioned, emphasising the importance of multi-cultural assessment in family research, which provides the basis for the significance and relevance of the current study.

1.1 Background and Rationale

The concept of resilience has become an important one in mental health and family research over the past twenty years (Baptcare, 2015; Walsh, 2016). It has been regarded as a valuable concept within child, family, and community studies (Masten, 2018, 2019; Walsh, 2002, 2003, 2013, 2016) and refers to the ability of an individual to adapt positively after experiencing adversity, with the capacity to possibly achieve better means of managing challenges thereafter (Baptcare, 2015; Walsh, 2013, 2014, 2016). Although much research on resilience focuses on examining individual resilience, studies also conceptualise resilience within families (Chang, Neo & Fung, 2015; Walsh, 2013, 2016). Many families encounter adverse situations that may lead to a disintegration of the family process and structure. When this happens, many tend to cope and deal with challenges as a family, rather than as isolated individuals (Chang et al., 2015). The concept of family resilience entails families' either encompassing or developing the ability to successfully manage and respond to situations of adversity and persistent challenges, and to transform and grow from this adversity (Cowan, Cowan & Schultz, 1996; Patterson, 2002; Walsh, 2002, 2003, 2016).

The concept of family resilience has been conceptualised as a useful model or theory to understand family functioning within the context of adversity (Walsh, 2016). In an attempt to better understand families, researchers and clinicians have endeavored to operationalise the concept to make it measurable. There exists a multitude of measures of the family that are employed in family and community research (Sixbey, 2005). For example, the Comprehensive Evaluation of Family Functioning scale (CEFF) (McLinden, 1988), which assesses a variety of family functioning constructs specifically for families with children with

disabilities. The Parenting Stress Index (PSI) is a scale that focuses on specific aspects of familial and parental functioning (Abidin, 1995). The Family Adaptability and Cohesion Scales (FACES-IV) (Du et al., 2014; Olson, Portner & Lavee, 1985; Turliuc, Ciudin & Robu, 2016) assesses the respondent's perceptions of current family functioning and ideal family functioning. The Family Assessment Device (FAD) also assesses general family functioning on seven different dimensions using seven sub-scales (Problem Solving, Communication, Roles, Affective Responsiveness, Affective Involvement, Behaviour Control, and General Functioning), and identifies problem areas of family functioning (Du et al., 2014; Epstein, Baldwin & Bishop, 1983). Lastly, the Family Assessment Measure (FAM III) (Skinner, Steinhauer & Santa-Barbara, 1995; Skinner, Steinhauer & Sitarenious, 2000), focuses on the level of general family functioning from a systems perspective, in other words, viewing the family as a unit. These assessment tools all assess various aspects of family functioning, particularly by examining the family's strengths and weaknesses.

However, despite these assessment tools being among the most widely used tools of family assessment (see Hamilton & Carr, 2016; Mansfield, Keitner & Dealy, 2015; Pellerone, Ramaci, Pariello, Guariglia & Giaimo, 2017; Ridenour, Daley & Reich, 1999; Sanderson et al., 2009; Traebert, dos Santos, Muller Carvalho, da Silva & Traebert, 2016), they do not follow a strength-based approach to family functioning that draws upon key family processes, which enables the facilitation of resilience among family members. This is due to these models mainly focusing on addressing family dysfunction and pathology (Chew & Haase, 2016).

According to Sixbey (2005), finding an appropriate assessment tool to assess particular psychological constructs has proven to be a challenging task in family research. This is mainly due to the array of ill-defined and ill-developed constructs that are addressed by these assessment tools, because one of the biggest tasks in the measurement of psychological constructs is reaching an agreement about its theoretical components (Isaacs, Roman, Savahl & Sui, 2018). As it pertains to the construct of family resilience, key theorists in family psychology, such as Patterson (2002) and Walsh (1996, 1998, 2002, 2003, 2013, 2016) have afforded subtle differences in how they conceptualise the construct. However, the commonalities between their understandings are that families display resilience when they are faced with adversities, and when they are able to overcome their adversities (Isaacs et al.,

2018). This is illustrative of a model of family resilience that encompasses a strength-based perspective, which draws upon the presence and strengthening of key family processes in an attempt to facilitate family resilience.

Family resilience measures that assess healthy family functioning and family strengths in adverse situations have gained much importance in mental health research (Walsh, 2006, 2013, 2014, 2016). However, not many assessment tools are available that have a chief focus on family strengths which tap into key family processes that could encourage healthy family functioning (Sixbey, 2005) and resilience. According to Sixbey (2005), there is a need for such assessment tools in order to assess the entire construct of family resilience.

In response to this necessity, and in an attempt to create a valid and reliable tool that is capable of measuring this conceptualisation of family resilience, Sixbey (2005) developed the Family Resilience Assessment Scale (FRAS). The FRAS was developed in the United States and comprises of 54-items within six sub-scales. Respondents are asked to rate their level of agreement with statements that best describe their family processes on a 4-point Likert scale. The sub-scales include (1) Family Communication and Problem Solving (FCPS), (2) Utilising Social and Economic Resources (USER), (3) Maintaining a Positive Outlook (MPO), (4) Family Connectedness (FC), (5) Family Spirituality (FS), and the (6) Ability to Make Meaning of Adversity (AMMA).

1.1.1 The FRAS in the Literature

The study of family resilience factors using the FRAS has been conducted in several doctoral, masters dissertations, and research studies in many countries, such as Romania, the United States, China, Poland, and Singapore among others, investigating the correlates of family resilience and various psychosocial factors (e.g., Cripe, 2013; Chew & Haase, 2016; Duca, 2015; Gardiner, Masse & Larocci, 2019; Li, Zhao, Zhang, Lou & Cao, 2016; Plumb, 2011). Studies using the FRAS have been conducted with families with children diagnosed with an Autism Spectrum Disorder (ASD) (see Bayat, 2007; Cripe, 2013; Plumb, 2011; Simelane, 2015; Teixeira, 2015), in the area of suicide among the youth (see Seo & Jung, 2013), among vocational rehabilitation clients (see Openshaw, 2011), in the area of parent-adolescent communication (Suk-Ja & Hee-Jeong, 2013), with families that have experienced losses (see Boss, 2013; Greeff & Human, 2013), and with families with children with severe disabilities

(see Hartshorne, Schafer, Stratton & Nacarto, 2013). This illustrates that the FRAS has been used and administered throughout the literature in different contexts and countries, investigating numerous topics involving families and the challenges that they face.

The FRAS was developed for use within western English-speaking countries and was found to be a contextually appropriate assessment tool to measure the construct of family resilience (Buchanan, 2008; Dimech, 2014; Plumb, 2011; Sixbey, 2005). However, it would be particularly useful if the FRAS could also be utilised in various other contexts, such as South Africa; this will be beneficial for the South African context due to the country's linguistic and cultural diversity (Koch, 2009; van der Vijver & Tanzer, 2004). This will contribute to multi-cultural assessments, cross-cultural family research, and the ability to make meaningful comparisons between different groups, which could produce crucial knowledge regarding an understanding of how different families deal with adversity and grow beyond adversity, in other words, their family functioning and resilience (Walsh, 2002).

The importance of translating, adapting, and validating assessment tools have been stressed in literature, specifically in culturally and linguistically diverse societies, such as South Africa (see Borsa, Damásio & Bandeira, 2012; Koch, 2015; van de Vijver & Tanzer, 2004). When using the FRAS to measure family resilience, it is important to take into consideration the cultural specificity of the construct when applying the FRAS to cultures different from the United States (Li et al., 2016). In response to these challenges, Isaacs et al. (2018) translated and adapted the FRAS into Afrikaans. Their study examined the psychometric properties of the scale and recommended that additional research is needed on the validity of the instrument for use within South Africa.

An important requirement for accurately comparing constructs among different groups involve the extent to which an assessment tool adequately assesses the construct it purports to measure (Drew & Rosenthal, 2003). This crucial requirement is referred to as structural validity (Nunnally & Bernstein, 1994). In countries with diverse cultures, such as South Africa, a critical need exists for valid, reliable, and unbiased translated assessment tools (Nkosi & Roodt, 2004). More research is therefore needed to better understand the applicability and validity of the FRAS for cultures outside of the USA.

1.2 Problem Statement

It is evident that the need for multiple-language versions of assessment measures that are valid and reliable is crucial, especially within the South African context, as it is chiefly characterised by diverse ethnic, socio-economic status, culture, and language groups (Koch, 2009, 2015; Rawoot & Florence, 2017). Having a valid and reliable measurement of family resilience available in multiple language versions opens up an array of avenues to explore how different families understand resilience and what meanings they ascribe to the construct (Walsh, 2013). This could particularly assist researchers, clinicians, and practitioners in the field to assess how resilient families are and which family processes require more support or reinforcement to improve family functioning (Walsh, 2012, 2016), with the aim of ultimately promoting and facilitating resilience in families in South Africa (Isaacs et al., 2018).

The FRAS was adapted into Afrikaans (FRAS-Afrikaans Version or FRAS-AV) in the study by Isaacs et al. (2018) for use in a rural, Afrikaans-speaking community. The FRAS-AV was assessed using Exploratory Factor Analysis (EFA). The adaptation of the FRAS-AV was therefore an excellent step toward this goal. However, when translating an assessment tool, it is important to consider linguistic and cultural differences underlying the construct(s) (Li et al., 2016). Literature stipulates that different cultures possess varying understandings and experiences of adversity and further possess different ways of coping with challenge. For example, there exist differences in languages and dialects depending on the cultural context (Patterson, 2002; Walsh, 1998, 2002, 2003). Such differences should therefore be acknowledged when adapting different language versions of the FRAS to ensure structural validity (Mokkink et al., 2010). This ensures that the scores of the FRAS are an adequate and valid reflection of how the FRAS measures the dimensions of family resilience in both language groups; that the FRAS possesses structural validity.

Van Horn, Bellis, and Snyder (2001) note that in order for a family assessment tool to be useful, it has to demonstrate that it possesses validity. Validity is the most fundamental psychometric consideration in the development or implementation of any assessment tool (Salehi & Tayebi, 2012). Studies that have translated the FRAS have assessed various forms of validity, such as the concurrent-criterion, discriminant, and construct validity of the scale in those specific contexts. Isaacs et al. (2018) recommended validating the FRAS-AV and the original FRAS for the South African context. Following the recommendation put forth by Isaacs et al. (2018), the current study will establish whether the FRAS-AV and South

African-adapted English version of the FRAS demonstrate structural validity. This will contribute to the existing body of knowledge, literature, and research on the psychometric properties and applicability of these two language versions of the FRAS in the Western Cape, South African context.

1.3 Aim of the Study

The aim of the current study is to ascertain the structural validity of the adapted English and the translated Afrikaans version of the Family Resilience Assessment Scale. The following objectives have been developed in order to achieve the overall aim of the study:

1. To test the configural invariance of the adapted English version and the translated Afrikaans version of the FRAS sub-scales
2. To test the metric invariance of the adapted English version and the translated Afrikaans version of the FRAS sub-scales
3. To test the scalar invariance of the adapted English version and the translated Afrikaans version of the FRAS sub-scales

1.4 Chapter Conclusion

This chapter introduced the concept of family resilience and discussed how family resilience has been conceptualised as a model measuring family functioning within the context of adversity. A brief description of models of family resilience, which adopted a strength-based perspective to the measurement of family functioning, was provided. The assessment tool that is utilised in the current study is the FRAS, which was developed by Sixbey (2005). The FRAS and all its language variations were touched on. The importance of multi-cultural assessment in family research was emphasised, providing the basis for the significance and relevance of the current study. This chapter concluded with the current study's aim and objectives.

CHAPTER TWO

Literature Review

2.1 Introduction

This review aims to provide an overall understanding of the concept of family resilience by exploring the evolution of the concept in literature on family studies. The discussion is focused on Walsh's theory of family resilience, assessment tools in family functioning and resilience, as well as the translations and adaptations of the Family Resilience Assessment Scale (FRAS).

2.2 Exploration of the Concept of Family Resilience

As crisis and adversity are recognised as inherent in the human condition, the concept of resilience has become an important one in mental health and family research, more so over the past twenty years (Masten, 2015; Masten & Barnes, 2018; Walsh, 2012). According to Black and Lobo (2008), the outcomes of any adversity may either be damaging to individuals or it may very well be antithetical to this, in other words, individuals may have positive, strengthening, and adaptive outcomes in response to experiences of adversity. Many scholars and theorists regard the notion of resilience as a valuable concept of adversity, essentially referring to the ability of an individual to endure and positively adapt after experiencing adversity in life, with the capacity to return to a state of emotional well-being (Chang et al., 2015; Walsh, 2006, 2016).

The family science discipline has seen promulgation of literature conceptualising and promoting family resilience (see Becvar, 2015; Benzies & Mychasiuk, 2009; Chang et al., 2015; Orthner, Jones-Sanpei & Williamson, 2004; Patterson, 2002; Walsh, 2003, 2012, 2016). Therefore, as individuals experience adversity in life, many family units also encounter adverse situations that often lead to a disintegration of the family process and structure. When this happens, some may deal with challenges as a family and not as isolated individuals (Chang et al., 2015). Positive relationships within the family and key family processes influence resilience (Black & Lobo, 2008; Walsh, 2015, 2016). This is characteristic of a family resilience model that comprises a strength-based perspective. This perspective takes into account family stressors and challenges and regards them as opportunities for fostering healing, transformation, and growth rather than being detrimental and damaging (Patterson, 2002; Walsh, 2002, 2003, 2012, 2016). Therefore, when families

encounter stressors and adversity, a family's ability to engage processes, which increases their functioning, can promote their level of resilience (Walsh, 2006). This resilience contributes to their ability to meet present and future stressors (Lee et al., 2004; Walsh, 1996, 2003, 2006).

To determine whether families are resilient or not, and how resilient they are, can provide health care professionals and clinicians with imperative knowledge that can positively contribute to theory and practice, and to the improvement of functioning of families (Walsh, 2006, 2016). Since resilience is regarded as an active process that can be inherent or acquired and increased, families lacking resilience can therefore still develop it (Masten, 2018; Walsh, 1996, 2016). To establish a family's level of resilience, utilising a valid assessment tool to measure family functioning and family resilience is necessary.

2.3 Walsh's Theory of Family Resilience

The FRAS (Sixbey, 2005) is a scale based on Walsh's Family Resilience Model, which measures the construct of family resilience. Walsh's (1998) model offers a trident approach to family resilience, encompassing three overarching dimensions/constructs related to family functioning: namely, (1) family belief systems, (2) organisational patterns, and (3) communication processes. Each dimension has their own three processes, which assist families to function in a time of crisis (Walsh, 2016). These will now be explained.

The *family belief systems* dimension refers to a family's ability to make meaning of adversities, to foster a positive approach, and to offer spiritual connections (Walsh, 2006). This belief system consists of a family's values, attitudes, concerns, and assumptions, and has an effect on the perception and response that individuals have towards a family crisis (Sixbey, 2005; Walsh, 2012). Belief systems therefore enable *making meaning of adversity*, a *positive outlook*, and *transcendence and spirituality*. *Making meaning of adversity* helps families understand, accept, and deal with stressful situations (Sixbey, 2005; Walsh, 2006). A *positive outlook* refers to the sense of optimism, hope, and confidence in coping with adversity that the family possesses irrespective of how unpromising their current adverse situation in life may seem (Nadrowska, Blazek & Lewandowska-Walter, 2017; Sixbey, 2005; Walsh, 1998). *Transcendence and spirituality* refers to the ability to find strength and guidance in adversity (Walsh, 2003). It is related to the broader goals and values of the family, and it provides meaning and purpose that exceeds families and the adversities they

experience (Sixbey, 2005).

The *organisational patterns* dimension can be drawn from past and current relationships, and from cultural norms, values, and expectations, to discover ways that assist families in persevering through adversity (Sixbey, 2005). This dimension includes a family's internal and external resources. Families require *flexibility* to adapt to new situations and to recalibrate after experiencing a crisis (Sixbey, 2005; Walsh, 2006). Having a strong bond between them, or *connectedness* is important for effective family functioning during adversity. It refers to the balance of mutual support, commitment, and collaboration of family members after the repercussions of adversity while still maintaining mutual respect for individual differences or needs, autonomy, and boundaries (Walsh, 2012, 2013, 2016). *Utilising social and economic resources* is also important for families, such as practical support and social support from friends and social welfare services, important community connections, information, concrete services, and relief (Walsh, 2006, 2016).

Lastly, the *communication processes* dimension "facilitates resilience by bringing [*clarity*] to adverse situations, encouraging [*open emotional sharing*], and fostering [*collaborative problem solving*] and proactive planning" (Walsh, 2016, p. 108). The *clarity* process refers to the transmission of clear and consistent messages between family members (Walsh, 2012, 2016). *Open emotional expression* allows family members to feel safe in expressing painful emotions and emphasises a safe family atmosphere where positive and negative emotions are allowed and welcomed (Lane, Meszaros & Savla, 2017). The process of *collaborative problem solving* includes the family making decisions together, engaging in conflict management, and negotiating and being proactive when it comes to preparing for future challenges and for dealing with current challenges (Walsh, 2006).

As a whole, the nine processes in Walsh's (1998) model of family resilience offer a holistic and integrated perspective from which to assess family functioning. According to Walsh (2016), these core processes in family resilience are mutually interactive and synergistic within and across the various domains. While it is unlikely that a family will consistently demonstrate high levels of all nine processes over time, breaking the construct of family resilience down in this manner may allow family practitioners a more accurate view of where a family needs support, and where a family is already succeeding in terms of functioning (Sixbey, 2005). This multi-dimensional perspective supports a strength-oriented

approach (Antonovsky & Sourani, 2003). The nine process and three theme composition also provide a solid thematic structure for operationalising the family resilience framework and using it as an instrument. However, there are few studies testing Walsh's (1998) model of family resilience and creating constructs to measure it using quantitative methods. This is explained next.

2.4 The Family Resilience Assessment Scale

A multitude of assessment tools exist with which to assess family functioning (Sixbey, 2005), and many of these tools have been adapted and validated in different studies. Frequently used tools include the FACES-IV, the FAD, and the FAM. However, these tools may not necessarily be appropriate for assessing family resilience processes within a strength-based frame because they predominantly focus on family dysfunction (Chew & Haase, 2016). There are tools that exist that measure family strengths and resilience. The construct has been measured using multiple scales, including the Family Hardiness Index (FHI) (McCubbin, McCubbin & Thompson, 1991), the Family Time and Routine Index (FTRI) (McCubbin, McCubbin & Thompson, 1996), the Family Traditions Scale (FTS) (McCubbin & Thompson, 1986), the Family Coping Index (FAMCI) (McCubbin, Thompson & Elver, 1995) the Family Coping Coherence Index (FCCI) (McCubbin, Larsen & Olson, 1982) and the Individual, Family, and Community Resilience (IFCRP) Profile (Distelberg, Martin, Borieux & Oloo, 2015).

These scales measure the various aspects of the construct of family resilience, but not the construct in its entirety; locating a well-developed scale addressing specific constructs is generally a challenging task (Sixbey, 2005). The measurement of family resilience, specifically, requires the use of several scales. Sixbey (2005) therefore developed the FRAS using the dimensions of Walsh's (1998) model described above in Section 2.3, which provide six sub-scales to assess areas of family resilience. The FRAS (Sixbey, 2005) thus covers most aspects of family resilience. The FRAS is the only measure of family resilience that currently considers family functioning processes and that aims to identify protective factors within the family unit, including the extent to which they rely on adaptive belief systems, organisational patterns, and communication processes (Chew & Haase, 2016; Gardiner et al., 2019; Sixbey, 2005). A description of Sixbey's (2005) development of the FRAS will now be elaborated upon and the existing translations of the FRAS into Turkish, Maltese, Chinese, Polish, and Afrikaans.

Sixbey (2005) employed the family resilience model, as developed by Walsh (1998), as the theoretical foundation grounding the construction of the 54 items of the FRAS. The scale aims to assist researchers and practitioners in gaining an understanding of how families cope with adversity and also, how they grow stronger and transform through these adverse situations (Sixbey, 2005). In Sixbey's (2005) study, a sample of 418 participants was selected through the employment of convenience sampling. All participants in the sample resided within the United States and were proficient English speakers (Sixbey, 2005). The age of the participants ranged from 16 to 77 years (M = 36.24; SD = 13.00).

2.4.1 The Development and Validation of the FRAS

The initial development of the FRAS consisted of 66 items. The items on the FRAS were primarily scored as *Strongly Disagree* (1), *Disagree* (2), *Agree* (3), and *Strongly Agree* (4). All items with a negative correlation were reverse-scored after the item-to-total correlation in the reliability analysis was inspected: *Strongly Disagree* (4), *Disagree* (3), *Agree* (2), and *Strongly Agree* (1). The total score of the FRAS can range from 66 to 204, with higher scores indicating a higher level of family resilience and lower scores indicating a lower level of family resilience. The FRAS would consist of nine sub-scales based on the model outlined by Walsh (1998) in Section 2.3: namely, (1) Making Meaning of Adversity, (2) Positive Outlook, (3) Transcendence and Spirituality, (4) Flexibility, (5) Connectedness, (6) Social and Economic Resources, (7) Clarity, (8) Open Emotional Communication, and (9) Collaborative Problem Solving.

The first factor analysis of the 66-item FRAS identified 13 sub-scales. The reliability of the 66-item FRAS, which refers to the ability of a measure to yield consistent results (Arafat, 2016; Arafat, Chowdhury, Qusar & Hafez, 2016), indicated that six items required reverse coding. As reliability can be analysed in the form of internal consistency, the most widely used measure of internal consistency is Cronbach's Alpha (Arafat, Chowdhury, Qusar & Hafez, 2016). The total reliability for the 66-item scale along with the six reverse-scored items had a good overall Cronbach's Alpha of .95. According to Sixbey (2005), this reliability coefficient might have been acceptable, however, the number of identified sub-scales with very few items along with the eigenvalues and variance accounted for suggested that this was a poor and an unacceptable solution.

A secondary factor analysis of the FRAS was then carried out where a 9-factor solution was attempted to show whether the 66 items would factor into the nine sub-scales proposed by Walsh (1998). Sixbey (2005) noted that the reliability for the 9-factor solution was satisfactory, however, a number of the items failed to add to the sub-scales through the factor analysis. Therefore, the factors that were identified did not confirm Walsh's (1998) conceptualisation of family resilience, and the items on the sub-scales were not useful or meaningful (Sixbey, 2005). Based on the above, it was time to consider the FRAS as perhaps measuring other constructs (Sixbey, 2005) or to be a mistaken operationalisation of family resilience (Prudon, 2014). To identify new sub-scales and their underlying constructs, a 6-factor solution was attempted based on the previous analysis using the variance accounted for, scree plot, and eigenvalues (Sixbey, 2005). It was found that the eigenvalues and variance for this 6-factor solution presented viable sub-scales with high reliability and high factor loadings. Since one of Sixbey's (2005) study's objectives was to trim down the FRAS, the items that did not load satisfactorily (< .30) or that failed to meet expectations for reliability, were deleted from the FRAS. As each item was deleted, factor analysis and reliability were run again to ensure that deletion of the item actually improved the scale properties (Sixbey, 2005). This resulted in a total of 12 items being deleted from the 6-factor FRAS (items 1, 2, 4, 6, 7, 14, 15, 20, 37, 44, 45, and 53).

This led to a shortened 54-item FRAS with an overall Cronbach's Alpha of .96, which indicates good internal consistency, as specified by Field (2009, 2011). After several factor analysis attempts of the constructs formulated by Walsh's (1998) model, Sixbey (2005) reduced the nine family resilience dimensions to six and named them: (1) Family Communication and Problem Solving (FCPS), (2) Utilising Social and Economic Resources (USER), (3) Maintaining a Positive Outlook (MPO), (4) Family Connectedness (FC), (5) Family Spirituality (FS), and (6) Ability to Make Meaning of Adversity (AMMA). The FRAS measures key family processes or dimensions on six sub-scales. Although Sixbey's (2005) FRAS does not cover all nine key dimensions delineated by Walsh's (1998) model, Sixbey's (2005) scales' six dimensions still tap into all Walsh's three overarching dimensions of family resilience. The six sub-scales of the 54-item FRAS and their associated internal consistencies and factor loadings are described in Table 1.

Table 1: Original FRAS sub-scales and their internal consistency coefficients

Sub-scale	Number of Items in Sub-scale	Example of Items	Cronbach's Alpha	Factor Loadings
Family Communication and Problem Solving (FCPS)	27	'*We can compromise when problems come up*'	.96	.45 - .77
Utilising Social and Economic Resources (USER)	8	'*We know there is community help if there is trouble*'	.85	.54 - .78
Mainaining a Positive Outlook (MPO)	6	'*We trust things will work out even in difficult times*'	.86	.53 - 63
Family Connectedness (FC)	6	'*We show love and affection for family members*'	.70	.00 - .20
Family Spirituality (FS)	4	'*We have faith in a supreme being*'	.88	.01 - .14
Ability to Make Meaning of Adversity (AMMA)	3	'*We accept that problems occur unexpectedly*'	.74	.49 - .71
Overall FRAS	54		.96	

Note. Sixbey, M. (2005). Development of the family resilience assessment scale to identify family resilience constructs. Unpublished Doctoral Thesis. Florida: University of Florida.

2.4.2 The Adaptation and Validation of the FRAS Globally

The FRAS has also been translated and adapted into various languages for its use in culturally and linguistically diverse contexts. It has been translated and validated in Turkish, Maltese, Chinese, Polish, and Afrikaans.

A summary of the translation studies and their main findings are presented in Table 2.

Table 2: Summary of translation studies of the FRAS and their findings

Language	Adaptation/translation	Sample size	Analysis	Results
Turkish	Turkish FRAS	433	CFA	A **4-factor model** showed an adequate fit in comparison to the original 6-factor model of the original FRAS (Sixbey, 2005). The four factors retained in the model include **FCPS, USER, MPO, and AMMA**. Thus, a 44-item Turkish FRAS was successfully adapted for use in Turkey.

Maltese	FRAS-MV	225	CFA	A **6-factor model** with 56 items was successfully adapted for use in the Maltese context. While the FRAS-MV is a valid measure of family resilience and can be utilised in Malta, the factor analysis did not result in the same sub-constructs as determined by Walsh's 9-factor model or by Sixbey's (2005) 6-factor model. The six factors retained in the model include **FCPS, MPO, Outreach** (a combination of USER and FS items), **AMMA, Community and Friendship Outlook, and FC**.
Chinese	FRAS-C	991	CFA	A **3-factor model** showed an adequate fit in comparison to the original 6-factor model of the original FRAS (Sixbey, 2005). The three factors retained in the model include **FCPS, USR, and MPO**. Thus, a 32-item FRAS-C was successfully adapted for use in the Chinese context. Cultural differences were evident during the factor analysis when three of the factors in the original 6-factor FRAS were dropped due to their non-applicability to the Chinese culture (FC, FS, and AMMA). The cultural role of the 3-factor FRAS-C should therefore be considered in future research. Overall, the 32-item FRAS-C illustrated good reliability and validity.
Polish	Experimental Polish FRAS	329	Reliability analysis (Cronbach's Alpha). Group differences were evaluated using Mann-Whitney test.	A **6-factor structure** with 54 items was accepted for the experimental Polish FRAS and is considered an adequate measure with which to assess family resilience in the Polish context, preliminarily. Results of this adaptation of the FRAS are preliminary and require more research.

Afrikaans	FRAS-AV	656	EFA	A **6-factor structure** with 54-items was accepted for the FRAS-AV. The factor structure of the FRAS-AV demonstrated a very similar structure to that of Sixbey's (2005) except for a new factor emerging, which replaced the existing MPO factor, and was labeled *Family and Community Outlook*. This factor was a combination of items on the FCPS and USER sub-scales.

Note. Isaacs, S. A., Roman, N. V., Savahl, S., & Sui, X. C. (2018). Adapting and validating the family resilience assessment scale in an Afrikaans rural community in South Africa. Community Mental Health Journal, 1-11.
Kaya, M. & Arici, N. (2012). Turkish version of shortened family resilience scale: The study of validity and reliability. Procedia-Social and Behavioral Sciences, 55, 512-520.
Li, Y., Zhao, Y., Zhang, J., Lou, F., & Cao, F. (2016). Psychometric properties of the shortened Chinese version of the Family Resilience Assessment Scale. Journal of Child and Family Studies, 25, 2710-2717.
Nadrowska, N., Blazek, M., & Lewandowska-Walter, A. (2017). Family resilience-definition of construct and preliminary results of the Polish adaptation of the Family Resilience Assessment Scale (FRAS). Current Issues in Personality Psychology, 5(3), 1-10.
Sixbey, M. (2005). Development of the family resilience assessment scale to identify family resilience constructs. Unpublished Doctoral Thesis. Florida: University of Florida.

All the FRAS translation studies listed above report similar but not identical factor structures of the different FRAS versions. The main findings in the translation studies explored are that in Turkey, China, Poland, the USA, as well as in South Africa, the Cronbach's Alpha for the entire FRAS was higher than .90, indicating an acceptable internal consistency (Field, 2011).

In the FRAS-MV, the experimental Polish FRAS, the FRAS-AV, and in the original FRAS, a 6-factor solution was accepted. In contrast to this, a 4-factor solution was accepted in Turkey (Kaya & Arici, 2012), and a 3-factor solution was accepted in China (Li et al., 2016). It becomes apparent that there are many differences in the psychometrics and dimensionality of the factor structures of the language variations of the FRAS. This could indicate that the construct of family resilience is a culturally dependent one (McCubbin & McCubbin, 2013; Walsh, 2016).

The different contexts in which the FRAS was administered and adapted for, and the differences in the factor structures point to the fact that each culture likely internalises and understands the FRAS in a different way. As the FRAS (Sixbey, 2005) was translated and

adapted for the first time for its use and applicability in the South African context by Isaacs et al. (2018), it is necessary for further analysis to be done on the FRAS-AV and the South African-adapted English FRAS. This is to see how these language versions perform and whether they are suitable to the South African population. More specifically, to assess the appropriateness of the two language versions as an adequate tool with which to measure family resilience in the Western Cape.

2.5 Chapter Conclusion

The chapter discussed the empirical literature on the history and evolution of the concept of family resilience in family studies, Walsh's (1998) theory of family resilience, and how the theory underlies the construction of the Family Resilience Assessment Scale (FRAS) developed by Sixbey (2005). The chapter also discussed a few of the existing assessment tools of family functioning and resilience found in the literature and how these differ from the FRAS. Such measures include the Family Hardiness Index, the Individual, Family, and Community Resilience Profile amongst others. Even though these assessments do measure family strengths and resilience to an extent, they do not measure the construct of family resilience in its entirety.

The FRAS was found to cover most aspects of family resilience. It is the only measure of family resilience that currently considers family functioning processes and that aims to identify protective factors within the family, including the extent to which they rely on adaptive belief systems, organisational patterns, and communication processes (Chew & Haase, 2016; Gardiner et al., 2019; Sixbey, 2005). This chapter has illustrated that the FRAS has been used and administered throughout the literature in many contexts. Additionally, the chapter has also illustrated how the FRAS has been translated and adapted into various languages other than English, for its use in culturally and linguistically diverse contexts, specifically in Turkish, Maltese, Chinese, Polish, and Afrikaans.

CHAPTER THREE

Theoretical framework of Bias and Equivalence

3.1 Introduction

The current study is encased within the theoretical framework of bias and equivalence/invariance as outlined by van de Vijver and Leung (1997). Bias and invariance are key concepts in cross-cultural research (Koch, 2009; Van de Vijver, 1998). Bias refers to the presence of factors in cross-cultural assessment that threaten the validity of cross-cultural comparisons, and invariance refers to the question about whether there is any difference in the measurement level of within- and between-group comparisons (van de Vijver, 1998; Steyn & de Bruin, 2018). In a country like South Africa that is comprised of great diversity in terms of language and culture, there is a need for valid, reliable, unbiased and equivalent assessment tools (Borsa et al., 2012; Koch, 2009; Nkosi & Roodt, 2004). This is essential to allow for comparisons of psychological constructs to be made between varying linguistic and cultural groups, thus contributing to cross-cultural research (Foxcroft & Roodt, 2013; Rawoot & Florence, 2017). Cross-cultural research is a generic name that refers to all comparative studies that involve different nation-states or different linguistic or cultural groups within a single country (van de Vijver, 1998).

3.2 Bias and Equivalence

Measurement invariance and measurement bias are regarded as key concepts in multi-linguistic and multi-cultural assessment, forming the core of a framework attempting to incorporate aspects that are specific to cross-cultural research (He & van de Vijver, 2012; Steyn & de Bruin, 2018; van de Vijver & Rothmann, 2004). Measurement invariance and bias are closely related psychometric concepts, which provide slightly different perspectives on the extent to which scores have the same meaning across different groups (Koch, 2009). These concepts are pivotal when it comes to the application of psychological assessment tools in multi-cultural societies (Meiring, van de Vijver, Rothmann & Barrick, 2005). According to van de Vijver and Rothmann (2004), when test scores are equivalent and unbiased, they demonstrate invariance, and as such, can be directly compared across different groups. The identification of bias and the verification of invariance are therefore core methodological elements of cross-cultural research, as any comparison among different groups stands or falls on the solution of these two issues (van de Vijver, 1998). Therefore, when asking questions regarding invariance, it takes into account whether differences in scale

scores are real and whether the functioning of an assessment tool is indeed equivalent for two groups (Steyn & de Bruin, 2018). Bias and invariance will now be discussed.

Firstly, *bias* refers to the presence of factors that threaten the validity of cross-cultural comparisons. Bias is a systematic error that is external to the psychological construct being measured. An assessment tool is biased if its scores do not have the same psychological meaning across the different groups (in this case, language groups) being measured. This suggests that the meanings or implications of the scores for one language group are different from those of the other language group (Koch, 2005; van de Vijver & Rothmann, 2004).

Secondly, *invariance* or '*equivalence*' is associated with the measurement level at which cross-cultural comparisons can be made (van de Vijver, 1998; Steyn & de Bruin, 2018). It refers to the question about whether there is any difference in the measurement level of within- and between-group comparisons. The attainment of invariance is thus the central issue in cross-cultural and cross-linguistic comparative research because assessment tools have to be equivalent if comparisons are to be made across groups (Steyn & de Bruin, 2018, 2019). This is to ensure that in the current study, the English and Afrikaans versions of the FRAS are both measuring the construct of family resilience the same across the groups, thus making the findings comparable (Rawoot & Florence, 2017).

A distinction in the literature is made among three types of bias that compromise invariance in cross-cultural research: construct bias, method bias, and item bias (van de Vijver & Leung, 1997; van de Vijver & Tanzer, 2004). Firstly, ***construct bias*** is characterised by the dissimilarity of a construct across cultures, and so occurs when the construct being measured is not identical across linguistic or cultural groups or when the construct shows non-negligible differences across cultures. This often happens when constructs are context-specific (van de Vijver, 1998; van de Vijver & Hambleton, 1996; van der Vijver & Rothman, 2004). For example, Li et al. (2016) suggested that family resilience is a construct that is context-specific and attributed the substantial difference in the factor structure of the FRAS-C and the original FRAS (Sixbey, 2005) to possible cultural differences in terms of which family processes contribute to the facilitation of family resilience in the Chinese and United States cultures, respectively. For example, in the Chinese culture, a concept or construct, such as open communication between parents and children might be considered disrespectful (Li et al., 2016) while in a more Westernised culture, such as in the United States, open

communication is encouraged.

Secondly, ***method bias*** refers to all sources of bias emanating from the methodological-procedural aspects of a study (He & van de Vijver, 2012; van de Vijver, 1998). Method bias results in different scores depending on group affiliation and not the psychological construct being measured. Method bias can be divided into three subtypes: sample bias, instrument bias, and administration bias.

Sample bias refers to confounding sample differences and is a result of the incomparability of samples due to cross-cultural variation in sample characteristics that have a bearing on target measures (He & van de Vijver, 2012). In the current study, sampling bias was minimised through ensuring that the sampling strategy was similar to that used in the larger study by Isaacs et al. (2018). This was done to make certain that the sample is as comparable as possible. Convenience sampling was also the sampling strategy that was employed in the study in which the original FRAS was developed (Sixbey, 2005). *Instrument bias* is induced by instrument characteristics to which individuals from different linguistic or cultural groups react in a consistently dissimilar way, in other words, it refers to features of the instrument that give rise to unintentional cross-cultural differences (He & van de Vijver, 2012; van de Vijver & Rothmann, 2004; van de Vijver & Tanzer, 2004). For example, cultures tend to have different levels of familiarity with stimulus material response modes, or with response procedures. For example, multiple-choice item formats are frequently used for assessment purposes in the United States, while the use of survey instruments or questionnaires are particularly popular in South Africa (Foxcroft & Roodt, 2009), specifically with regard to census research that is conducted in the country. Therefore, South African citizens are familiar with this mode of instrumentation, and how to respond to it. The last type of method bias is *administration bias*, which can emerge from administration conditions and is caused by differences in the procedures that are used to administer the instrument, such as data collection modes, ambiguous instructions, interaction between administrator and the respondents, and problems with communication, such as language differences, or other procedural aspects of data collection (van de Vijver, 1998). In the current study, administration bias was minimised through administering the FRAS to the target community using an identical method of data collection (survey instrument) and following the same data collection procedure as the larger study (Isaacs et al., 2018). In so doing, the researcher can be confident that any possible sources of bias emanating from the data collection method and

procedure, and interaction between the administrator and the respondents were minimised.

Lastly, ***item bias*** or more commonly referred to as differential item functioning (DIF) refers to all disturbances occurring at an item level (Clauser & Mazor, 1998; Kamata & Vaughn, 2004; Koch, 2009; Meiring et al., 2005). These include poor wording of content, the inappropriateness of item content in a cultural group, and inaccurate translations of scale items. An item is biased if the respondents from different groups with the same score on the construct do not have the same expected score on the item (Holland & Wainer, 1993; Shepard, Camilli, & Averill, 1981). Thus, the item has a different psychological meaning across cultures. In the current study, item bias was minimised through adapting the original FRAS (Sixbey, 2005) using a pilot sample of participants from a group with similar characteristics as the target group. This was done to make certain that this adapted version of the questionnaire (South African-adapted FRAS) is suitable and fitting to the target sample for administration.

The attainment of invariance (or pursuit of equivalence) is a central issue in cross-cultural and linguistic comparative research. In order to establish invariance, Poortinga (1989) and van de Vijver and Leung (1997) developed a framework for guiding its assessment, which specifies three different levels of invariance that are differentiated in the literature. These consist of (1) configural invariance, (2) metric invariance, and (3) scalar invariance (Fontaine, 2005; Meredith, 1993; Milfont & Fischer, 2010; van de Vijver & Leung, 1997; Vandeberg & Lance, 2000). These levels are hierarchically ordered, with higher levels of invariance being more difficult to establish (Chen, 2007; Cheung & Rensvold, 2002; Steyn & de Bruin, 2018, 2019; Thompson, 2013; van de Vijver & Rothmann, 2004; van de Vijver, 1998). The most challenging level to establish is scalar invariance, followed by the less challenging metric invariance, and the easiest invariance to establish would be configural invariance (Steyn & de Bruin, 2018, 2019).

Measurement invariance tests are thus the *models* that exist that test the relationships between measured variables and latent constructs (Milfont & Fischer, 2010). Cheung and Rensvold (2002) and Chen (2007) conceptualise measurement invariance on a hierarchical structure assessed through the application of incrementally restrictive measurement constraints. Measurement invariance is tenable if the model fit does not worsen by more than .010 on the CFI (Cheung & Rensvold, 2002) and by 0.015 on the RMSEA and SRMR (Chen,

2007). In the first step, *configural invariance* should be tested to assess an unconstrained multi-group model wherein the parameters are freely estimated. Configural invariance addresses the structural validity of an instrument, and exists when the same construct is measured in each language group, irrespective of whether the instrument is the same across the groups or not (Van de Vijver, 1998). Thereafter, *metric invariance* should be assessed, which is a requisite for comparing covariance, correlations, or regression coefficients, by constraining the factor loadings of the configural model. Metric invariance occurs when two language versions of an instrument have different origins, but have identical measurement units (Van de Vijver & Rothmann, 2004). In the final step, *scalar invariance* should be tested, which is a requirement for comparing mean scores between language groups by constraining the factor loadings and intercepts of the metric model. Scalar invariance occurs when the origin and measurement unit of an instrument is the same across linguistic groups, and measures the same construct (Meiring et al., 2005). The achievement of scalar invariance implies that scales have the same measurement unit as well as origins, and that the obtained scores are free of bias and can therefore be compared directly (He & Van de Vijver, 2012).

For the purpose of the current study and consideration for its scope, focus was placed on establishing the configural, metric, and scalar invariance of the two language versions of the FRAS, as this is aligned to the current study's aim and objectives. The three types of measurement invariances are assessed using a Confirmatory Factor Analysis (CFA) and Multi-group Confirmatory Factor Analysis (MGCFA) to achieve the study's aim. The presence of possible instrument and item bias in the current study is minimised. The theory of bias and invariance has therefore formed the theoretical foundation for ascertaining the structural validity of the English and Afrikaans FRAS versions in the current study.

3.3 Chapter Conclusion

The chapter stressed the importance of multi-cultural assessment, and how bias and measurement invariance are pivotal concepts that ought to be examined and minimised when it comes to the application of psychological instruments in a multi-cultural society, such as South Africa. The central issue in cross-cultural research is therefore the attainment of measurement invariance. Confirmatory Factor Analysis (CFA) and Multi-group Confirmatory Factor Analysis (MGCFA) is among the most widely used methods for assessing measurement invariance and is employed in the current study to achieve the study's aim, with the guidance and structure of van de Vijver and Leung's (1997) bias and

equivalence framework.

CHAPTER FOUR

Methodology

4.1 Introduction

This chapter provides a description and rationale of the research design, research method, and procedures that the researchers of the larger study have utilised, along with the respective methods of data collection, data analysis, and continued ethics accountability of the current study that were employed and followed.

The current study used both secondary data from a cross-sectional survey and primary data collected through the current study. The secondary data was collected in a rural community using the FRAS-AV (Isaacs et al., 2018), and the primary data was collected in a local urban community using the adapted South African-adapted English FRAS. The current study's data is referred to as the 'primary study' in this chapter.

4.2 Research Design

The current study uses secondary data from the cross-sectional study conducted by Isaacs et al. (2018). Cross-sectional studies are chiefly characterised by the collection of data at a particular point in time. Cross-sectional study designs are the most relevant in validation studies comparing different assessment tools, for example, questionnaires, by measuring the validity of one measure relative to another (Kesmodel, 2018). Therefore, the study design of the current study is a cross-sectional validation study. This type of study design is most suitable for the current study as the aim was to ascertain the structural validity of the currently adapted English and previously translated Afrikaans versions of the FRAS.

4.2.1 Research Contexts

The Afrikaans sample data of the secondary study was collected in a low-socio-economic, rural community along the West Coast in the Western Cape Province of South Africa. South Africa consists of nine provinces, and the Western Cape (WP) is the southern-most point in the country with a population of 6 279 730 (Statistics South Africa, 2016). The WP is made up of five district councils, and the West Coast is one of them. According to Statistics South Africa (2016), approximately 436 403 people are living in the West Coast region, and majority of the local inhabitants speak Afrikaans as a first language.

Table 3 summarises the Afrikaans sample's community demographics.

Table 3: Summary of Afrikaans sample's community demographics

Race	Coloured: 82% Black-African: 1% White: 17%
Gender	Female: 58% Male: 42%
Language	English: 4% Afrikaans: 96%
Level of Schooling	Primary: 35% Secondary: 16% Tertiary: 49%
Employment Status	Employed: 66% Unemployed: 34%
Average Monthly Income	R3923.54

The English sample data of the primary study was collected in a low-socio-economic, urban community that is situated on the Cape Flats in the Western Cape Province of South Africa. This community falls within the City of Cape Town municipal district, and according to Statistics South Africa (2016), approximately 4 005 016 people reside within the district. The sample selected in the primary study was 78% Afrikaans and 22% English. Table 4 summarises the English sample's community demographics.

Table 4: Summary of the English sample's community demographics

Race	Coloured: 96% Black-African: 3% White: 1%
Gender	Female: 60% Male: 40%
Language	English: 22% Afrikaans: 78%
Level of Schooling	Primary: 13% Secondary: 10% Tertiary: 77%
Employment Status	Employed: 46% Unemployed: 54%
Average Monthly Income	R2960.49

With regard to employment rates and household income, more than half of the population who reside in this community are employed although quite a few of the community members earn less than R3200 per month (National Census, 2011). This information is substantiated by the primary data collected, which demonstrates that over half of the participants in the primary study are unemployed (54%). More than half of the sample in the primary study (52%) indicated having earned no income in their household every month. However, of those who do receive a household income each month, the vast majority relies on pension grants (Govender, 2009).

The community's education level in the primary study proved to be relatively low, with the majority of participants' highest level of schooling being secondary schooling (77%) and the lowest being tertiary schooling (10%) (de la Cornillere, 2007). The community is characterised by an array of social challenges, some of which include teenage pregnancies, gangsterism, high substance abuse rates, as well as high rates of crime, violence, and unemployment (Booysen & Schlemmer, 2015; Jennings, 2016). The issue of safety and security at schools and institutions in the community in the primary study is also a major challenge (Jennings, 2016). It is noteworthy that despite the stark difference between the community in the primary study (urban) and the larger study (rural) (Isaacs et al., 2018), both communities share much of the same demographics. For example, both communities are Afrikaans-speaking, majority of the community members identify as Coloured, and the highest level of schooling is secondary schooling in both communities.

4.3 Participants and Sampling

4.3.1 Afrikaans Sample Data

The Afrikaans sample data of the secondary study (Isaacs et al., 2018) was collected in a low socio-economic, rural community situated along the West Coast of South Africa. The secondary study consisted of 656 participants of which 60% were female and 40% were male. However, during the analysis of the primary study, a missing values analysis was conducted using the Statistical Package for the Social Sciences (SPSS) (version 25) on the Afrikaans sample data using listwise deletion. According to Newsom (2018), listwise deletion refers to dealing with missing data by completely eliminating any cases with missing values on one or more of the variables in a dataset. As a result, 172 cases were removed from the dataset, consequently decreasing the secondary study's Afrikaans sample size to 484

participants (58% female; 42% male). The age of the participants ranged from 18-80 years (M = 37.34; SD = 13.43).

The sampling strategy employed in the secondary study (Isaacs et al., 2018) was convenience sampling via the door-to-door method. This was done with the assistance of the community's local Non-Governmental Organisation (NGO) and fieldworkers. Convenience sampling is a non-probability type of sampling technique in which the participants for a study are selected when they meet specific practical criteria; this could include their availability, accessibility, or their willingness to participate in the study (Etikan, Musa & Alkassim, 2016). Owing to this, convenience sampling proved to be the most suitable sampling technique for employment in the secondary study (Isaacs et al., 2018).

4.3.2 English Sample Data

The participants for the primary study were selected from a population of adults who reside within a low socio-economic urban community in Cape Town, South Africa. A total of 515 participants were sampled of which 59% were female and 41% were male. However, after running a missing values analysis on SPSS, the missing values in the dataset were handled and removed using the listwise deletion method. As a result, 115 cases were removed from the dataset, consequently decreasing the primary study's English sample size to 400 participants. Of the 400 participants, 60% were female and 40% were male. The age of the participants ranged from 18-84 years (M = 37.30; SD = 14.06).

Participants for the primary study were selected through non-probability convenience sampling via the door-to-door method with the assistance of the community's local Non-Profit Organisation (NPO), namely BLAC (Bishop Lavis Action Community), and fieldworkers supplied by the NPO. BLAC is a non-profit, rights-based organisation that values their community members' safety and security (Van der Merwe, 2017). The goal of the organisation is essentially to assist the residents in fighting back against crime, taking ownership of their community, and being actively part of their community (Van der Merwe, 2017). It was established that having inhabitants of the community (fieldworkers) collect the data in their own community would prove to be more effective and feasible. This was because they would be more familiar with the participants in their community and they will be more knowledgeable about the areas in the community that are more suitable to enter for the most effective collection of rich and valuable data. In addition, this was similar to the

community entry and sampling strategy employed in the larger study (Isaacs et al., 2018).

4.4 Data Collection Instrument

4.4.1 54-item Family Resilience Assessment Scale (FRAS)

The 54-item Family Resilience Assessment Scale (FRAS) is an individually administered English questionnaire that is to be completed by an adult representative member of a family. The questionnaire is comprised of two sections: Section A of the questionnaire requires participants to provide some basic biographical and demographic information about themselves. This includes their age, gender, highest level of education attained, home language, race, employment status, their household income per month, their position in their family, what their family structure entails, and whether they have experienced any adversity or challenges within the past five years.

Section B of the questionnaire consists of 54-items that participants are required to rate according to their level of agreement with statements that best describe their family processes. The questionnaire is based on a 4-point Likert type scale that ranges from 1 (*Strongly Disagree*), 2 (*Disagree*), 3 (*Agree*), to 4 (*Strongly Agree*). On average, the original FRAS takes approximately 15 to 20 minutes to complete. The scale consists of six sub-scales: namely, (1) Family Communication and Problem Solving (FCPS), (2) Utilising Social and Economic Resources (USER), (3) Maintaining a Positive Outlook (MPO), (4) Family Connectedness (FC), (5) Family Spirituality (FS), and (6) Ability to Make Meaning of Adversity (AMMA).

Sixbey (2005) reported an overall internal consistency for the original FRAS of $\alpha = .96$, with $\alpha = .96$ for FCPS, $\alpha = .85$ for USER, $\alpha = .86$ for MPO, $\alpha = .70$ for FC, $\alpha = .88$ for FS, and $\alpha = .74$ for AMMA. To establish the validity of the original FRAS, Sixbey (2005) selected three validation instruments to correlate with the original scale, namely the Family Assessment Device – Problem Solving sub-scale (FAD 1), the Family Assessment Device – Communication sub-scale (FAD 2), and the Personal Meaning Index (PMI). The PMI is used to assess the existential belief that life is meaningful, and was developed based on a combination of the Purpose and Coherence dimensions of the Life Attitude Profile-Revised scale (LAP-R) (Reker, 2005). Sixbey (2005) chose this instrument as a validation instrument because the constructs of the 'Purpose and Coherence' sub-scales are similar to Walsh's (1998) *Belief Systems* sub-constructs of *Positive Outlook* and *Transcendence and Spirituality*.

Similarly, the FAD was chosen as a validation instrument because its constructs of the sub-scales 'Affective Responsiveness' and 'Affective Involvement' are similar to Walsh's (1998) *Organisational Patterns* sub-constructs of *Connectedness* and *Social and Economic Resources*. Additionally, the FAD 1 and FAD 2, in particular were chosen as a validation instrument because the constructs of the FAD's sub-scales 'Problem Solving' and 'Communication' are similar to Walsh's (1998) *Communication/Problem-Solving* sub-constructs of *Open Emotional Expression* and *Collaborative Problem-Solving*. Thus, all the processes contained in Walsh's (1998) model were validated.

The FAD 1 and PMI correlations were medium to low in their relationship to the FRAS sub-scales. The FAD 2 correlated fairly well with the FCPS sub-scale (.78), which indicates that there is a moderately high association between the two scales. The FRAS was also found to have good concurrent criterion validity with the FAD 1 (0.91), FAD 2 (0.85), and the PMI (0.85) (Plumb, 2011; Reker, 2005; Reker & Fry, 2003).

4.4.2 Afrikaans Sample Psychometrics

The secondary study's data were collected using the translated FRAS-AV, which demonstrated an acceptable internal consistency for most of the sub-scales. Isaacs et al. (2018) found in their reliability analysis that the overall internal consistency of the FRAS-AV was $\alpha = .97$. The results indicated that the FRAS-AV's sub-scales have good reliability coefficients ($\alpha = > .70$) with the exception of the FC sub-scale ($\alpha = .38$), as specified by Field (2009, 2013).

4.4.3 English Sample Psychometrics

Data for the primary study were collected using the adapted English FRAS, which also demonstrated an acceptable internal consistency for most of the sub-scales. The results revealed that the overall internal consistency of the adapted English FRAS was $\alpha = .95$. The Cronbach's Alpha for each of the sub-scales was as follows: .93 for FCPS, .75 for USER, .75 for MPO, .59 for FC, .57 for FS, and .61 for AMMA. These results indicated that the FCPS, USER, and MPO sub-scales have good reliability coefficients ($\alpha = > .70$). The FC, FS, and AMMA sub-scales have lower reliability coefficients ($\alpha = < .70$), as specified by Field (2009, 2013).

4.5 Pilot Data Collection

The recently adapted South African-adapted English FRAS was first cognitively tested on a pilot sample of five first language English-speaking adults between the ages of 18-45 years. The participants in the pilot sample are from a similar community as that of the target sample to which the adapted English FRAS would be administered. Eighty-percent of the participants had obtained a tertiary education while 20% of the participants had only completed their secondary schooling. The questionnaire was administered to a pilot sample to ensure that this adapted version of the original FRAS was suitable and fitting with the target population. The five participants provided the researcher with adequate feedback regarding possible grammar adaptations and sentence restructuring in an attempt to make the scale more context specific.

The following adaptions were made, item 3 ('*The things we do for each other make us feel part of the family*') was adapted: '*The things we do for* ***one another*** *makes us feel part of the family*'. Item 7 ('*We are able to work through pain and come to an understanding*') was adapted because the participants reported that the statement was too general, vague, and not focused enough thus stimulating a confusing response; this was adapted: '*We are able to work through pain* ***affecting the family and come to an understanding (emotional, psychological, physical)***'. Item 8 ('*We are adaptable to demands placed on us as a family*') was reportedly too vague and not specific enough with regards to the nature of the 'demands' that are mentioned; this was adapted accordingly to stimulate a more focused response from participants with the inclusion of a possible example for participants to reflect on: '*We are adaptable to* ***externa****l demands placed on us as a family* ***(e.g, life challenges)***'.

The participants also reported that item 10 ('*We are understood by other family members*') was not specific enough in terms of which family members the statement is referring to; this was adapted accordingly: '*We are understood by other/****extended*** *family members*'. The variation of the word *neighbour* in item 11 ('*We ask neighbors for help and assistance*') was adapted to '*We ask* ***neighbours*** *for help and assistance*'. This is similar to the adaptations made to the variations of the words *favours* and *neighbours* in item 43 ('*We receive gifts and favors from neighbors*'), which was adapted to '*We receive gifts and* ***favours*** *from* ***neighbours***'. The participants also suggested that item 17 ('*We can compromise when problems come up*') be adapted to '*We can compromise when problems* ***arise***'. Similarly, item 22 ('*We can survive if another problem comes up'*) was adapted to '*We can*

*survive if another problem **arises***'. Item 18 ('*We can deal with family differences in accepting a loss*') was reportedly not specific enough with regards to the type of 'loss' referred to; this was adapted accordingly to be made more specific: '*We can deal with family differences in accepting a loss **of a loved one***'.

Item 23 ('*We can talk about the way we communicate in our family*') was adapted to '*We can talk about the way **in which** we communicate in our family*'. Item 25 ('*We consult with each other about decisions*') was adapted to '*We consult with **one another** about decisions*'. This was also the case for item 40 ('*We learn from each others mistakes*'), which was adapted to '*We learn from **one another's** mistakes*'; and item 41 ('*We mean what we say to each other in our family*') was adapted to '*We mean what we say to **one another** in our family*'. Lastly, according to the participants, item 42 ('*We participate in church activities*') would be better received if the item included other religious affiliations rather than only providing participants with one specific religious group activity. This item was therefore adapted to include other religious group activities and now reads as follows: '*We participate in church/**synagogue/mosque** activities*'. This is the feedback received from the pilot sample and the adaptations that were made after administering the questionnaire to the pilot sample.

4.6 Procedures and Ethics

After all ethics had been obtained from the committees at the university, the researcher made contact with the NPO, BLAC, in the community to set up an initial meeting with the organisation. Details of the primary study were explained to members of the NPO, who consequently granted the researcher permission to access prospective participants for the primary study. The NPO had agreed to assist with the provision of 10 fieldworkers who assisted with the process of collecting data in the community. The researcher and a research assistant established a training session with the fieldworkers. The fieldworkers were trained in the ethics of research. This training covered three important points. The first was the explanation of the primary study, its aim and objectives, and providing the fieldworkers with a detailed explanation of the concept of family resilience. The second point was explaining the recently adapted English FRAS. Thirdly, a discussion on the ethics implicated in research took place; the effects of collecting data from community members who are all familiar with one another were discussed with the fieldworkers. Each fieldworker received 100 information sheets, informed consent forms, and questionnaires. From an empowerment perspective, the decision was made to reimburse fieldworkers for their time. Data were collected over a

period of one-month and were consequently stored in a safe until the data were returned to the researcher who then stored it on a password-controlled computer. Only the researcher and two supervisors had access to this data.

In preparing the data for data analysis, the four items on the FRAS that required reverse coding, which included item 33 ('*We feel taken for granted by family members*'), item 37 ('*We keep our feelings to ourselves*'), item 45 ('*We seldom listen to family member's concerns or problems*'), and item 50 ('*We think we should not get too involved with people in this community*') were reverse-coded and the new coding values for these items were entered in the dataset. The data were captured and cleaned up by the main researcher; this process entailed the verification of whether the data were entered into the database. An assistant researcher completed the checking process of the data.

4.6.1 Missing Values Analysis

A missing values analysis was then conducted using SPSS to check for any missing values in the dataset. This is an imperative step to follow through before embarking on the data analysis phase (Field, 2009, 2011; Scheffer, 2002). The notion of missing data can be caused by many different factors, which need to be dealt with accordingly to ensure that missing values in a dataset are kept to a bare minimum (Scheffer, 2002). This could include trying to recover the missing values or if this were not possible, one would consider ways in which to deal with the problem of missing data. While some types of missing data can be ignored without it affecting the results, or without distorting parameter estimates, there are still many situations where the absence of appropriately dealing with the issue of missing data may lead to bias and distortion in the dataset (Schaefer & Graham, 2002; Scheffer, 2002).

Missing data patterns essentially outline the position of the gaps in the dataset (Enders, 2010) and provide insight into why these values are missing in the first place (Carvalho, Nakai, & Monteiro, 2016). After running a missing values analysis on the dataset, it was determined that the data in the primary study were missing completely at random (MCAR). When data are MCAR it suggests that the missing values are distributed randomly across the data, in other words, the probability of missingness is the same for all units (Allison, 2003). It further implies that the probability that a variable value is missing does not depend on the observed data values or on the missing data values; the missingness pattern results from a process completely unrelated to the variables in the analysis, or from a

completely random process (Newman, 2014).

As such, a specific missing data treatment would have to be employed to handle the missing data. For the purpose of the primary study and the nature of missing data found in the dataset, the listwise deletion method was used to deal with the missing data. This technique is acceptable and very common when data are MCAR, as it will not produce bias in the parameter estimates (Allison, 2003; McKnight, McKnight, Sidani, & Figueredo, 2007; Nakai & Weiming, 2011; Savahl et al., 2019; Schaefer & Garaham, 2002). Once the dataset was cleaned and all missing data were deleted (115 cases), the data analysis process had resumed with the new sample size consisting of 400 participants.

4.7 Data Analysis

The structural validity of the adapted English and translated Afrikaans versions of the FRAS was tested using Confirmatory Factor Analysis (CFA) and Multi-group Confirmatory Factor Analysis (MGCFA) in Analysis of a Moment Structures (AMOS) (version 25). *Confirmatory Factor Analysis (CFA)* was found to be an appropriate technique for the analysis of the data as it is the most frequently used method for the structural validation of questionnaires (Dimitrov, 2012; Flora & Flake, 2017; Hoyle, 2000). CFA is a type of analysis that shows whether the internal structure of the scale items is consistent with the expectations regarding the construct that the scale is intended to measure. Particularly, the individual items are factor analysed, ideally using a sample of participants from the primary population in which the scale is meant to be used in future applications (Flora & Flake, 2017). The correspondence between the expected dimensionality of a scale and the results of a factor analysis may be construed as evidence of structural validity of scale scores (Flora & Flake, 2017). Regarding the primary study, CFA was used to test the multi-dimensionality of the theoretical construct of the FRAS as composed of six sub-scales/latent factors. The primary study is premised on the following *a priori* model specification:

- The FRAS can be explained by six factors
- The six factors are consistent with the theory
- The six factors are correlated
- The residual errors associated with each factor (sub-scale) are uncorrelated

In the primary study, CFA was conducted using AMOS, and the Maximum Likelihood Estimation procedure, with kurtosis and departures from normality attended to using the bootstrap method (500 resamples) as specified in AMOS. The structural validity of the FRAS sub-scales was tested by assessing model fit and parameter estimation. The most widely used procedure for assessing model fit are Model Test Statistics and Approximate Fit Statistics (Hu & Bentler, 1999; Kline, 2011). A Model Test Statistic, of which the Chi-square Goodness-of-fit statistic is the most popular, determines the degree to which the model covariance matrix significantly differs from the observed sample covariance matrix (Kline, 2011). Lower Chi-square values resulting in non-significant differences indicate a higher degree of correspondence between the specified models and the data (Kline, 2010) and would consequently represent good fit of the hypothesised model to the observed sample data. Approximate Fit Indexes, on the other hand, are defined as continuous measures of model-data correspondence and is not concerned with hypothesis testing (Kline, 2011).

The two most widely used fit indexes are absolute and incremental fit indexes within contemporary research. Absolute fit indexes determine how well a hypothesised model fits the sample data in comparison to no baseline model, while incremental fit indexes attempt to fit a hypothesised model to a baseline model wherein the null hypothesis is that the variables in the model are uncorrelated (Hu & Bentler, 1999; Savahl, Casas & Adams, 2017). Examples of absolute fit indexes include the Root Mean Square Error of Approximation (RMSEA) and the Standardised Root Mean Square Residual (SRMR). Examples of incremental fit indexes include the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI) and the Normed Fit Index (NFI).

It is widely recommended that more than one fit index be used to overcome the limitations of using a single index (Jaccard & Wan, 1995). If designated models present with a good fit, in other words, there is no significant difference between the hypothesised model and the observed sample data, then the estimates of the path parameters can be considered in relation to the extent to which the latent construct (family resilience) loads onto the scale items. Following recommendations by Jackson, Gillaspy Jr, and Purc-Stephenson (2009) and Kline (2011), the CFI (absolute fit), and the RMSEA and SRMR (incremental fit), was used to determine model fit of the FRAS in the primary study. These recommendations have been used in a range of validation studies in South Africa (see Savahl et al., 2016; Savahl et al., 2017, 2019) with the application of cut-scores of > .950 accepted for CFI and scores < .05

regarded as a good fit for RMSEA and SRMR.

In the primary study, considering the complexity of the structure of the proposed model, more modest threshold values are applied (Browne & Cudeck 1993; Byrne, 2010; Marsh et al., 2010). These authors speak about 'acceptable' fit, advocating, for example, that threshold scores of < .8 be regarded as 'acceptable' for RMSEA and SRMR and > .90 for CFI. The improvement of model fit was accomplished by excluding items with markedly low factor loadings, as specified by Kline (2010) (< .2), by the consideration of modification indices (MI) (error covariance constraints)**,** by expected parameter change (EPC), and the standardised residual covariances (Savahl et al., 2019). According to Kenny (2006), error covariance constraints is often applied to improve model fit as it shows that two indicators covary in addition to the shared influence of the latent factor (i.e., family resilience).

Multi-group Confirmatory Factor Analysis (MGCFA) was used to compare the results between the English and Afrikaans language groups with the specific focus of assessing measurement invariance, as delineated by the theoretical framework guiding the study. Measurement invariance refers to the extent that items in the measure have the same meaning between groups. If factor invariance is untenable, then group comparisons on the measured variables cannot be regarded as reliable (Milfont & Fischer, 2010; Millsap & Olivera-Aguilar, 2012; Steyn & de Bruin, 2018, 2019). Factor invariance is conceptualised on a hierarchical structure assessed through the application of incrementally restrictive constraints. In the primary study, factor invariance of the English and Afrikaans versions of the FRAS sub-scales were tested in three steps.

Firstly, configural factor invariance, which assesses an unconstrained model, was tested. Thereafter, metric factor invariance was tested by constraining the factor loadings of the baseline model. Finally, scalar factor invariance, which is a requisite for comparing means between groups, was tested by constraining the factor loadings and intercepts. Each subsequent model is regarded as tenable if the fit indexes do not worsen by more than .01 on the CFI (Cheung & Rensvold, 2002) and by .015 on the RMSEA and SRMR (Chen, 2007). The results of these analyses are described in the next chapter.

4.8 Ethics Statement

The larger study was given ethical approval from the University of the Western Cape and in turn, has granted the primary study permission to utilise their collected data (larger study's Ethics clearance number: 14/4/19, see Appendix A). The task of the primary study was to adhere and be true to the ethical principles as they were observed in the larger study. Ethical approval for the primary study was sought from the Humanities and Social Sciences Research Committee (HSSREC) at the University of the Western Cape (Ethics clearance number: HS17/7/7, see Appendix B). The primary study was strictly adherent to the ethical guidelines as delineated by the University. Permission from the NPO was obtained to gain access to prospective participants for the study. The NPO had agreed to assist with the provision of 10 fieldworkers who assisted with the process of collecting data. The researcher and a research assistant then set up a training session with the fieldworkers. The fieldworkers were trained in the ethics of research to prepare them for data collection (as described above).

The participants were all informed about the primary study and were issued with an information sheet (see Appendix C), which outlines the necessary details of the study, such as the aims and objectives, the nature of the participants' involvement in the study, their rights as participants, how the information from the study will be utilised, and who will have access to the collected data. The participants were provided with an informed consent form (see Appendix D), which encompasses clear and concise details, which ensure that participation in the study is voluntary, that participant identities will be kept anonymous, and that confidentiality will be stressed, before the commencement of data collection. The participants were also made aware of their right to withdraw from the study at any given time without any negative consequences befalling them. In the event that any of the participants may feel distressed by the research process, the fieldworkers were tasked to refer participants to the local NPO, specifically, to experienced members of the organisation who are capable of managing individuals who experience specific types of trauma/distress. The adapted English FRAS questionnaire was then administered to the participants (see Appendix E). In addition, all obtained data and signed informed consent forms from the participants were stored safely and securely.

4.9 Chapter Conclusion

The chapter provided a description and rationale of the research design, research method, and procedures that the researchers of the larger study have utilised, along with the respective

methods of sampling, data collection, data analysis, and continued ethics accountability of the current study that were employed and followed. The chapter further identified and described CFA and MGCFA as the statistical data analysis techniques used to answer the aim and objectives of the current study.

CHAPTER FIVE

Results

5.1 Introduction

This chapter presents the findings obtained from the data analysis presented in the preceding chapter. The results of the descriptive statistics are reported on, including reliability analysis of the FRAS (see Table 5 and Table 6), the mean scores and standard deviations of the FRAS (see Table 7), the results of the Confirmatory Factor Analysis (CFA) and model modification, the error covariances for the items on the overall sample (see Table 10), and the Fit Statistics for the overall model (see Table 11). Finally, this chapter concludes with the procedures and findings of the Multi-group Confirmatory Factor Analysis (MGCFA), and the standardised regression weights (scalar estimates) obtained in the current study (see Table 13).

5.2 Reliability Analysis of the Family Resilience Assessment Scale

The reliability analysis revealed Cronbach's Alpha ranging from .59 to .93 for the English sample and .48 to .97 for the Afrikaans sample. The overall Cronbach's Alpha for the English sample was .95, and .96 for the Afrikaans sample. This indicates that both samples obtained excellent reliabilities, with skewness of the items ranging from .103 to -1.208 for the English language group, and from .052 to -1.208 for the Afrikaans language group. Kurtosis of the items range from -.050 to 2.297 for the English language group and from -.084 to 1.426 for the Afrikaans language group. These departures from normality were attended to using the Bootstrap method (500 resamples), as specified in AMOS. The Cronbach's Alpha of the FRAS sub-scales (Table 5 and Table 6) and mean scores and standard deviations of items on the FRAS are presented in Table 7.

Table 5: Reliability analysis of FRAS sub-scales for each language group (English Sample)

Sub-scale	Cronbach's Alpha
Family Communication and Problem Solving (FCPS)	.93
Utilising Social and Economic Resources (USER)	.75
Maintaining a Positive Outlook (MPO)	.75
Family Connectedness (FC)	.59
Family Spirituality (FS)	.57
Ability to Make Meaning of Adversity (AMMA)	.61
Overall Internal Consistency	.95

Table 6: Reliability analysis of FRAS sub-scales for each language group (Afrikaans Sample

Sub-scale	Cronbach's Alpha
Family Communication and Problem Solving (FCPS)	.97
Utilising Social and Economic Resources (USER)	.88
Maintaining a Positive Outlook (MPO)	.88
Family Connectedness (FC)	.48
Family Spirituality (FS)	.82
Ability to Make Meaning of Adversity (AMMA)	.77
Overall Internal Consistency	.96

Table 7: Item mean scores and standard deviations (Overall Sample)

Items	N	*M*	*SD*
Family Communication and Problem Solving (FCPS)			
Item 1: *Our family structure is flexible to deal with the unexpected*	884	3.23	.642
Item 6: *We all have input into major family decisions*	884	3.14	.713
Item 7: *We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)*	884	3.21	.621
Item 8*: We are adaptable to external demands placed on us as a family (e.g, life challenges)*	884	3.18	.648
Item 9: *We are open to new ways of doing things in our family*	884	3.23	.627
Item 10: *We are understood by other/extended family members*	884	3.01	.734
Item 14: *We can ask for clarification if we do not understand each other*	884	3.15	.640
Item 15: *We can be honest and direct with each other in our family*	884	3.13	.702
Item 16: *We can blow off steam at home without upsetting someone*	884	2.87	.801
Item 17: *We can compromise when problems arise*	884	3.13	.666
Item 18: *We can deal with family differences in accepting a loss of a loved one*	884	3.19	.581
Item 20: *We can question the meaning behind messages in our family*	884	3.06	.672
Item 23: *We can talk about the way in which we communicate in our family*	884	3.18	.668
Item 24: *We can work through difficulties as a family*	884	3.17	.677

Item 25: *We consult with one another about decisions*	884	3.17	.691
Item 26: *We define problems positively to solve them*	884	3.16	.625
Item 27: *We discuss problems and feel good about the solutions*	884	3.15	.669
Item 28: *We discuss things until we reach a resolution*	884	3.06	.690
Item 29*: We feel free to express our opinions*	884	3.12	.683
Item 30: *We feel good giving time and energy to our family*	884	3.24	.651
Item 40: *We learn from one another's mistakes*	884	3.26	.586
Item 41: *We mean what we say to one another in our family*	884	3.09	.708
Item 46: *We share responsibility in the family*	884	3.19	.674
Item 48: *We tell each other how much we care for one another*	884	3.18	.700
Item 52: *We try new ways of working with problems*	884	3.24	.603
Item 53*: We understand communication from other family members*	884	3.16	.632
Item 54: *We work to make sure family members are not emotionally or physically hurt*	884	3.32	.641
Utilising Social and Economic Resources (USER)			
Item 11: *We ask neighbours for help and assistance*	884	2.83	.853
Item 19: *We can depend upon people in this community*	884	2.90	.822
Item 31: *We feel people in this community are willing to help in an emergency*	884	2.94	.854
Item 32: *We feel secure living in this community*	884	2.63	.964
Item 38: *We know there is community help if there is trouble*	884	2.95	.832
Item 39: *We know we are important to our family friends*	884	3.17	.682
Item 43: *We receive gifts and favours from neighbours*	884	2.71	.900
Item 49: *We think this is a good community to raise children*	884	2.63	1.005
Maintaining a Positive Outlook (MPO)			
Item 13: *We believe we can handle our problems*	884	3.24	.602
Item 21*: We can solve major problems*	884	3.15	.699
Item 22: *We can survive if another problem arises*	884	3.21	.564
Item 34: *We feel we are strong in facing big problems*	884	3.05	.702

Item 36*: We have the strength to solve our problems*	884	3.20	.602
Item 51: *We trust things will work out even in difficult times*	884	3.29	.586
Family Connectedness (FC)			
Item 2: *Our friends value us and who we are*	884	3.23	.651
Item 33: *We feel taken for granted by family members*	884	2.51	.883
Item 37: *We keep our feelings to ourselves*	884	2.49	.876
Item 45: *We seldom listen to family members' concerns or problems*	884	2.49	.869
Item 47: *We show love and affection for family members*	884	3.26	.655
Item 50: *We think we should not get too involved with people in this community*	884	2.52	.882
Family Spirituality (FS)			
Item 12: *We attend church/synagogue/mosque services*	884	3.31	.754
Item 35: *We have faith in a supreme being*	884	3.36	.638
Item 42: *We participate in church/synagogue/mosque activities*	884	3.17	.774
Item 44: *We seek advice from religious advisors*	884	3.11	.814
Ability to Make Meaning of Adversity (AMMA)			
Item 3: *The things we do for one another make us feel a part of the family*	884	3.23	.612
Item 4: *We accept stressful events as a part of life*	884	3.27	.640
Item 5: *We accept that problems occur unexpectedly*	884	3.34	.575

Table 7 shows the mean scores and standard deviations of the 54-items of the FRAS. By reviewing the mean scores, it is evident that lower means can be found in the USER and FC factors whereas higher means can be found in the FS and AMMA factors.

5.3 Confirmatory Factor Analysis (CFA) to Establish Model Fit

Confirmatory Factor Analysis (CFA) was used to test the validity of the factorial structure of the scales. CFA using AMOS and Maximum Likelihood Estimation was used to determine the factor loadings and fit statistics of the various models (see Table 11). The initial model (English and Afrikaans) did not present with an adequate fit of the observed sample data (see Model 1 in Table 11). However, excluding items with excessively low factor loadings (< .2) as recommended by Kline (2011), those items with a high correlation between the error

covariances, and where the standardised residual covariances presented with high values (Brown, 2015), improved model fit. This process resulted in the deletion of 32 items (see Table 8). Table 9 represents the remaining items on the scale. A modified model with seven error covariances therefore produced an adequate fit of the observed sample data following the application of the prescribed threshold values (see Model 2 in Table 11 and Figure 1). These error covariances were as follows: item 6 to item 7; item 7 to item 4; item 9 to item 10; item 15 to item 12; item 20 to item 4; item 12 to item 3; and item 12 to item 4 (see Table 10). Standardised factor loadings for the final model range from .530 to .941 (see Table 12), which are within the acceptable range (> .2) (Byrne, 2010). As such, factor loadings for the scale are acceptable.

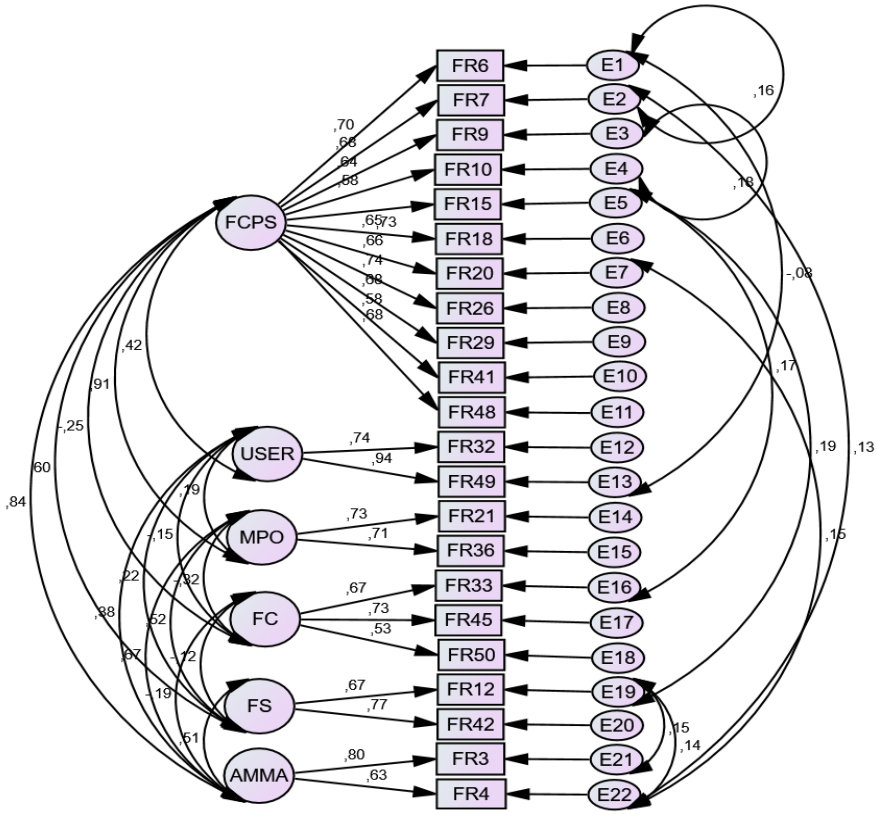

Figure 1. Modified Model with Seven Error Covariances

Figure 1 provides a diagrammatic overview of the proposed model. Hair, Black, Babin and Anderson (2010) specify their interpretation of the practical significance regarding standardised factor loadings whereby loadings should be .5 or higher, with .7 or higher being considered ideal. Additionally, Tabachnick and Fidell (2007) suggest that more stringent cut-offs be used: loadings ranging from .32 are considered poor, .45 are considered fair, .55 are considered good, .63 are considered to be very good, or .71, which is excellent. The factor

loadings for the final model are as per the following: for the FCPS sub-scale, the factor loadings range from .58 to .74, which indicate very good loadings. The factor loadings for the USER and MPO sub-scales range from .74 to .94 and .71 to .71 respectively, which indicate excellent/ideal loadings for these factors. The FC sub-scale obtained loadings that range from .53 to .73, the FS sub-scale obtained loadings ranging from .67 to .77, and the AMMA sub-scale obtained factor loadings that range from .63 to .80. The FC, FS, and AMMA factors obtained good to excellent/ideal loadings. Although items 6 and 7, 7 and 4, 9 and 10, 15 and 12, 20 and 4, 12 and 3, and 12 and 4, display covariance of errors, the covariance is of acceptably low levels (from .13 to .19). Further, the improvement to model fit by the deletion of 32 items and the inclusion of the seven error covariances is considerable and justifies the proposed modified model (see Model 2 in Table 11).

Table 8: Deleted items on FRAS sub-scales (English and Afrikaans samples)

Sub-scale and Removed Items	
Family Communication and Problem Solving (FCPS) (16 items)	
Item 1: '*Our family structure is flexible to deal with the unexpected*'	Item 8: '*We are adaptable to external demands placed on us as a family (e.g, life challenges)*'
Item 14: '*We can ask for clarification if we do not understand each other*'	Item 16: '*We can blow off steam at home without upsetting someone*'
Item 17: '*We can compromise when problems arise*'	Item 23: '*We can talk about the way in which we communicate in our family*'
Item 24: '*We can work through difficulties as a family*'	Item 25: '*We consult with one another about decisions*'
Item 27: '*We discuss problems and feel good about the solutions*'	Item 28: '*We discuss things until we reach a resolution*'
Item 30: '*We feel good giving time and energy to our family*'	Item 40: '*We learn from one another's mistakes*'
Item 46: '*We share responsibility in the family*'	Item 52: '*We try new ways of working with problems*'
Item 53: '*We understand communication from other family members*'	Item 54: '*We work to make sure family members are not emotionally or physically hurt*'
Utilising Social and Economic Resources (USER) (6 items)	
Item 11: '*We ask neighbours for help and assistance*'	Item 19: '*We can depend upon people in this community*'
Item 31: '*We feel people in this community are willing to help in an emergency*'	Item 38: '*We know there is community help if there is trouble*'
Item 39: '*We know we are important to our family friends*'	Item 43: '*We receive gifts and favours from neighbours*'
Maintaining a Positive Outlook (MPO) (4 items)	
Item 13: '*We believe we can handle our problems*'	Item 22: '*We can survive if another problem arises*'
Item 34: '*We feel we are strong in facing big problems*'	Item 51: '*We trust things will work out even in difficult times*'

Family Connectedness (FC) (3 items)	
Item 2: '*Our friends value us and who we are*'	Item 37: '*We keep our feelings to ourselves*'
Item 47: '*We show love and affection for family members*'	
Family Spirituality (FS) (2 items)	
Item 35: '*We have faith in a supreme being*'	Item 44: '*We seek advice from religious advisors*'
Ability to Make Meaning of Adversity (AMMA) (1 item)	
Item 5: '*We accept that problems occur unexpectedly*'	

Table 8 shows the items of the FRAS that were deleted from the sub-scales after the CFA. Sixteen items were deleted from the FCPS sub-scale (items 1, 8, 14, 16, 17, 23, 24, 25, 27, 28, 30, 40, 46, 52, 53, 54), 6 items were deleted from the USER sub-scale (items 11, 19, 31, 38. 39, 43), 4 items were deleted from the MPO sub-scale (items 13, 22, 34, 51), 3 items were deleted from the FC sub-scale (items 2, 37, 47), 2 items were deleted from the FS sub-scale (items 35, 44), and lastly, only 1 item was deleted from the AMMA sub-scale (item 5). Table 9 shows the 22 remaining items of the FRAS as a result of the CFA. The following sub-scales now only have 2 items: USER, MPO, FS, and AMMA. Table 10 shows the inclusion of the seven error covariances in the model. The error covariances range from .13 to .19.

Table 9: Remaining items on FRAS sub-scales (English and Afrikaans samples)

Sub-scale and Remaining Items	
Family Communication and Problem Solving (FCPS) (11-items)	
Item 6: '*We all have input into major family decisions*'	Item 7: '*We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)*'
Item 9: '*We are open to new ways of doing things in our family*'	Item 10: '*We are understood by other/extended family members*'
Item 15: '*We can be honest and direct with each other in our family*'	Item 18: '*We can deal with family differences in accepting a loss of a loved one*'
Item 20: '*We can question the meaning behind messages in our family*'	Item 26: '*We define problems positively to solve them*'
Item 29: '*We feel free to express our opinions*'	Item 41: '*We mean what we say to one another in our family*'
Item 48: '*We tell each other how much we care for one another*'	
Utilising Social and Economic Resources (USER) (2-items)	
Item 32: '*We feel secure living in this community*'	Item 49: '*We think this is a good community to raise children*'
Maintaining a Positive Outlook (MPO) (2-items)	
Item 21: '*We can solve major problems*'	Item 36: '*We have the strength to solve our*

	problems'
Family Connectedness (FC) (3-items)	
Item 33: '*We feel taken for granted by family members*' Item 50: '*We think we should not get too involved with people in this community*'	Item 45: '*We seldom listen to family member's concerns or problems*'
Family Spirituality (FS) (2-items)	
Item 12: '*We attend church/synagogue/mosque services*'	Item 42: '*We participate in church/synagogue/mosque activities*'
Ability to Make Meaning of Adversity (AMMA) (2-items)	
Item 3: '*The things we do for one another make us feel a part of the family*'	Item 4: '*We accept stressful events as a apart of life*'

Table 10: Error Covariances for items on the overall sample

Sub-scale Items	Coefficient
FR6 (*We all have input into major family decisions*) – FR7 (*We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)*)	.18
FR7 (*We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)*) – FR4 (*We accept stressful events as a part of life*)	.13
FR9 (*We are open to new ways of doing things in our family*) – FR10 (*We are understood by other/extended family members*)	.18
FR15 (*We can be honest and direct with each other in our family*) – FR12 (*We attend church/synagogue/mosque services*)	.19
FR20 (*We can question the meaning behind messages in our family*) – FR4 (*We accept stressful events as a part of life*)	.15
FR12 (*We attend church/synagogue/mosque services*) – FR3 (*The things we do for one another makes us feel a part of the family*)	.15
FR12 (*We attend church/synagogue/mosque services*) – FR4 (*We accept stressful events as a part of life*)	.14

Table 11: Fit statistics: Overall model with pooled sample and constrained loadings and intercepts across language groups

Bootstrap = 500 resamples ML Estimation	x^2	*Df*	*p*-value	CFI	RMSEA	SRMR
1. FRAS_Initial Model	3875.556	687	.00	.820	.073 (.070-.075)	.0676
2. FRAS_Modified Model with 7 error covariances 32 items excluded	611.651	185	.00	.945	.051 (.047-.056)	.0369
3. FRAS_Configural (Language)	1179.416	370	.00	.904	.050 (.047-.053)	.0626
4. FRAS_Metric (Language)	1226.884	386	.00	.900	.050 (.046-.052)	.0675
5. FRAS_Scalar (Language)	1328.423	402	.00	.899	.051 (.048-.054)	.0675

Table 11 shows the fit statistics of the overall model with the pooled sample and constrained loadings and intercepts across both language groups (English and Afrikaans). This indicates that the initial model (see Model 1 in Table 11) did not produce an adequate fit of the observed sample data. Model fit was therefore improved after excluding 32 items and adding seven error covariances. The modified model produced an adequate fit following the prescribed threshold values (see Model 2 in Table 11, Figure 1). The improved fit after the addition of the seven error covariances suggests that the 14 items have similar meanings and are understood in the same way by the participants.

Table 12: Standardised regression weights: pooled sample

Parameter			Estimate	Lower	Upper
FR_6	<---	FCPS	.691	.645	.736
FR_7	<---	FCPS	.679	.631	.722
FR_9	<---	FCPS	.643	.584	.696
FR_10	<---	FCPS	.575	.512	.625
FR_15	<---	FCPS	.729	.688	.768
FR_18	<---	FCPS	.654	.604	.706
FR_20	<---	FCPS	.666	.610	.717
FR_26	<---	FCPS	.736	.690	.784
FR_29	<---	FCPS	.681	.636	.727
FR_41	<---	FCPS	.585	.528	.641
FR_48	<---	FCPS	.683	.634	.723
FR_32	<---	USER	.747	.669	.820
FR_49	<---	USER	.941	.877	1,028
FR_21	<---	MPO	.730	.681	.781
FR_36	<---	MPO	.711	.643	.768
FR_33	<---	FC	.666	.579	.743
FR_45	<---	FC	.730	.646	.816
FR_50	<---	FC	.530	.445	.599
FR_12	<---	FS	.670	.589	.748
FR_42	<---	FS	.771	.692	.854
FR_3	<---	AMMA	.803	.734	.873
FR_4	<---	AMMA	.628	.556	.702

***All loadings significant at <.001**

5.4 Multi-group Confirmatory Factor Analysis

Measurement invariance across the two language groups (English and Afrikaans) was tested in AMOS using Multi-group Confirmatory Factor Analysis (MGCFA). The establishment of measurement invariance is essential for meaningful comparisons to be made across groups (Meredith, 1993). This process generally consists of three steps wherein restrictive constraints are incrementally applied (Savahl et al., 2017). The first step involved testing a multi-group model with no constraints (*configural invariance*). This model represents the baseline model against which other models are tested. In the second step, *metric invariance* was tested by constraining the factor loadings. If the fit indexes did not worsen by more than 0.010 on the CFI and by more than 0.015 on the SRMR and RMSEA in relation to the configural model, then metric invariance is tenable (Chen, 2007; Cheung & Rensvold, 2002). In the final step, *scalar invariance* was tested by constraining the factor loadings and intercepts. Similarly, if the fit indexes did not worsen by more than 0.010 for the CFI and 0.015 for the SRMR and RMSEA in relation to the metric model, then scalar invariance is tenable (Chen, 2007; Cheung & Rensvold, 2002). This means that the groups can be compared across correlations, regression coefficients, and means.

In the current study, the model testing configural invariance (see Model 3 in Table 11) was found to be tenable. Similarly, metric (see Model 4 in Table 11) and scalar (see Model 5 in Table 11) was found to be tenable for the English and Afrikaans language groups as the fit indexes did not incrementally worsen by more than .010 on the CFI and .015 on the RMSEA and SRMR. The results of the current study indicate that the English and Afrikaans versions of the modified FRAS sub-scales can be meaningfully compared across correlations, regression coefficients, and mean scores. Table 13 shows the standardised factor loadings (scalar estimates) for the modified model, which range from .456 to .920 for the English sample and .580 to .966 for the Afrikaans sample. This indicates that the factor loadings for the South African-adapted FRAS are acceptable since they are within the acceptable range (> .2) (Byrne, 2010).

Table 13: Standardised regression weights: (English and Afrikaans – scalar intercepts)

		English			Afrikaans		
Parameter		**Estimate**	**Lower**	**Upper**	**Estimate**	**Lower**	**Upper**
FR_6	←- FCPS	.585	.521	.645	.752	.706	.795
FR_7	←- FCPS	.550	.487	.619	.750	.701	.799
FR_9	←- FCPS	.522	.466	.583	.738	.679	.795
FR_10	←- FCPS	.525	.463	.602	.580	.518	.636
FR_15	←- FCPS	.612	.543	.685	.781	.736	.825
FR_18	←- FCPS	.572	.501	.632	.703	.634	.773
FR_20	←- FCPS	.554	.490	.611	.738	.661	.808
FR_26	←- FCPS	.618	.548	.692	.813	.774	.852
FR_29	←- FCPS	.573	.508	.643	.733	.680	.781
FR_41	←- FCPS	.558	.487	.629	.589	.524	.652
FR_48	←- FCPS	.563	.492	.633	.738	.696	.784
FR_32	←- USER	.729	.664	.792	.725	.652	.804
FR_49	←- USER	.920	.840	1.010	.966	.909	1.028
FR_21	←- MPO	.682	.595	.755	.781	.709	.843
FR_36	←- MPO	.682	.604	.759	.712	.629	.790
FR_33	←- FC	.577	.490	.662	.622	.539	.699
FR_45	←- FC	.638	.551	.724	.733	.657	.796
FR_50	←- FC	.456	.367	.539	.593	.512	.663
FR_12	←- FS	.536	.427	.645	.685	.611	.666
FR_42	←- FS	.734	.600	.847	.867	.762	.968
FR_3	←- AMMA	.780	.683	.876	.779	.685	.867
FR_4	←- AMMA	.625	.538	.710	.622	.546	.697

***All loadings significant at <.001**

5.5 Chapter Conclusion

The chapter presented the findings obtained from the data analysis. The reliability analysis of the Family Resilience Assessment Scale (FRAS) and the mean scores for each item were presented (English and Afrikaans language groups). A report on the results of the CFA and model modifications was provided, which outlined the initial and modified model with their respective modification indexes. The chapter further presented the modified model with 32 deleted items of the FRAS and the 22 remaining FRAS items. The results showed that the modified model with a total of seven error covariances and 32 excluded items showed an adequate fit of the observed sample data in comparison to the initial model with no error covariances and 54 items.

CHAPTER SIX

Discussion

6.1 Introduction

This chapter presents a discussion of results as well as the implications for the aim and objectives of the current study. Key results of the Confirmatory Factor Analysis (CFA), Multi-group Confirmatory Factor Analysis (MGCFA), the literature, and the theoretical framework are presented. This chapter concludes with a discussion of whether the aim and objectives of the current study were met.

6.2 Discussion of Results

The current study aimed to ascertain the structural validity of the recently adapted English and previously translated Afrikaans versions of the FRAS. The objectives that were developed to achieve the study's aim were threefold. First, to test the configural invariance of the adapted English version and the translated Afrikaans version of the FRAS, second, to test the metric invariance of the adapted English version and the translated Afrikaans version of the FRAS, and third, to test the scalar invariance of the adapted English version and the translated Afrikaans version of the FRAS. The theoretical framework of bias and invariance formed the framework for ascertaining the structural validation of the language versions of the FRAS, and further structured the assessment of measurement invariance in the current study.

6.2.1 Confirmatory Factor Analysis to Establish Model Fit

The first significant finding of the study was concerned with model fit. The initial overall model with 54 items did not present with an adequate fit of the observed sample data (see Model 1 in Table 11). The results of the goodness of fit indexes for the initial 6-factor model revealed the following: based on recommendations by Browne and Cudeck (1993), Byrne (2010), and Marsh et al. (2010), the fit of this model was not acceptable, as the CFI value was .820 and the RMSEA and SRMR values were .073 and .0676, respectively. This indicated that the initial model did not adequately capture the covariance between all the items in the model. This resulted in a modification of the initial model. The initial model required substantial model trimming: 32 items were removed from the model, which included either factor loadings < .2 (Kline, 2011), a high correlation between the error covariances, or where the conceptualisation residual covariances presented with high values (Brown, 2015).

Following the removal of 32 items from the adapted English FRAS, model fit further improved with the addition of seven error covariances, which included the following: FR6 (*We all have input into major family decisions*) - FR7 (*We are able to work through pain affecting the family and come to an understanding* (*emotional, psychological, physical*)); FR7 (*We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical*)) - FR4 (*We accept stressful events as a part of life*); FR9 (*We are open to new ways of doing things in our family*) - FR10 (*We are understood by other/extended family members*); FR15 (*We can be honest and direct with each other in our family*) - FR12 (*We attend church/synagogue/mosque services*); FR20 (*We can question the meaning behind messages in our family*) - FR4 (*We accept stressful events as a part of life*); FR12 (*We attend church/synagogue/mosque services*) - FR3 (*The things we do for one another makes us feel a part of the family*); FR12 (*We attend church/synagogue/mosque services*) - FR4 (*We accept stressful events as a part of life*). This resulted in a modified model with 22 items and seven error covariances, which demonstrated an acceptable and adequate fit of the observed sample data (see Model 2 in Table 11). The results of the goodness of fit indexes for the modified 6-factor model revealed that the fit of this model was acceptable, as the CFI value was .95 (> 0.9) and the RMSEA and SRMR values were .051 and .0369 (< 0.8), respectively, as specified by Browne and Cudeck (1993), Byrne (2010), and Marsh et al. (2010).

The CFI value obtained in the modified model is > 0.9, which indicates that the modified 6-factor model explains considerably more variance than the null or baseline model (Byrne, 1998), and the CFI value of the modified model was higher than the CFI value of the initial model (.945 and .820, respectively). This indicates that the modified model with seven error covariances adequately captured the covariance between all the items in the model. In the current study, all modifications that were made to the initial model were justified by MI, EPC, and standardised residual covariances.

Subsequent to model modification, there were three factors with four or more deleted items on the South African-adapted English FRAS, which included the FCPS, USER, and MPO sub-scales. The implications of this will now be discussed. First, the Family Communication and Problem Solving (FCPS) sub-scale had the most items removed from it (27 items to 11 items). Sixbey (2005) initially conceptualised this factor as referring to a family's ability to convey information, feelings, and facts clearly and openly while

recognising problems and carrying out solutions to these identified problems. This understanding of the factor has implications for the South African-adapted English FRAS and its future use in this context. For example, the removal of 16 items from the FCPS factor changes Sixbey's (2005) conceptualisation of the factor in light of the fact that the remaining items explains and represents the theme and family process of *Family Communication* more than the *Family Problem Solving* process. This suggests that the Problem Solving dimension is likely not considered an important family process that contributes to the facilitation of the level of family resilience for this specific sample in the South African context. For example, the families possibly looked to effective communication as a more important contributory factor to increasing and strengthening their level of family resilience. This also has implications for the name of the factor.

Second, and similar to the above, six items were removed from the Utilising Social and Economic Resources (USER) sub-scale (eight items to two items). Sixbey's (2005) initial conceptualisation of this factor is defined as measuring the external and internal norms that allow a family to carry out daily tasks by identifying and utilising resources (help from friends, family members, community systems, or neighbours). The deletion of six items from this factor could indicate that Sixbey's (2005) conceptualisation of USER is not entirely suitable for the South African context because only two items remained on the sub-scale. Most of the deleted items only spoke to the family's use of social resources. This could likely suggest that the utilisation of social resources, in other words, making use of help and support offered by friends and neighbours in communities do not contribute to the facilitation of family resilience in the South African context. The two remaining items in this factor are mostly concerned with the participants' perception of their community in terms of feelings of safety and security for them and their children. For example, item 32: '*We feel secure living in this community*' and item 49: '*We think this is a good community to raise children*'. The inapplicability of the content of a total of six items has implications for the future of the sub-scale and its employment in this context, and for the naming of the factor. This finding is similar to the FRAS-C where Li et al. (2016) removed five items from the USER sub-scale, consequently labelling it *Utilising Social Resources* (USR) due to the factor only consisting of three items, which mainly reflected social resources (Li et al., 2016).

The third factor is Maintaining a Positive Outlook (MPO), which Sixbey (2005) conceptualised as measuring a family's ability to organise itself around a difficult event with a sense of hope and optimism for the future to make the most out of their challenging situations. Four items were removed from the MPO sub-scale (six items to two items). The deletion of these items for this specific context could indicate that Sixbey's (2005) conceptualisation of MPO does not relate to the South African context entirely since majority of the items were removed from the sub-scale. Again, this could suggest that having a positive outlook despite challenges and problems in life might not necessarily be a family process that aids in the facilitation and strengthening of family resilience in this context. The Family Connectedness (FC), Family Spirituality (FS), and Ability to Make Meaning of Adversity (AMMA) sub-scales only had three, two, and one item removed from the factors, respectively.

Overall, the substantial trimming of the FCPS, USER, and MPO sub-scales in the current study suggests that Sixbey's (2005) conceptualisation of family resilience processes/dimensions, such as communication and problem solving, the utilisation of social support and resources, and having a positive outlook during difficult situations, based on Walsh's theory, was found to be a low reflection of how the construct is actually perceived and understood in the South African context.

The deletion of multiple items from the original FRAS is not a new occurrence in the translation studies of the FRAS. This is stipulated in the literature review chapter (see Chapter 2 Section 2.4.2). Twenty-two items were removed and three factors were dropped (Family Connectedness, Family Spirituality, and Ability to Make Meaning of Adversity) from the Chinese FRAS (FRAS-C) (Li et al., 2016). Similarly, the Family Connectedness (FC) and Family Spirituality (FS) factors were also dropped from the Turkish FRAS along with the removal of ten items (Kaya & Arici, 2012). The Family Spirituality (FS) and Utilising Social and Economic Resources (USER) factors were dropped and a few of their items were combined to form a new factor labelled, *Outreac*h in the Maltese context. A total of ten items were likewise removed from the Maltese FRAS (FRAS-MV) (Dimech, 2014).

The deletion of so many items and factors from these adaptations of the FRAS can be attributed to the inapplicability of the operationalisation of family resilience by Sixbey (2005). This indicates that the content of the FRAS items for the Chinese, Turkish, Maltese, and South African culture regarding their perception and understanding of family resilience

were different (Chew & Haase, 2016). This is particularly with regard to the common removal of the Family Connectedness (FC) and Family Spirituality (FS) sub-scales in the Turkish, Maltese, and Chinese FRAS translations. This suggests that Family Connectedness (FC), which Sixbey (2005) conceptualised as measuring a family's cohesion and mutual support after experiencing adversity, could possibly not have been included in how the Turkish and Chinese cultures perceive family resilience and that it does not influence their level of family resilience since this factor was entirely removed from these versions of the scale.

Similarly, Family Spirituality (FS), which Sixbey (2005) conceptualised as measuring a family's use of a larger belief system to provide a guiding system during adversity, and to help them define their lives as meaningful and significant, could also possibly be looked at as not contributing to the facilitation or strengthening of family resilience. This is true for resilience in the Turkish, Maltese, and Chinese contexts. Additionally, this factor was deleted from these three adaptations of the FRAS (e.g., Turkish FRAS, FRAS-MV, and FRAS-C) likely suggesting that the utility of faith and belief structures for guidance and meaning in life through adversity, were not included in how these cultures perceive and understand family resilience processes and were not found to be related to family processes which facilitate family resilience in these cultures. It is possible that the way in which spirituality was conceptualised does not capture how spirituality might be practiced within the different cultures. This therefore suggests that family resilience is a culture-specific construct (Walsh, 2014, 2016), which is interpreted and reflected differently in all the above-mentioned contexts (see Dimech, 2014; Kaya & Arici, 2012; Li et al., 2016).

The factors that were retained in the majority of the adaptations of the FRAS include three factors: namely, (1) Family Communication and Problem Solving (FCPS), (2) Utilising Social and Economic Resources (USER), and (3) Maintaining a Positive Outlook (MPO). This is evident in the following FRAS translations: the Turkish FRAS, the FRAS-MV, the FRAS-C, the experimental Polish FRAS, and the FRAS-AV. This could most likely point to the fact that the mentioned family processes were found to be present in the majority of the cultures where the FRAS was administered. This could further indicate that these family processes/dimensions are all implicated and encompassed in how the families in these contexts understand resilience, and what influence these processes have on their level of resilience. Also, it broadens ones understanding of knowing what relevance and meanings

these cultures ascribe to the construct of resilience. These cultures likely engage in good family communication and problem solving, look to the community for support and resources, and see the positive even in the most negative of circumstances, as contributing most to the facilitation and strengthening of their level of family resilience.

Isaacs et al. (2018) and Fraga-Maia et al. (2015), note that the differing factor structures of the FRAS in the different cultural contexts might not be a result of adaptation errors, but rather, errors that are associated with the original scale itself and its suitability for utility in a range of different cultures. This is not an unanticipated outcome when one takes into account the linguistic and cultural intricacies characteristic of many cultures (Morris, Grimmer-Somers, Louw & Sullivan, 2012). This could indicate that the construct of family resilience is a culturally dependent one (McCubbin & McCubbin, 2013; Walsh, 2016). The different contexts in which the FRAS was administered and adapted for, and the differences in the dimensionality of the FRAS versions all point to the fact that each culture internalised and understood the FRAS in a different way, including in the South African context.

Regarding the factor loadings for the modified model in the current study, the six factors in the model obtained good to excellent/ideal factor loadings (.54 to .94) (see Figure 1). The USER and FS sub-scales obtained the highest loadings (.74 to .94) and (.67 to .77), respectively. Similarly, the FS sub-scale also obtained excellent/ideal loadings ranging from .74 to .86 in the Afrikaans FRAS. This suggests that in contrast to the Turkish, Maltese, and Chinese cultures, the South African context possibly has stronger ties to faith and belief structures in the family when experiencing adversity, which likely contributed highly to the level of family resilience in the South African context (Isaacs et al., 2018). On the other hand, the FC sub-scale obtained much lower loadings (.53 to .73) in the current study. This was a common finding, especially in the original FRAS (Sixbey, 2005), which had substantially poor loadings ranging from .00 to .20 for the FC factor. The FC sub-scale also obtained the lowest loadings in the Afrikaans FRAS with fair to good loadings ranging from .36 to .63. Obtaining such low factor loadings for the Family Connectedness (FC) sub-scale in the South African and United States contexts suggest that family bonding and mutual support after experiencing adversity was found to likely influence and contribute the least to the level of family resilience in the South African and United States, respectively.

Overall, the factor loadings from the current study are slightly higher for most of the sub-scales than findings from previous translation studies of the FRAS. For example, Sixbey (2005) and Kaya and Arici (2012) found relatively low factor loadings ranging from .00 to .78 and .17 to .74, respectively, compared to the FRAS-C, (.46 to .76), FRAS-AV (.31 to .93), and South African-adapted English FRAS (.53 to .94), which range from fair to excellent/ideal loadings. The attainment of such higher factor loadings in the current study could suggest that the 22-item South African-adapted English FRAS, based on Walsh's theory of family resilience and Sixbey's (2005) conceptualisation of the theory, is more culturally-appropriate for measuring family resilience in the South African context than the original FRAS (Sixbey, 2005) is.

Given the entire fit indexes of the models together, the strong item loadings, as well as the theoretical construct, a shortened 22-item South African-adapted FRAS is applicable in South Africa in the current study. This confirms evidence for appropriate structural validity of the FRAS amongst the English and Afrikaans language groups.

6.2.4 Multi-group Confirmatory Factor Analysis to Test Validity of the FRAS across the Language Groups

The second significant finding of the study was concerned with the tenability of scalar invariance for the English and Afrikaans language groups. This means that the adapted English and translated Afrikaans versions of the FRAS are able to be meaningfully compared in both an Afrikaans rural context and an English/Afrikaans urban context in the Western Cape by correlations, regression coefficients, and mean scores. Scalar invariance was achieved following the exclusion of 32 items and the addition of seven error covariances. Overall, this suggests that the two versions of the FRAS measure family resilience, in the same way, when administered to the two distinct language groups (English and Afrikaans) in the Western Cape context.

It can be agreed upon that the English and Afrikaans versions of the FRAS are linguistically meaningful and comparable across the samples in this study, however, the scale itself is highly problematic in terms of its factor structure as is apparent in the translation studies of the FRAS. It is noteworthy that when items are deleted from a measure, it results in a substantial change in the theoretical structure of the instrument. The removal of so many items from the South African-adapted English FRAS does make a great point with regards to

the suitability and appropriateness of the scale for utility in the South African context. As such, possible explanations for these 32 items not improving the model could be attributed to the fact that since the construct of family resilience is culture-specific (Walsh, 2012, 2016), some of the items were problematic and the content of the deleted items were likely not conceptually applicable for the sample. In other words, Sixbey's (2005) conceptualisation of the original 54-item FRAS (based on Walsh's model of family resilience) is not entirely theoretically fit for the South African context due to differences in the meanings that cultures ascribe to psychological constructs (Prudon, 2014).

Walsh's theory, which served as guidance for the development of the FRAS, could most likely be erroneous in that Sixbey's (2005) conceptualisation of the theory was validated on a sample of only 418 English-speaking participants from the United States context. This could afford a possible explanation for the fact that 32 items had to be excluded from the South African-adapted English FRAS to fit the South African context. Even though a modified model with seven error covariances was found to be an acceptable fit of the observed sample data in the current study, caution should nonetheless be expressed without any investigation into why the inclusions of such a significant amount of items (n = 32) did not fit or contribute to model improvement in this study. According to Prudon (2014), this could be a basis for refinement of Walsh's family resilience theory and/or further improvement of the FRAS instrument in the South African context.

6.3 Chapter Conclusion

The key findings of the current study were twofold. The first finding was concerned with model fit. The study found that the initial overall model with 54 items did not present with an adequate fit of the observed sample data, which indicated that the initial model did not adequately capture the covariance between all the items in the model. The initial model was modified, which resulted in the removal of 32 items and the addition of seven error covariances to the model. This significantly improved model fit and the modified model is considered an adequate fit of the observed sample data in the current study.

The second finding was concerned with the tenability of scalar invariance for the language groups. The theory of bias and invariance formed the framework for ascertaining the structural validation of the language versions of the FRAS, and structured the assessment of measurement invariance in the current study. The study found that the adapted English and

translated Afrikaans versions of the FRAS are able to be meaningfully compared in both an Afrikaans rural context and an English/Afrikaans urban context in the Western Cape by correlations, regression coefficients, and mean scores. Owing to the fact that a significant amount of items had to be removed from the initial model to attain measurement invariance in this study, it was found that cultural differences were implicated in the manner in which the samples understood and provided meaning to the construct of family resilience in the different contexts. This suggested that family resilience is a culturally dependent construct (McCubbin & McCubbin, 2013; Walsh, 2016). According to Prudon (2014), these results could be a basis for refinement of the theory upon which the FRAS was constructed and/or further improvement of the FRAS in the South African context. The implications of these findings are presented in the final chapter of the study.

CHAPTER SEVEN

Conclusion

7.1 Introduction

This final chapter integrates the literature, results, the discussion of the research findings, and implications for research of the findings obtained in this study. The gist of this concluding chapter entails answering the aim and objectives of the current study and summarising its main findings. The significance of the study is presented, along with the implications of the current research findings for future studies. A list of this study's limitations is presented along with recommendations on how to possibly address these limitations in future studies.

7.2 Conclusion of Study

Assessment is an important concept in conducting research within and across different cultural and linguistic groups. The importance of multi-cultural assessments is emphasised in the literature along with the significant contribution it makes to cross-cultural research. It is apparent that the importance of translating, adapting, and validating assessment tools has been stressed in cross-cultural literature, specifically for linguistically and culturally diverse societies (Koch, 2015). Isaacs et al. (2018) translated the FRAS into Afrikaans in order for the scale to be usable in South Africa. This is important because of the valid contribution that these findings will make to cross-cultural research and the ability to draw meaningful comparisons and conclusions between various linguistic and cultural groups on the same psychological constructs.

The literature has indicated that it is important to be cognisant of the fact that different cultures possess varying understandings and experiences of adversity and that they have different ways of coping with challenges (McCubbin & McCubbin, 2013). This is due to the fact that family resilience is a culturally dependent construct (McCubbin & McCubbin, 2013; Walsh, 2016) because culture is the broader context of family and it imposes rules and principles that set the framework for how families function (Bronfenbrenner, 1979; Carter & McGoldrick, 1989). Family resilience among families in different cultures also varies as a function of cultural beliefs and values (Patterson, 2002; Walsh, 2002, 2003). Such differences have to be acknowledged when using the FRAS to assess family resilience in different contexts. This ensures structural validity, meaning that the resulting scores of the scale are an

adequate and valid reflection of the constructs measuring the dimensionality of family resilience in a specific culture and language.

Using the theoretical framework of bias and invariance, as outlined by van de Vijver and Leung (1997), this study conducted a Confirmatory Factor Analysis (CFA) to assess measurement invariance between the adapted language versions of the FRAS. The application of the CFA revealed that the initial 6-factor model with 54 items was not an adequate fit of the observed sample data, however, a modified model revealed an acceptable fit subsequent to the deletion of 32 items and the addition of seven error covariances. Thus, a 6-factor model with 22 items and seven error covariances was found to be an acceptable fit of the overall data in the current study. This suggests that there is no significant difference between the standardised model and the observed sample data.

These results could indicate that only the family processes/dimensions that are reflected by the remaining 22 items on the South African-adapted English FRAS (predominantly, FCPS items) are all implicated in and contribute to how the families in the South African context perceive and understand resilience. Also, it provides one with an understanding of the prominent influence that these family processes have on the level of resilience in South Africa. One's understanding is also broadened with knowledge about what relevance and meanings the South African culture ascribes to the construct of family resilience. This could therefore be a basis for refinement of Walsh's theory underlying Sixbey's (2005) standardisation of family resilience to incorporate these cultural nuances into the theory to make it more reflective of the South African culture and its perception and understanding of family resilience and/or further improvement of the FRAS (Prudon, 2014).

In view of the fact that measurement invariance was found to be tenable, the English and Afrikaans language groups are comparable across correlations, regression coefficients, and mean scores. This indicates that meaningful comparisons can be made across the language groups and that the samples understood the content of the FRAS items in a similar manner. The 22-item adapted English FRAS provided a valid conception of family resilience in comparison with the initial 54-item adapted English FRAS. The current study contributed to the field by providing a structural validation of an instrument that was developed internationally and standardised (FRAS) for use in the Western Cape, South Africa. This is

particularly with regards to its use in low socio-economic, English and Afrikaans-speaking communities in the Western Cape.

7.2 Implications for Research

Although the researcher was able to make the model fit the observed data in the current study after the removal of 32 items from the FRAS and the addition of seven error covariances to the model, caution should still be expressed without further investigating the use of the scale in this context and establishing why the items were not an adequate fit for the initial model. Secondly, based on the translation studies of the FRAS, it becomes apparent that the original FRAS is a problematic scale. This is particularly evident in the significant differences in the factor structures of the FRAS translations. This could be a result of theoretical issues with the scale, the concepts not being explored adequately, or because the initial development of such a large scale was only validated on a sample of 418 participants by Sixbey (2005). Lastly, a 22-item adapted English FRAS was found to be an adequate measure of family resilience processes in the English and Afrikaans samples in the current study. The 22-item FRAS can therefore be made available for employment in research and for further analyses in other family resilience studies in South Africa.

7.3 Limitations

The current study was not without its limitations. Firstly, the FRAS uses self-report information and is required to be completed by one member of a family. As such, the information collected might not be entirely representative of each respective member of that family's perspective of their family's resilience. Secondly, convenience sampling was employed in the current study to recruit participants; the sample used might not be wholly representative of all low socio-economic, English and Afrikaans-speaking communities in the Western Cape. Thus, the results obtained in the current study cannot be generalisable to other communities like this. Thirdly, with regard to the relationship and difference between language and context, it is important to be cognisant of the fact that the samples utilised in the current study were from varying linguistic and cultural backgrounds (urban versus rural). Finally, the larger number of Afrikaans mother tongue participants in the English sample is also a limitation. However, this was not viewed as a deterrent since the majority of the sample in the primary study would have attended school with English being spoken more formally.

7.4 Recommendations

In addressing the limitations discussed above, the following recommendations are put forth. Firstly, since convenience sampling was used, the result of this study may not be representative of all low socio-economic English and Afrikaans language speakers in the Western Cape. Future research should therefore be aimed at employing a different sampling strategy or using a larger sample in order for the results to be more generalisable. Secondly, due to a total of 32 items being deleted from the adapted English FRAS, future studies could look into possibly employing differential item analysis (DIF) in order to examine possible explanations for the deletion of so many items. Future studies could therefore use exploratory qualitative methods and research to investigate and make sense of this. Thirdly, the possible refinement of Walsh's theory grounding the construction of the FRAS, or further improvement of the FRAS itself is a strong recommendation. Lastly, the 22-item adapted English FRAS was found to be an adequate measure of family resilience processes in the English and Afrikaans samples. Future research could therefore focus on furthering the development of this scale to incorporate the cultural nuances of family resilience for use in South Africa.

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Appendix A (Ethical clearance for larger study)

UNIVERSITY *of the* WESTERN CAPE

DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa, Telephone: (021) 959-2283/2453

To: The Chairperson

Higher Degrees CHS

Re: Permission to utilise data

I, Serena Isaacs, hereby give Miss Shantay Carlson, 3332573, permission to use the Afrikaans-sample data from my study entitled "The development of a contextually-based programme designed to increase family resilience processes for families in a rural community on the West Coast, South Africa". This information will be used in the analysis and thereafter possible publication with both her supervisors.

Yours faithfully

Serena Isaacs
Senior Lecturer/Research Psychology
Honours' Co-ordinator
Department of Psychology
University of the Western Cape
021 959 2834/2283

Appendix B (Ethical clearance for current study)

OFFICE OF THE DIRECTOR: RESEARCH
AND INNOVATION DIVISION

Private Bag X17, Bellville 7535
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T: +27 21 959 2988/2948
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E: research-ethics@uwc.ac.za
www.uwc.ac.za

26 October 2017

Miss SC Carlson
Psychology
Faculty of Community and Health Science

Ethics Reference Number: HS17/7/7

Project Title: Ascertaining the structural validity of the adapted English and translated Afrikaans version of the Family Resilience Assessment (FRAS) sub-scales.

Approval Period: 25 October 2017 – 25 October 2018

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape
PROVISIONAL REC NUMBER - 130416-049

Appendix C (Information Sheet)

UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2283/2453, Fax: 27 21-959 3515
E-mail : 3332573@myuwc.ac.za

INFORMATION SHEET

Project Title: Ascertaining the structural validity of the adapted English and translated Afrikaans version of the Family Resilience Assessment sub-scales.

What is this study about?
This is a research project being conducted by Shantay Carlson at the University of the Western Cape. We are inviting you to participate in this research project because you can provide your perceptions of family life here. The purpose of this research project is to evaluate this questionnaire (assess the psychometric properties) and determine whether it is actually measuring family resilience appropriately. Your participation will be highly valued in this.

What will I be asked to do if I agree to participate?
You will be asked to complete a 20-minute questionnaire with statements about daily family life.

Would my participation in this study be kept confidential?
The researchers undertake to protect your identity and the nature of your contribution. To help ensure your anonymity, your name will not be connected to the questionnaire at all. The questionnaires are anonymous and will not contain information that may personally identify you.

(1) your name will not be included on the surveys and other collected data;
(2) a code will be placed on the survey and other collected data.

To ensure your confidentiality, all questionnaires will be locked in filing cabinets at the Department of Psychology of the University of the Western Cape. In accordance with legal requirements and/or professional standards, we will disclose to the appropriate individuals and/or authorities information that comes to our attention concerning child abuse or neglect or potential harm to you or others.

What are the risks of this research?
Some items on the questionnaire might make you feel uncomfortable or embarrassed. I assure you that the only aim of this study is to gain an understanding of your experiences and your perceptions.

What are the benefits of this research?
This research is not designed to help you personally, but the results may help the investigator learn more about the dynamics within the family and the psychometric properties of the two language versions of the Family Resilience Assessment Scale. We will be able to provide the organisation with information regarding perceptions of families and their family resilience. We also hope that, by improving this questionnaire, other people might benefit from this

study through an improved understanding of the psychometric properties of the questionnaire and how it is applied in the South African context.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalised or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?

Yes. Please contact the researcher (details below) and she will arrange for the appropriate care, eg. Counselling.

What if I have questions?

This research is being conducted by Shantay Carlson at the Department of Psychology at the University of the Western Cape. If you have any questions about the research study itself, please contact:

Shantay Carlson
Masters Student
Department of Psychology
University of the Western Cape
Private Bag X17
Bellville 7535
0731823950
3332573@myuwc.ac.za

Serena Isaacs
Supervisor
Department of Psychology
University of the Western Cape
Private Bag X17
Bellville 7535
021 959 3096/071889999
sisaacs@uwc.ac.za

Professor Shazly Savahl
Co-supervisor
Department of Child and Family Studies
University of the Western Cape
Private Bag X17
Bellville 7535
021 959 2826
ssavahl@uwc.ac.za

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Dr Maria Florence
Head of Department
Department of Psychology
University of the Western Cape
Private Bag X17
Bellville 7535
mflorence@uwc.ac.za

Professor Rina Swart
Dean (acting)
Faculty of Community and Health Sciences:
University of the Western Cape
Private Bag X17
Bellville 7535
chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee (REFERENCE NUMBER: HS17/7/7).

Appendix D (Informed Consent Form)

UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2283/2453, Fax: 27 21-959 3515
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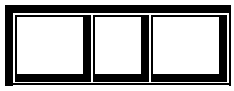

INFORMED CONSENT FORM

Project Title: Ascertaining the structural validity of the adapted English and translated Afrikaans version of the Family Resilience Assessment sub-scales.

The study has been described to me in a language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's Name:
Participant's Signature:
Date:

Appendix E (Adapted-English Family Resilience Assessment Scale)

UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF PSYCHOLOGY
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E-mail : 3332573@myuwc.ac.za

STRENGTHENING FAMILY RESILIENCE

We are a group of researchers interested in your opinions on your community, family, and parenting styles. We would appreciate it if you would complete this questionnaire. You will remain anonymous, i.e. your identity will be kept safe. There are no right or wrong answers, only your opinions. Please choose the option, which suits your situation, the best.

SECTION A: PLEASE COMPLETE THE FOLLOWING:
You can indicate your choices with an "X"

Gender:	Male	Female			
Age:	_____				
Highest education level:	Primary	Secondary	Tertiary		
Race:	Coloured	Black-African	White	Indian	Other
Home language:	Afrikaans	English	IsiXhosa	isiZulu	Other
Are you currently employed?	Yes	No			
Household income per month:					
What is your position in the family (mother/father/eldest daughter/son)?					

What is your home family's structure?

Two married parents	
Two unmarried parents	
Single mother	
Single father	
Live with extended family (eg. Your parents)	

Please select any of the following you may have experienced within the last 5 years:

Death of a loved one		Please explain: _____
Unemployment		
Divorce		
A loved one's illness		
Financial insecurity/uncertainty		Please explain _____

FAMILY RESILIENCE ASSESSMENT SCALE

Please read each statement carefully. Decide how well you believe it describes your family now from your viewpoint. Your family may include any individuals.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Our family structure is flexible to deal with the unexpected				
2. Our friends value us and who we are				
3. The things we do for one another make us feel a part of the family				
4. We accept stressful events as a part of life				
5. We accept that problems occur unexpectedly				
6. We all have input into major family decisions				
7. We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)				
8. We are adaptable to external demands placed on us as a family (e.g, life challenges)				
9. We are open to new ways of doing things in our family				
10. We are understood by other/extended family members				
11. We ask neighbours for help and assistance				
12. We attend church/synagogue/mosque services				
13. We believe we can handle our problems				
14. We can ask for clarification if we do not understand each other				
15. We can be honest and direct with each other in our family				
16. We can blow off steam at home without upsetting someone				
17. We can compromise when problems arise				
18. We can deal with family differences in accepting a loss of a loved one				
19. We can depend upon people in this community				
20. We can question the meaning behind messages in our family				
21. We can solve major problems				
22. We can survive if another problem arises				
23. We can talk about the way in which we communicate in our family				
24. We can work through difficulties as a family				
25. We consult with one another about decisions				
26. We define problems positively to solve them				

	Strongly Agree	Agree	Disagree	Strongly Disagree
27. We discuss problems and feel good about the solutions				
28. We discuss things until we reach a resolution				
29. We feel free to express our opinions				
30. We feel good giving time and energy to our family				
31. We feel people in this community are willing to help in an emergency				
32. We feel secure living in this community				
33. We feel taken for granted by family members				
34. We feel we are strong in facing big problems				
35. We have faith in a supreme being				
36. We have the strength to solve our problems				
37. We keep our feelings to ourselves				
38. We know there is community help if there is trouble				
39. We know we are important to our family friends				
40. We learn from one another's mistakes				
41. We mean what we say to one another in our family				
42. We participate in church/synagogue/mosque activities				
43. We receive gifts and favours from neighbours				
44. We seek advice from religious advisors				
45. We seldom listen to family members' concerns or problems				
46. We share responsibility in the family				
47. We show love and affection for family members				
48. We tell each other how much we care for one another				
49. We think this is a good community to raise children				
50. We think we should not get too involved with people in this community				
51. We trust things will work out even in difficult times				
52. We try new ways of working with problems				
53. We understand communication from other family members				
54. We work to make sure family members are not emotionally or physically hurt				

Appendix F (Family Resilience Assessment Scale – Afrikaans Version)

UNIVERSITEIT VAN DIE WES-KAAP
DEPARTEMENT VAN SIELKUNDE
Privaatsak X17, Bellville 7535, Suid Afrika
Tel: +27 21-959 2283/2453
Faks: 27 21-959 3515

VERSTERK DIE GESINGSBANDE

Ons is 'n groep navorsers wat belangstel in jou menings oor jou familie-lewe. Ons wil graag he jy moet hierdie vraelys voltoooi. Jy doen dit anonym, m.a.w. jou identiteit word bewaar. Daar is geen korrekte of verkeerde antwoorde nie, ons wil net jou mening verstaan. Kies asseblief die opsie wat jou situtasie die beste pas.

AFDELING A

Voltooi asseblief die volgende deur ’n sirkel of ‘n ‘X’ om die korrekte antwoord te trek.

Geslag:	Manlik	Vroulik

Ouderdom:

Opvoedkundige vlak in grade:

Ras	‘Kleurling’	‘Afrikaan’	‘Wit’	‘Indiër/Asiër’	
Huistaal	Afrikaans	Engels	isiXhosa	Ander	

Is jy werksaam?	Ja	Nee

Die huishouding se inkomste per maand:

Wat is jou posisie in die gesin?

Hoe is jul gesin saamgestel?

Twee getroude ouers	
Twee ongetroude ouers	
Enkel moeder	
Enkel vader	
Woon met ander familie (soos ouma/oupa etc.)	

Lees asseblief elke stelling. Kies diegene wat jy mag in die afgelope 5 jaar ondervind het

Dood van ‘n geliefde		Please explain:
Werkloosheid		
Egskeiding		
‘n Geliefdes siekte		
Finansiele onsekerheid		
Ander		Please explain:

AFDELING B: GESINSBANDE

Lees asseblief elke stelling versigtig deur. Besluit hoe goed na jou mening ddit jul gesing beskryf. Jou 'gesin' mag enigeen insluit wie jy wil.

	Stem heeltemal saam	Stem saam	Stem nie saam nie	Stem glad nie saam nie
1. Ons gesin-struktuur kan enige onverwagte gebeurtenisse hanteer				
2. Ons vriende waardeer ons vir wat ons is				
3. Die dinge wat ons vir mekaar doen, laat ons deel van die gesin voel				
4. Ons aanvaar stresvolle gebeurtenisse as deel van die lewe				
5. Ons aanvaar dat problem onwerwags kan opduik				
6. Ons kan almal 'n bydrae lewer wanneer groot besluite oor die gesin gemaak word				
7. Ons kan ons pyn verwerk en tot 'n verstandhouding kom				
8. Ons kan aanpas by die eise wat aan ons gesin gestel word				
9. Ons is nie huiwerig om dinge op 'n nuwe manier in ons gesin te doen nie				
10. Ander familielede verstaan ons				
11. Ons vra ons bure vir hulp en ondersteuning				
12. Ons woon dienste by die kerk/sinagoge/moskee by				
13. Ons glo ons kan ons problem hanteer				
14. Ons kan vir 'n verduideliking vra as ons mekaar nie verstaan nie				
15. In ons gesin kan ons eerlik en reguit met mekaar wees				
16. Ons kan by die huis stoom afblaas sonder om iemand te ontstel				
17. Wanneer probleme opduik, kan ons tot 'n vergelyk kom				
18. Ons kan familieverskille hanteer wanneer ons 'n verlies moet verwerk				
19. Ons kan staatmaak op mense in dié gemeenskap				
20. In ons gesin kan ons kan die betekenis agter boodskappe bevraagteken				
21. Ons kan groot probleme oplos				
22. Ons kan oorleef indien nog 'n probleem opduik				
23. Ons kan praat oor hoe ons in ons gesin kommunikeer				
24. Ons kan as gesin moeilike tye verwerk				
25. Ons raadpleeg mekaar wanneer ons besluite moet neem				
26. Ons is positief wanneer ons probleme definieer om dit op te kan los				

	Stem heeltemaal saam	Stem saam	Stem nie saam nie	Stem glad nie saam nie
27. Ons bespreek ons probleme en voel goed oor die oplossings				
28. Ons bespreek probleme tot ons 'n oplossing bereik				
29. Ons voel vry om ons menings uit te spreek				
30. Ons voel goed om tyd en energie aan ons gesin te bestee				
31. Ons meen die mense in dié gemeenskap is bereid om in 'n noodsituasie te help				
32. Ons voel veilig om in dié gemeenskap te woon				
33. Ons voel ons word as vanselfsprekend deur familielede aanvaar				
34. Ons voel ons is sterk genoeg wanneer groot probleme ons in die gesig staar				
35. Ons glo in 'n opperwese				
36. Ons is sterk genoeg om ons probleme op te los				
37. Ons deel nie ons gevoelens met ander nie				
38. Ons weet die gemeenskap sal help as daar moeilikheid is				
39. Ons weet ons is belangrik vir ons vriende				
40. Ons leer uit mekaar se foute				
41. In ons gesin bedoel ons wat ons vir mekaar sê				
42. Ons neem deel aan aktiwiteite by die kerk				
43. Ons kry gunste en gawes van die bure				
44. Ons vra raad by godsdienstige raadgewers				
45. Ons luister selde na die bekommernisse en probleme van familielede				
46. Ons deel die verantwoordelikhede in ons gesin				
47. Ons toon teerheid en wys ons liefde vir mekaar				
48. Ons vertel mekaar hoeveel ons vir iemand omgee				
49. Ons meen hierdie is 'n goeie gemeenskap om kinders in groot te maak				
50. Ons meen ons moenie te betrokke raak by mense in dié gemeenskap nie				
51. Ons vertrou dinge sal uitwerk, selfs in moeilike tye				
52. Ons probeer nuwe maniere om probleme op te los				
53. Ons verstaan kommunikasie van ander familielede				
54. Ons maak seker familielede word nie emosioneel of fisiek seergemaak nie				

Appendix G (54-item Family Resilience Assessment Scale)

FAMILY RESILIENCE ASSESSMENT SCALE

Please read each statement carefully. Decide how well you believe it describes your family now from your viewpoint. Your family may include any individuals.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Our family structure is flexible to deal with the unexpected				
2. Our friends value us and who we are				
3. The things we do for each other make us feel a part of the family				
4. We accept stressful events as a part of life				
5. We accept that problems occur unexpectedly				
6. We all have input into major family decisions				
7. We are able to work through pain and come to an understanding				
8. We are adaptable to demands placed on us as a family				
9. We are open to new ways of doing things in our family				
10. We are understood by other family members				
11. We ask neighbors for help and assistance				
12. We attend church/synagogue/mosque services				
13. We believe we can handle our problems				
14. We can ask for clarification if we do not understand each other				
15. We can be honest and direct with each other in our family				
16. We can blow off steam at home without upsetting someone				
17. We can compromise when problems come up				
18. We can deal with family differences in accepting a loss				
19. We can depend upon people in this community				
20. We can question the meaning behind messages in our family				
21. We can solve major problems				
22. We can survive if another problem comes up				
23. We can talk about the way we communicate in our family				
24. We can work through difficulties as a family				
25. We consult with each other about decisions				
26. We define problems positively to solve them				

	Strongly Agree	Agree	Disagree	Strongly Disagree
27. We discuss problems and feel good about the solutions				
28. We discuss things until we reach a resolution				
29. We feel free to express our opinions				
30. We feel good giving time and energy to our family				
31. We feel people in this community are willing to help in an emergency				
32. We feel secure living in this community				
33. We feel taken for granted by family members				
34. We feel we are strong in facing big problems				
35. We have faith in a supreme being				
36. We have the strength to solve our problems				
37. We keep our feelings to ourselves				
38. We know there is community help if there is trouble				
39. We know we are important to our friends				
40. We learn from each other's mistakes				
41. We mean what we say to each other in our family				
42. We participate in church activities				
43. We receive gifts and favors from neighbors				
44. We seek advice from religious advisors				
45. We seldom listen to family members' concerns or problems				
46. We share responsibility in the family				
47. We show love and affection for family members				
48. We tell each other how much we care for one another				
49. We think this is a good community to raise children				
50. We think we should not get too involved with people in this community				
51. We trust things will work out even in difficult times				
52. We try new ways of working with problems				
53. We understand communication from other family members				
54. We work to make sure family members are not emotionally or physically hurt				

Appendix H (22-item Adapted English Family Resilience Assessment Scale)

UNIVERSITY OF THE WESTERN CAPE
DEPARTMENT OF PSYCHOLOGY
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 2283/2453, Fax: 27 21-959 3515
E-mail : 3332573@myuwc.ac.za

STRENGTHENING FAMILY RESILIENCE

We are a group of researchers interested in your opinions on your community, family, and parenting styles. We would appreciate it if you would complete this questionnaire. You will remain anonymous, i.e. your identity will be kept safe. There are no right or wrong answers, only your opinions. Please choose the option, which suits your situation, the best.

SECTION A: PLEASE COMPLETE THE FOLLOWING:
You can indicate your choices with an "X"

Gender: | Male | Female |

Age: _____

Highest education level: | Primary | Secondary | Tertiary |

Race: | Coloured | Black-African | White | Indian | Other |

Home language: | Afrikaans | English | IsiXhosa | isiZulu | Other |

Are you currently employed? | Yes | No |

Household income per month: | |

What is your position in the family (mother/father/eldest daughter/son)? | |

What is your home family's structure?

Two married parents	
Two unmarried parents	
Single mother	
Single father	
Live with extended family (eg. Your parents)	

Please select any of the following you may have experienced within the last 5 years:

Death of a loved one		Please explain: _____
Unemployment		
Divorce		
A loved one's illness		
Financial insecurity/uncertainty		Please explain _____

FAMILY RESILIENCE ASSESSMENT SCALE

Please read each statement carefully. Decide how well you believe it describes your family now from your viewpoint. Your family may include any individuals.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. The things we do for one another make us feel a part of the family				
2. We accept stressful events as a part of life				
3. We all have input into major family decisions				
4. We are able to work through pain affecting the family and come to an understanding (emotional, psychological, physical)				
5. We are open to new ways of doing things in our family				
6. We are understood by other/extended family members				
7. We attend church/synagogue/mosque services				
8. We can be honest and direct with each other in our family				
9. We can deal with family differences in accepting a loss of a loved one				
10. We can question the meaning behind messages in our family				
11. We can solve major problems				
12. We define problems positively to solve them				
13. We feel free to express our opinions				
14. We feel secure living in this community				
15. We feel taken for granted by family members				
16. We have the strength to solve our problems				
17. We mean what we say to one another in our family				
18. We participate in church/synagogue/mosque activities				
19. We seldom listen to family members' concerns or problems				
20. We tell each other how much we care for one another				
21. We think this is a good community to raise children				
22. We think we should not get too involved with people in this community				