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## Successful Again through a Family Resilience Lens

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LOMA LINDA UNIVERSITY  
School of Science and Technology  
in conjunction with the  
Faculty of Graduate Studies

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Successful Aging through a Family Resilience Lens

by

A'verria Sirkin Martin

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A Dissertation submitted in partial satisfaction of  
the requirements for the degree  
Doctor of Philosophy in Marital and Family Therapy

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June 2012

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Each person whose signature appears below certifies that this dissertation in his/her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Philosophy.

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## ABBREVIATIONS

AIC	Akaike Information Criterion
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
EFA	Exploratory Factor Analysis
NNFI	Bentler-Bonett Non-Normed Fit Index
RMSEA	Root Mean-Square Error of Approximation
SAGE	Successful AGing Evaluation
SEM	Structural Equation Modeling
$\chi^2/df$	Relative Chi-Square Ratio

## ABSTRACT OF THE DISSERTATION

### Successful Aging through a Family Resilience Lens

By

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Doctor of Philosophy, Graduate Program in Marital and Family Therapy  
Loma Linda University, June 2012  
Dr. Brian Distelberg, Chairperson

This study examined successful aging through a family resilience lens by developing a psychometrically tested assessment that can be used to measure family and individual resilience in a population of older adults and by then applying these latent structures to predict successful aging across four domains; self rated successful aging, psychosocial health, cognitive decline, and physical health. Data from 1,006 older adults were analyzed in three steps. The first identified the underlying latent structure through principle component (exploratory) factor analysis (EFA). The second included the use of confirmatory factor analysis to validate the structure from the first step. The third utilized a structural equation model (SEM) to understand the predictive power of individual and family resilience on outcomes of successful aging, and then, tested the interdependence relationship between individual and family resilience. EFA produced an eight-factor structure that appeared clinically relevant. CFA confirmed the eight-factor structure previously achieved and confirmed a second order nesting of these factors into individual and family resilience factors. SEM showed individual and family resilience operates as interdependent concepts and produce unique predictive validity for measures of successful aging. This study advances the family resilience framework in connection with individual resilience by introducing the Multilevel Resilience Measure (MRM) that

assesses two levels of resilience (family and individual) in older adults, which can be utilized to predict domains of successful aging. Understanding aging from a family resilience lens assists in recognizing the transitions, adaptations, and recovery processes experienced by families as they age, which provides direction for future research and clinical application.



## **CHAPTER ONE**

### **INTRODUCTION**

During the last 100 years, the human lifespan has doubled due in part to advances in health care. Currently one in eight Americans are over 65 years of age; in the next two decades that number will continue to grow exponentially (Moody, 2005). At present there are over 40 million individuals over the age of 65 living in the United States and by 2030 that number is expected to grow to 72.1 million (Administration on Aging (AOA), 2010). This rapidly shifting distribution of older adults as well as the appearance of various biopsychosocial issues in this population is grounds for the assertion “that aging is the number one public health issue faced by the developed world” (Depp, Vahia, & Jeste, 2010, p. 528). Aging should not be considered an individual endeavor but a developmental process that impacts the family system. For this reason, it is imperative that we, as marriage and family therapists, gain a better understanding of the impact of aging on the family system and what it means to age successfully from a biopsychosocialspiritual perspective.

The family resilience model provides a structured framework to consider the concept of aging and predict successful aging, which for this study is defined and measured as integration between self-rated successful aging, psychosocial health, cognitive health and physical health. In the field of marriage and family therapy, the ability to acquire additional information about both the family resilience model and successful aging, has the capability to contribute to advances in clinical treatment planning and development of policy for older individuals and their families. Working with the concept of family resilience as the foundation for clinical intervention allows for

a collaborative and empowering therapeutic relationship (Rolland & Walsh, 2006). In addition, understanding the way that family resilience processes impact outcomes of successful aging can assist therapists in creating tailored treatment plans for their clients. Consequently, a measure for family resilience would provide a foundation for assessing those different processes of family resilience in session. This investigation hopes to contribute to the field of family therapy through advancing the family resilience framework as a research measureable concept and applying this concept to aging. The purpose of this investigation is two-fold: 1) to confirm the nine construct latent structure of the family resilience model (Walsh, 2006) by employing an exploratory and confirmatory factor analysis, in a secondary data analysis using data from the SAGE study of successful aging cohort and, 2) develop a model to predict successful aging using structural regression based on the finding of the confirmatory factor analysis in phase I.

## **Background**

It is critical that as our elderly population grows we focus on studying the process of aging and what it means to age successfully. As stated above, the number of people aged 65 years and older will almost double by 2030 (AOA, 2010). This budding of the older population, especially those over the age of 85, has produced novel obstacles for both society and health services (Hendrie et al., 2010). Earlier research on the aging process has concentrated on the way that disease and disability affect older adults. More recently, research has begun to focus on successful aging across multiple domains (Reichstadt, Depp, Palinkas, Folsom & Jeste; 2007). To date, there has been scant literature on the family's interaction in the aging process. It is crucial during a time of

increased life expectancy, which brings challenges economically, socially and medically, that attention is being given to family research identifying the reasons why older adults do or do not age successfully and the reciprocal relationship on the family (Fiocco & Yaffe, 2010). As we move forward, aging should be framed as a systemic issue affecting the entire family. Understanding aging through a family resilience lens supports the notion of aging as both a developmental and systemic process.

At this point there is not an agreed upon definition of successful aging across aging literature (Depp et al., 2010). There appears to be incongruence between psychological, biomedical and untrained positions on successful aging. Although there is not a universal definition, many studies have considered biological (Rowe & Khan, 1997; Strawbridge, Cohen, Shema, & Kaplan, 1996), lifestyle (Rowe & Khan, 1997; Peel, McClure, & Bartlett, 2005), and social (Hendrie, Purnell, Wicklund, & Weintraub) aspects of successful aging. Rowe and Kahn (1997) found that individuals who aged successfully had lower amounts of body fat, increased physical activity, and better dietary habits. In accordance with these findings they also suggested that lifestyle effects long term physical health, as any moderate debility caused considerable reductions in formal activity. Bruce, Seeman, Merrill, and Blazer (1994) reported that individuals who display depressive symptoms also have reduced amounts of physical activity, which increases physical disability and worsens mental health issues.

Additionally, qualitative investigations have been conducted to consider the meaning of successful aging to older adults (e.g., Reichstadt et al., 2007) and found that older adults report a variety of factors (i.e., physical health, social interactions) important in successful aging. To consider “successful aging” one should consider all of these

dimensions and beyond. For example, this study defines and observes self-rated successful aging, psychosocial health, cognitive health as well as physical health. By tracking all of these outcomes, this study can observe not only an individual's perceptions of aging well, but also other objective measures such as cognitive functioning and physical wellbeing. Given the multivariate design to this study's analytic procedures, we can also observe the interdependence of these outcomes in the presence of the control variables, and the test variables associated with family resilience.

Without a proper inclusive description of successful aging, future studies will lack clear direction. Inui (2003) suggests that an integrated biopsychosocial approach is necessary to fully comprehend the phenomenology of successful aging. Without a comprehensive definition from a biopsychosocial approach "successful aging will not be amenable to description, appreciation, and discerning understanding without the kind of transdisciplinary thinking that recognizes the complexity and multiplicity of determinants of health in elderly persons" (Inui, 2003, p. 393). As a clinician, because there is no agreed upon definition of successful aging; it becomes increasingly important to discuss viewpoints on aging; including values, ideals and personal conceptions with our clients to assist them to reach their goals in later life (Phelan & Larson, 2002). Undeniably, gaining an understanding of why older adults' age successfully and how this relates to family interactions is as significant as understanding disease processes. Because aging can be considered a developmental process that has the ability to put stress on the family unit, the family resilience model emerges as an appropriate theoretical lens to conceptualize the process of aging. This study will contribute to the development of the family resilience framework as an empirically used model for quantitative research and as a

predictor for successful aging. The application of the family resilience model to the concept of aging as a systemic issue allows for growth in the field of marriage and family therapy and gerontology.

### **Theoretical Framework**

The family resilience model (Walsh, 2006) provides the theoretical framework for this investigation, which strives to understand the effects of the developmental process of aging on the family system. From earlier perspectives on resilience, resilience has been defined as “the ability of a family to respond positively . . . and emerge from [a] situation feeling strengthened, more resourceful, and more confident than its prior state” (Simon, Murphy, & Smith, 2005). Walsh (1996) on the other hand added to these earlier definitions by focusing the concept of resilience away from adversity and behavioral outcomes to the process of building resilience. Walsh’s theory of resilience remains focused on crucial interactions that assist families in enduring and recovering from difficulties they experience. Crucial to this theory, families encounter a range of life stressors and resilience is built by interacting with these ecological stressors. At times resilience comes as a result of adversity but can also arise as part of developmental processes. Difficulties and crises have the potential to make individuals and families stronger as they forge through the challenges; “effective family processes matter most for healthy functioning and resilience” (Walsh, 2006, p. 17). For the purpose of this investigation, resilience can be defined as the ability to maintain healthy functioning through the process of life development. While not all families face high levels of adversity and crises within their lifetime, the developmental process of aging can often be

considered challenging and a period of transitions for the family unit. Families who have higher levels of resilience are able to thrive regardless of diverse life circumstances.

The family resilience model utilized in this investigation is outlined by Walsh (2006), and is designed with three key process and nine constructs. The first key process, belief systems has three constructs – making meaning of adversity, positive outlook, and transcendence and spirituality. The second key process, organizational patterns consists of three constructs – flexibility, connectedness, and social and economic resources. The third key process also has three constructs – clarity, open emotional expression, and collaborative problem solving. These constructs were created as a guide for both research and clinical practice to highlight the factors that play a role in individual and family resilience (Walsh, 2003). Walsh's (2003, 2006) model for family resilience was chosen for this investigation because it embodies the systemic interplay often seen in families during various developmental processes and the framework provides a detailed structure which is well suited for statistical analysis. To substantiate this theory the goal of phase I of this investigation is to confirm the latent factor structure described in the family resilience model with an aging population (Walsh, 2003, 2006).

The family resilience model suggests that “resilience is built within relationships and through experiences and openness with others” (Walsh, 2006). When a family is faced with developmental obstacles, certain factors are necessitated to assist the family in recovering and growing from these experiences (Black & Lobo, 2008). The family resilience model is an appropriate fit for successful aging research as it seeks to understand how and why the aging process negatively affects some families and not others (Walsh, 1996). In addition, this model has the ability to lay the foundation for both

interventions and prevention methods that can fortify couple and family relationships in the face of aging. Therefore it is beneficial to confirm, through examination and verification, the factors depicted in Walsh's (2003) family resilience model and subsequently utilize them to predict successful aging across various domains.

### **Objectives**

This investigation is proposed to take place in two phases. Each phase is distinct and each phase will represent a separate publishable article, which will stand in place of the traditional results and discussion chapters of this dissertation. In Phase I the previously discussed constructs of the family resilience model (Walsh, 2006) will be evaluated and verified using data collected from SAGE participants in a study of successful aging. This study will examine the multiple factors within the theoretical model (Walsh, 2006) through the application of an exploratory factor analysis and a confirmatory factor analysis. A major limitation to future study of family resilience and aging is the lack of a psychometrically tested tool for measuring family resilience in aging populations (Ungar, 2011). Therefore, this process will yield valuable insight into how future research might operationalize empirical measures for family resilience. Phase II, therefore will use the identified constructs within Phase I to model the importance of each construct in the family resilience model for predicting successful aging.

### ***Phase I***

The family resilience model as prescribed by Walsh (2006) appears to be an innovative approach to studying successful aging. Unfortunately, while there are child and youth resilience measures (Ungar et al., 2008), there is not currently a comprehensive

measure of family resilience which can be used empirically for this exploration of successful aging. The family resilience model is a broad and detailed model comprised of three distinct processes, all of which can be conceptualized by three sub-constructs. For example, one key process within family resilience is that of Belief Systems. In this case it is theorized that families, through internal transactions, share a belief system which is used to explain and understand difficulties and hardships. The process of belief systems is further broken into three constructs: 1) the degree to which families generate meaning from adversity, in this case the value a family system has for rising above hardship, and relying on relationships for overcoming demanding times, 2) the value of optimism in the face of difficulties, and 3) the ability to integrate transcendence and spirituality into a family's understanding of hardships. While measures exist for assessing spirituality, and one could use these measures for empirical exploration, these measures only account for one construct, leaving the eight other constructs unaccounted for. Therefore this phase of the study will collect multiple, known and validated measures and attempt to organize these measures into a comprehensive model which explains the interrelated connection between all nine concept and three overarching processes.

In an effort to provide validation to the Family Resilience theory, as well as provide a validated grouping of predictors for Phase II, the SAGE dataset will be divided and analyzed in two corresponding groups. The first group will be utilized in an exploratory factor analysis to determine the core structure of the proposed variables and the second group will be used in a confirmatory factor analysis to explain the interrelated latent (hypothesized) structure of the SAGE data using the proposed family resilience model. Both the exploratory and confirmatory factor analysis aim to gain a clearer



understanding of the family resilience model and pinpoint the exact structure of the framework, which will be utilized in phase II of this investigation and can be used to develop more precise measures of family resilience to be used future studies. Within this process Byrne (2006) suggests a specific set of analytic steps which will guide the confirmatory factor analysis. The steps include testing the relationship as nine separate constructs, as well as a multi-level factor system (or a second order confirmatory factor analysis) with each of the nine sub-constructs within family resilience theory nested within their respective three processes. This stepwise process will follow the hypotheses below.

H<sup>1</sup> = The underlying latent structure of the sample data will be best represented by a nine latent construct within Walsh's theory of family resilience.

H<sup>2</sup> = The proposed nine latent constructs are best represented by a second order with three latent constructs, as proposed by Walsh (2003).

### ***Phase II***

Phase II, will use the identified constructs within Phase I to model the importance of each key construct in the family resilience model to predict outcomes of successful aging. Phase II will be primarily based on the findings from phase I. After completing the second order factor analysis the realized latent variables of the family resilience model will be utilized in a structural equation model to predict specific outcome variables of successful aging including: self-rated successful aging, psychosocial health, cognitive health, and physical health.

H<sup>1</sup> = Successful aging (self-rated successful aging, psychosocial health, cognitive health, and physical health) is directly predicted by the family resilience model (nine or three latent factors) generated in phase I's confirmatory factor analysis.

H<sup>2</sup> = The relationship found in H<sup>1</sup> will remain significant in the presence of control variables (age, education, socio-economic status).

### **Rationale**

It is imperative to the field of marital and family therapy that we gain a better understanding of the reasons why some older adults are able to survive and flourish in spite of the difficulties they may encounter during different developmental processes in their lives. "The sheer magnitude of people slated to reach late adulthood within the next few decades makes the quest to understand the precursors of successful aging a public priority" (Pruchno, Wilson-Genderson, Rose, Cartright, 2010, p. 821). Over the course of the past few decades family scientists and aging researchers have both moved towards strength based models that remove the focus from disease, disability, and deficits (Patterson, 2002b) to models that concentrate on positive factors. A family resilience model is an ideal fit for this strength based approach as it focuses on the reasons that some families cope and thrive during life cycle transitions and centers on strengths over deficits. Consequently, recognizing the characteristics that contribute to successful aging through a family resilience model is beneficial for providing treatment and developing policy in the field of marriage and family therapy.

As previously discussed, at this point there is not an agreed upon definition of successful aging. For clarification, from the viewpoint of this investigation successful aging is defined and will be measured as the combination of self-rated successful aging,

psychosocial health, cognitive health, and physical health which will be predicted using the factors identified in the family resilience model. In the midst of a demographic revolution, where a greater percentage of Americans are becoming older adults and when social and economic strains are felt universally, Walsh's (2003) family resilience framework provides an appropriate model to develop novel interventions to assist families in meeting future challenges as they or someone they love enter late adulthood. At this point, there appears to be scant literature on successful aging in journals exclusively relating to marital and family therapy (i.e., *Family Relations*, *Family Process*, *Journal of Marriage and the Family*). There is minimal literature pertaining to aging and its effects on the family (e.g., Hebblethwaite & Norris, 2011; Silverstein & Giarrusso, 2010). Therefore, this investigation will be an innovative study in the field of marital and family therapy, extending the field's vast knowledge of family systems through the family resilience model to appreciate a systemic view of successful aging.

### **Conclusion**

Within the field of marital and family therapy this research investigation exploring successful aging through the family resilience model is crucial; the awareness of factors that contribute to some people thriving during developmental life cycles and adapting to challenges, while others decline, has the potential to lay the foundation for policies and interventions for older adults and their families (Reichstadt et al., 2007). In addition, this is a large step forward for the field of marital and family therapy which has minimal literature on aging from a systems perspective (e.g., Hebblethwaite & Norris, 2011; Silverstein & Giarrusso, 2010). This proposed investigation is an original approach to aging that attempts to expand Walsh's family resilience framework through the process

of exploration and verification of the factor structure outlined in Walsh's (2003, 2006) previous publications. The development of the family resilience framework as an empirical research concept allows for the use of this model in predicting successful aging across four biopsychosocial domains. Applying the family resilience framework to aging has the potential to make a significant impact on research and practice in the field of marriage and family therapy.

## **CHAPTER TWO**

### **THE FAMILY RESILIENCE MODEL**

Resilience has become a broad construct that involves several concepts of adaption both during developmental processes and in the face of adversity. Individual resilience has been an area of study for many years (Werner, 1971, 1982), while family resilience has emerged gradually over the last 25 years (McCubbin & McCubbin, 1996, 1998; Walsh, 1996). Individuals are considered resilient if they are able adapt to changing situations and safeguard their psychological health (e.g., show fewer mental health symptoms) when challenged by highly stressful events (Vaughn, Fredrickson, & Taylor, 2008). The notion of family resilience relates to a system's ability to adapt and recover when the family has been endangered by challenges that have the power to damage the success of the family (Masten & Obradovic, 2006). Family resilience as a theory provides a potentially useful, yet unsubstantiated framework for quantitative research. The ability to verify Walsh's (2003, 2006) outlined family resilience framework has the power to grant access to a family level model to conceptualize aging as well as a variety of systemic issues.

The foundation for the family resilience framework is the notion that stressful circumstances and life challenges effect the entire family and particular key processes produce healing and resilience in the family (Walsh, 2002). Previous research on family resilience suggests that there are protective and recovery factors that assist families in maintaining healthy functioning and allow families to continue in their developmental processes and strengthen during challenges and misfortunes (McCubbin, McCubbin, Thompson, Han, & Allen, 1997). For clarity, it is not assumed that all life transitions are

stressful for the family unit, yet most require some level of flexibility and adaptation. It is from this standpoint that the family resilience model becomes useful for understanding developmental stages such as aging. While for the purpose of this investigation we are interested in the influence of family relationships on the process of aging, the family resilience model can be applied to the majority of family issues and developmental stages from birth to death. Within this chapter we will explore the foundation of individual resilience, various models of family resilience, and the grounds for the substantiation of Walsh's detailed family resilience model.

### **Individual Resilience**

Theoretically, the concept of resilience is one's capacity to endure and recuperate in the face of adversity; this term appears to be directly related to the resources and connections we have in our lives (McMurray, Connolly, Preston-Shoot, & Wigley, 2008). The original notion of resilience was brought about by psychiatrists and developmental psychologists who were interested in understanding how stressful life events had the potential to influence a child's well-being and development (Hooper, 2009). Fortunately over the years, the emergence of the concept of resilience has reduced the deficit model focus and negative assumptions regarding disadvantaged children (Masten, 2001). The focus has shifted to consider an individual's strength and level of adaptation and adjustment in varying life circumstances (Hawley & DeHaan, 1996).

The construct of resilience is of great interest to researchers and theorists as it is recognized that some individuals are better able to handle stressful events and continue on a normal trajectory of functioning, while others experience a greater ongoing stress response (O'Hara et al., 2010). There appears to be disagreement between experts in the

field as to the attributions of resilience; some suggest that resilience is a personality trait that assists in adaptation to stress and allows for improved physical and mental health outcomes (Cohler, 1987). Others propose that resilience is both an internalized capacity and a set of behaviors; suggesting that while resilience may be an internalized trait that takes a certain level of competence, one must be exposed to a risk that they can behaviorally cope with and overcome (Gilgun, 1999). In contrast, Ungar et al. (2008) suggests that resilience is based on the ability of an individual to direct and surround oneself with health enhancing resources and positive social ecologies. From this point of view there are two processes at work, navigation and negotiation.

Literature on individual resilience has focused primarily on children and their ability to endure severe trauma during childhood and still develop into stable and secure adults (Hawley & DeHaan, 1996; Werner, 2000). During the 1980's, research suggested that children who experienced similar stressors did not necessarily have the same outcomes, which was in contrast to the previous deterministic theories of development (Walsh, 2002). Bartley, Head and Stansfeld (2007) suggest the concept of protective resilience, in which constructive attributes that are attained at one stage may assist when enduring later hardship. From a developmental perspective, resilience appears to be a widespread phenomenon that is engrained within an adaptational system. Masten (2001) suggests that if development is healthy and not delayed even when challenged by adversity, then the risk of developmental issues are typically prevented. In contrast, when there are ongoing stressors that affect the natural developmental process, ongoing developmental problems are much more likely. Resilience is improved and

developmental issues are circumvented when the individual has emotional ties that are affectionate, and promote autonomy and trust in the child (Werner, 2000).

One of the first investigations into individual resilience was the Kauai Longitudinal Study (Werner, 1993; Werner & Smith, 1982), which followed the lives of 643 multiracial, middle and low socio-economic status, children of Kauai who were born in 1955 for 40 years (Werner & Smith, 1982). Every child born on the island of Kauai in 1955 was included in the study and the mothers began to be monitored as early as four weeks gestation (Werner, Bierman, & French, 1971). This investigation “monitored the impact of biological and psychosocial risk factors, stressful life events, and protective factors . . . at ages 1, 2, 10, 17/18, 31/32, and 40” (Werner & Smith, 2001, p. 25). The focus of the investigation was on high-risk children who were exposed to various stressors and crises, such as perinatal stress, poverty, hostile environments, and parental mental illness, but who developed into competent, healthy adults (Werner, 1993). The aim of the study was to determine protective factors that determined a higher level of resilience in these troubled children and adolescents.

Werner and Smith (2001) suggest that the “phenomenon of resilience [is a] process that leads to positive adaptation within a context of adversity . . . protective factors within the individual and outside sources of support and stress are linked together, in childhood, adolescence, and young adulthood . . . these variables . . . predict the quality of adaptation and psychological well-being at midlife” (p. 160). The protective factors that became apparent throughout their longitudinal investigation included: autonomy and social maturity, scholastic competence, self-efficacy, temperament, health status, maternal competence, sources of emotional support, and number of stressful life events



(Werner & Smith, 2001). In addition, Werner and Smith (1992) suggest that the community provides an important protective factor for high-risk children. Grandparents, aunts, uncles, neighbors, youth leaders, and teachers offered emotional support that assisted these children in having a successful transition into adulthood. The outcomes of this investigation truly highlight the importance of understanding the concept of resilience through a family resilience model that incorporates a systemic perspective.

The main objective of research on resilience is to ascertain the susceptibility and protective factors that assist in reducing the negative long term effects of difficult life experiences and detect what underline processes are associated with the protective factors (Luthar, Sawyer, & Brown, 2006). Although there are profound differences in methodology across the various longitudinal studies of individual resilience in young children growing up in high-risk conditions, it appears that there are a number of replicated protective factors amongst the studies. Werner (2000) proposes that the protective factors identified across investigations go beyond, social class, ethnic or cultural boundaries, and geographic area. Some of the protective factors identified in at risk children are: low distress/low emotionality, active, alert, sociability, easy – engaging temperament, advanced self-help skills, internal locus of control, positive self-concept, planning, strong religious orientation, maternal education and competence, supportive grandparents, successful school experiences, and mentors. This list is not exhaustive but suggests the importance of the individual personality as well as the emotional support provided by the family and community.

## **Family Resilience**

Black and Lobo (2008) propose that over time the focus has moved away from individual resilience in the direction of the importance of relationships with family and friends. They go on to suggest that family resilience models assist in seeing family strengths in contrast to deficiencies. Seccombe (2002) highlights the crucial influence of relationships, proposing that resilience is more than one's individual capacity and is determined by the social structure of the family. Walsh (1996) suggests that a concentration on individual resilience frequently distracts clinicians and researchers from the resilience that is often found within the family unit. A family resilience model considers resilience from a systemic perspective focusing on relational aspects that have not been considered previously. In addition, a systemic perspective of resilience from an ecological and developmental perspective focuses on strengthening interactional processes that assist in family hardiness in the face of adversity and life transitions (Walsh, 1996). This family view of resilience has the potential to fortify both the family and individual. Seccombe (2004) suggests that the integration of individual and family resilience, in combination with the influence of community provides an ecosystemic perspective that considers "ecological, cultural and developmental nuances, (e.g., racism, oppression, social class)" (p. 388). Problems and their solutions can be understood in the context of multiple influences including the individual, family, and society (Walsh, 2002). From this position, understanding family resilience allows the researcher to consider how families remain healthy and functional in the context of their collective transitions.

As families become more diverse and social and economic difficulties become an everyday challenge for some, awareness of family resilience becomes increasingly relevant. Interventions and policies based on family resilience can assist families in meeting their challenges with a shared belief system, connectedness, and effective communication to assist with adaptability in ever changing situations (Walsh, 1996). Walsh (2006) suggests that there is a paradox of resilience, in that the worst of times can produce the best in families. She continues to convey that in times of challenge there is the possibility of growth and transformation. Difficulties can cause family members to recognize the value in their family and provide meaning for change. Problems experienced by the family have the potential to strengthen the family as they draw together on common ground to overcome obstacles as a unified team (Black & Lobo, 2008). In addition, Walsh (2002) suggests that from the standpoint of the family resilience model, family functioning is understood from a multigenerational perspective that considers how families manage predictable normative life transitions and unpredictable disruptive events. Consequently, the family resilience model is about strengthening family bonds across the range of life cycle development.

### ***Resilience Model of Family Stress, Adjustment and Adaptation***

McCubbin and McCubbin (1996) developed their Resiliency Model of Family Stress, Adjustment and Adaptation, which attempts to understand how families are able to recover from stressful events and restore their overall well-being when faced with demanding and traumatic circumstances. From their perspective families utilize “positive behavioral patterns and functional competencies” (p. 5) to adjust and adapt to lives challenges. In the Resiliency Model proposed by McCubbin and McCubbin (1996) there

are five assumptions: 1) Families will experience hardship and stress at different points within their family life cycle, 2) families are able to overcome stress and difficulty resulting from family crisis through developed competencies and strength, 3) during episodes of family stress and crisis, families benefit from connections within their community and relationship outside of the family unit, 4) families naturally look for meaning and shared perspective to assist in moving forward after being faced with difficulty, and 5) families attempt to restore homeostasis after major stressors and crises. This is the process of restoration and adaptation, which assists in strengthening the family relationship and reestablishes well-being. McCubbin and McCubbin (1996) provide a reasonable theoretical model for family resilience, however, from their perspective a family has to encounter adversity to demonstrate resilience.

McCubbin et al. (1997) suggest that family resilience can be understood as having two mechanisms; family protective factors and family recovery factors. McCubbin et al. (1997) propose that the “most prominent family protective factors that have sustained value over all stages of the family life cycle are family celebrations, family hardiness, family time and routines, and family traditions” (p. 6). Family recovery factors appear to be variable depending on the nature of the family’s stressors. For example, McCubbin et al. (1997) found that in families caring for a child with cystic fibrosis the family recovery factors were: family integration, family support and esteem building, family recreation orientation, control and organization, and family optimism and mastery. These family recovery factors varied greatly for families who faced the trauma of war and included: self reliance and equality, family advocacy, family meanings, and family schema.

McCubbin et al. (1997) suggest that when they reanalyze the data from all of their investigations the ten general (protective and recovery) resiliency factors that appear to be the common denominators across studies are: family problem-solving communication, equality, spirituality, flexibility, truthfulness, hope, family hardiness, family time and routines, social support, and health. In a similar fashion, Black and Lobo (2008) suggest that in their review of the literature resilient families commonly have these following protective factors: “a positive outlook, spirituality, family member accord, flexibility, communication, financial management, time together, mutual recreational interests, routines and rituals, and social support” (p. 37). When considered together it is evident that many of the same resiliency factors can be seen throughout research on family resilience.

### ***Walsh’s Key Processes in Family Resilience***

Walsh’s (1996) approach to family resilience, similar to McCubbin and McCubbin (1996), takes into consideration the importance of adjustment and adaptation as families negotiate different life circumstance, however Walsh’s theory expands this view by taking into account how families manage expected life transitions, in addition to crisis, and identifies fundamental processes that facilitate higher levels of resilience in families. This focus on development considers standard life cycle transitions and multigenerational influences (Walsh, 2002) as well as crisis. The key processes in this model provide a structured framework that can be tested quantitatively. Once the organization is confirmed it will have the potential to be utilized in future family research and practice. Walsh (2006) explains the key to family resilience as having three domains: family belief systems, organizational patterns, and communication processes. These key

processes were developed as a “conceptual map to identify and target key family processes that can reduce stress and vulnerability in high-risk situations, foster healing and growth out of crisis, and empower families to overcome prolonged adversity” (Walsh, 2003, p. 6). The key processes outlined by Walsh (2003, 2006) will be used in this investigation as the latent variables (hypothetical concepts that are not measured directly but with a number of other proxies (Raykov & Marcoulides, 2006)) that will be substantiated in exploratory and confirmatory factor analyses and then used to predict successful aging.

### **Belief Systems**

The first key process outlined by Walsh (2003, 2006) is Family Belief Systems. Walsh (2006) suggests that at the core of family functioning lies belief systems and these are one of the most influential aspects of family resilience. Family belief systems impact the way that families understand and make meaning of the different transitions they encounter. In addition, they assist the family in organizing around the conditions placed before them (Walsh, 2003). “Belief systems broadly encompass values, convictions, attitudes, biases, and assumptions, which coalesce to form a set of basic premises that trigger emotional responses, inform decisions, and guide actions” (Walsh, 2006, p. 50). Resilience is found in families who are open and find shared meaning within the context of diverse situations. These families embody a positive, hopeful outlook (Walsh, 2003). Walsh (2003) describes three constructs as part of the family belief systems key process: making meaning of adversity, positive outlook, transcendence and spirituality.

Family transactions are the basis for making meaning of adversity (Walsh, 2006). From this perspective, the sense of meaning that families attribute to a difficult situation

is the foundation for family resilience. First, families must understand resilience as relationally based and a shared challenge (Walsh, 2003); families who pull together in times of crisis are able to withstand their struggles and emerge a strengthened unit (Walsh, 2006). Additionally, these families accept the ever changing family life cycles and adapt to ongoing developmental challenges. Furthermore, they have a sense of coherence; they view “crisis as meaningful, comprehensible, [and a] manageable challenge” (Walsh, 2003, p. 7). Lastly, they are inquisitive of the problem and through the meaning making process construct causal and explanatory perspectives of the issue (Walsh, 2006).

The second construct in family belief systems is positive outlook, which has a vital role in family resilience (Walsh, 2006). Having a positive outlook assists the family in managing stress and healing from crisis. The building blocks of positive outlook are hope and optimism. “Hope is to the spirit what oxygen is to the lungs: It fuels energy and efforts to rise above adversity” (Walsh, 2003). Along with hope, individual courage as well as encouragement of others assists in bolstering a positive outlook (Walsh, 2006). In order to maintain a positive outlook one must have personal initiative and perseverance. Initiative assures that an active role is taken in overcoming adversity; perseverance guarantees that one will not falter in the face of difficulty (Walsh, 2006). Lastly, mastery and acceptance is imperative for a positive outlook; being aware of what can and cannot be changed and moving forward with vigor (Walsh, 2006).

The final construct in family belief systems is transcendence and spirituality. Transcendent beliefs can provide multigenerational stability, as well as purpose, meaning and a sense of connection to something outside of ourselves and our conditions (Walsh,

2006). Transcendence and spirituality are capable of providing a sense of shared values between family members. In addition, spirituality and religion join individuals and families with shared faith communities that have the ability to provide support (Walsh, 2006). Ultimately, spirituality and transcendence can provide inspiration and creativity to lift us up and facilitate growth; through this transformation can occur (Walsh, 2003).

### **Organizational Patterns**

The second key process in Walsh's (2003, 2006) family resilience model is Organizational Patterns. Walsh (2003) believes that in diverse families, organization needs to be adapted for the individual family unit. Family organizational patterns are developed and safeguarded through family experiences, standards, and culture. In order to successfully manage life transitions, families have to boast the ability to reorganize around their current state of affairs (Walsh, 2006). Family structure consists of rules that define each individual's roles and functions in relation to other members of the system. This level of organization assists in the adaptive or maladaptive functioning of the system (Minuchin, 1974). Organizational patterns are described as encompassing flexibility, connectedness, and social and economic resources (Walsh, 2003).

Flexibility is an essential component in family organization, as it allows families to restore stability and move forward after crises (Walsh, 2003). Families thrive in situations where the structure remains flexible and they have the ability to change and adjust depending on the demands at the time (Minuchin, 1974; Walsh, 2006). In addition families yearn for predictability; resilience is created when families reclaim stability, roles, and rules. In order to foster flexibility in times of hardship, steady, clear, flexible leadership is an important dynamic (Walsh, 2006). This allows for a sense of security in



the family and creates healthy family functioning (Walsh, 2003). In couple relationships this is embodied through equal partnership, which promotes balance and flexibility (Walsh, 2006).

The second vital component to family organization is connectedness, which is the emotional and structural connection between members of the family (Walsh, 2006). It is imperative in difficult times that a family can depend on each other for support and comfort (Walsh, 2003). “In highly connected families, emotional closeness and loyalty are strong. Time spent together is highly valued, and many interests, activities, and friends are shared” (Walsh, 2006, p. 95). Family members are able to respect one another and possess clear boundaries that facilitate closeness and autonomy (Minuchin, 1974, Minuchin & Fishman, 1981). This level of closeness without demands fosters family resilience.

Social and economic resources are the third construct that contributes to family organizational patterns. This encompasses both financial security and balance between work and family life, in addition to the collective emotional resources found in family and community networks (Walsh, 2003). In times of difficulty, social support is one of the most important resources a family can have. The quality of the relationships in a family’s social network is of utmost importance above the size or amount of time spent with individuals in the system (Walsh, 2006). Resilience is strengthened through loving relationships inside and outside of the family (Walsh, 2003). Economic resources are also important as financial strain can cause emotional hardship for the family (Walsh, 2003). A family’s ability to thrive financially is a beneficial resource to family resilience, but not

absolutely necessary. Having employment that provides flexibility as well as appropriate benefits can have a large affect on family outcomes (Walsh, 2003).

### **Communication/Problem-Solving**

Communication/Problem-Solving is the third key process in the family resilience model as proposed by Walsh (2003). Constructive communication is essential to resilience and cohesive family functioning, as it assists in connecting with our loved ones, transmitting ideas and beliefs, and resolving dilemmas (Walsh, 2006).

Communication/problems solving is characterized through clarity, open emotional expression, and collaborative problem solving (Walsh, 2003). Listening skills are important in communication and problem-solving. It is essential for family members to provide compassion and empathy, as well as listen actively to those around them. Walsh (2006) suggests that self-disclosure is also extremely important to communication but may differ depending on culture.

Clarity implies that clear and consistent messages are communicated between family members. In healthy families communication is straightforward, understandable, concise, and sincere (Walsh, 2006). This is also true for family rules and complicated events; family members need to be honest about their expectations of one another, this reduces ambiguity and assumptions that can cause instability in the family (Walsh, 2006). Furthermore, family members need to avoid trying to protect one another by withholding information; this can cause anxiety and fear in the family unit (Walsh, 2003).

Emotional expression allows family members to share their feelings openly and honestly, showing a full range of emotions without fear of rejection. “Open communication, supported by a climate of mutual trust, empathy, and tolerance for

differences enables members to share a wide range of feelings that can be aroused by crisis events and chronic stress” (Walsh, 2003, p. 13). When families are faced with difficult situations emotional expression may become more difficult, at these points it is important to express a loving tolerance, support, and acceptance (Walsh, 2006). Families who are higher in resilience demonstrate a loving kindness that is virtually free from blame and aggression. Family members are willing to own their actions and feelings and take responsibility for their part in a problem (Walsh, 2006). In addition, resilient families have more pleasurable interactions and frequently use suitable humor in the face of misfortune (Walsh, 2003).

Collaborative problem solving is vital for successful outcomes when confronted with obstacles. It is crucial for families to avoid high levels of aggravation and despair, which can hinder resolution around ongoing issues (Walsh, 2006). Consequently, it is imperative to identify problems and ongoing stressors that can be discussed and remedied. In moving forward, resilient families develop a set of priorities and obtainable goals; over time they take action to make their goals a reality. They are realistic about the achievable and do not become deterred by setbacks. They are proactive in their own lives and utilize all of the resources that are available to them (Walsh, 2003). Resilient families are consistently on a forward trajectory; communication and problem-solving are just one piece of the puzzle that creates resilience in these families.

### **Macro-Theories in Family Resilience**

The family resilience model is based on a biopsychosocial model, which understands the multidimensional influences involved in problems and their solutions (Walsh, 2002). From this perspective, family stress theory, family systems theory,

developmental theory, and ecological theory consider sociocultural circumstances and multigenerational issues as both the cause and source of family resilience. The previously discussed theories on family resilience have paved the way to understanding the manner in which the family functions through various family transitions and developmental processes, such as aging, and how they adjust, adapt, and become increasingly resilient.

### ***Family Stress Model***

From the perspective of McCubbin and McCubbin (1998) the family stress model is the foundation for understanding resilient families. The family stress model assists in understanding the family from the viewpoint of their difficulties and then revealing the strengths and resources that explain family resilience (McCubbin & McCubbin, 1998). From this standpoint, McCubbin and McCubbin (1998) believe that resilient families successfully utilize protective resources when faced with stressors and transitions to stabilize the system and to adjust to ever shifting situations. In addition, they believe that resilient families faced with crises that they coin “non-normative” are able to develop and employ protective resources from within the family system and community to adapt to the stress they are experiencing. Patterson (2002a) reiterates that culture and community must be taken into account when considering the burdens that a family carries as well as the manner in which they act in response to their stress.

### ***Family Systems Theory***

Family systems theory is based on the idea that “the family is characterized by wholeness and order, a hierarchical structure, and self-organization” (Pinquart & Silbereisen, 2006, p. 368). From this point of view when change occurs in one member of

a system, change is likely to arise throughout the system. Olson, Fine and Lloyd (2006) suggest that the family is recognized through their patterns and processes. They go on to offer that the family system is not only influenced by its members, but by greater social systems in which they interact. A family system is considered more than a sum of the individuals who comprise the system. Each member has their own distinct characteristics but together they create a distinctive family system that is different than any other (Dore, 2008).

In order to expand the meaning of resilience it is useful to consider the model within a family systems framework. This viewpoint assists in seeing individuals as functioning within a larger social context which incorporates the family and society (Walsh, 2006). Family systems theory allows the researcher and clinician to remain aware of the reciprocal interplay between every part of subsystem and larger system (Rosenblatt, 1994). Looking at family resilience from a family systems standpoint, one can appreciate the interaction between the individual, family, and community that strengthens resilience and determination in the family unit when presented with both stressful crises and expected challenges (Hooper, 2009).

Minuchin (1974) focused primarily on the structure of the family system; his work with systems theory is very much in line with a resilience framework. In both theories there is a heavy concentration on the organizational patterns of the family, especially in regards to communication and boundaries (Minuchin, 1974; Vetere, 2001). The goal is to develop and maintain healthy, balanced structures for the family system. The concept of structure within a family is meant to illustrate the organization of the family, the family's subsystems and the family rules that impact the interactions within

the family (Vetere, 2001). Similar to the family resilience model (Walsh, 2003, 2006) outlined above, the organization of the family as well as the flexibility and boundaries are important concepts in systems theory. In a system that is open there are permeable boundaries that allow higher levels of flexibility and accommodation (Dore, 2008).

### ***Developmental Perspective***

A developmental perspective is beneficial in understanding family resilience and successful aging as situations fluctuate during a family's lifetime (Walsh, 2006). The goal of individual and family development is to recognize what process the family goes through to either adapt to change successfully or be at a complete loss in times of transition (O'Brien, 2005). Where families are in their development and life-cycle also plays an intricate role in how families adapt to challenges (Walsh, 2003). There may be short and long term stressors, and coping mechanisms may change from situation to situation. In terms of aging, lifespan development or trends in development can provide explanation for positive and negative outcomes in older adults (Depp et al., 2010). A developmental perspective assists in understanding the context and process of aging, and takes into account the social meaning of later life transitions (Friedrich, 2001). A family resilience model is in line with a developmental perspective in that it focuses on multigenerational influences and family life cycle in the ability to manage changing life situations (Walsh, 2002).

### ***Life-Cycle Development***

Walsh (2006) suggests it is necessary to consider life-cycle development in order to accurately conceptualize family resilience. Distress is understood through a

multigenerational family perspective that considers the various life-cycles involved. “A family resilience framework focuses on family adaptation around nodal events” (Walsh, 2003) and how these events may cause stress on the family unit. Life cycle development has been an area of interest for social scientist for numerous centuries (O’Rand & Krecker, 1990). Life cycle development allows developmental scientists to understand the many transitions that humans experience in their evolution towards death (Shapiro, 1988), which is important to family resilience and successful aging. The family life cycle provides an excellent foundation for the family resilience model as it illustrates where the family is in time and where they are in terms of life stages (Dore, 2008). In recent decades the implications and timeline of the original life cycle has changed.

Modernization of this country has caused a change in society, which has trickled down to family and individual systems.

In the context of marital and family therapy, the concept of life cycle development has been used to understand the exact nature of the process of transitioning from one phase in the lifecycle to the next (Breunlin, 1983). Life cycle development facilitates an appreciation of the variance between individuals who are in diverse life-cycle stages. From a family resilience model, a family life-cycle perspective allows family therapist to pinpoint a stage in the family life cycle, and gain a more attuned understanding of the types of struggles the individual or family may be encountering during that specific phase in their development as well as the resources that are available for them. The therapist is able to look for resources and positive influences that have assisted the family in enduring past transitions; looking for sources of resilience within the family (Walsh,

2003). Resilient families are able to flourish through the life course and accept the predestined developmental changes through the passage of time (Walsh, 2006).

### *Ecological Perspective*

An ecological perspective takes into consideration the multiple levels of influence that individuals encounter throughout their lives (Walsh, 2006). From this theoretical viewpoint, human development is understood within the context of the environment and in relation to the people and social contexts surrounding them; there is a complexity of interactions between the individual and the environment (Bronfenbrenner, 1977). As understood within a family resilience model a family's aptitude for resilience when faced with significant life transitions is connected not only to their individual processes but all of the relationships that embody their ecological context (i.e., family, school, work); these account for the risks and opportunities that are available to them as a part of their social system (Patterson, 2002b). Difficulties are understood in relation to the individual, family and social contexts; one is not free from the other (Walsh, 2003).

The ecological model focuses on "progressive accommodation, throughout the life span, between the growing human organism and the changing environments in which it actually lives and grows" (Bronfenbrenner, 1977, p. 513). Family resilience as viewed through the ecological model suggests that resources and hazards exist within the family and social contexts they are a part of; families are able to remain flexible and naturally manifest resources for resilience (Walsh, 2002). Therefore, the family resilience model attempts to understand the common characteristics in families that attribute to adaptation, as well as attempting to understand the uniqueness of each family's challenges and resources (Walsh, 2003). From an ecological perspective the family cannot be separated



from social context, while the social context will not directly be considered as part of this investigation there is an awareness that there can be some variability based on differing environments of participants, which play apart in molding their experiences.

### **Family Resilience and Successful Aging**

As previously stated, literature often defines successful aging as freedom from debility (e.g., Rowe & Khan, 1997), but more recently there has been an extension to multiple domains including psychosocial factors and self rated successful aging (Reichstadt et al., 2007). In order to capture multiple domains, for this study successful aging is defined and measured as integration between self-rated successful aging, psychosocial health, cognitive health and physical health. From an individual perspective the notion of successful aging can be seen as synonymous with resilience; those who are resilient throughout their lifespan will also age successfully (Baltes & Baltes, 1990). Resilience has been significantly correlated with successful aging, regardless of income (Wagnild, 2003) across dimensions such as stress management, life satisfaction, depression, and health promotion (e.g., Montross et al., 2006; Wagnild & Young, 1993). There have been a number of successful aging researchers that have focused on the importance of resilience in the aging process (e.g., Harris, 2008; Lamond et al., 2009).

Since aging can be considered a developmental task, which requires functioning and some level of independent thinking; aging can be understood as a period of adaptation (Baltes & Lang, 1997, McCubbin & McCubbin, 1996). Harris (2008) suggests that we should refocus our attention towards resilience as a critical construct for aging. She goes on to propose that resilience is a possibility for older adults regardless of socio-economic status and physical and cognitive functioning; everyone has the ability to adapt

and recover from situation to situation. She understands resilience as a process; not a personality trait, which every person has the potential to experience. Additionally, Lamond et al. (2009) discussed the protective factors of resilience in successful aging, suggesting that older adults with higher levels of resilience have higher life satisfaction in spite of physical disability. From this resilience perspective scholars highlight the strengths and positive attributes of individuals as they age. While individual resilience has been cited as a positive correlate to successful aging in several studies (e.g., Montross et al., 2006; Wagnild & Young, 1993), there is no literature connecting the family resilience framework to aging. This investigation attempts to expand the literature on successful aging and resilience to include a family level lens with the family resilience model.

Since the family resilience model has a biopsychosocial foundation, which understands multidimensional influences (Walsh, 2002) it is an understandable fit with the concept of successful aging. As families age and encounter the various difficulties (i.e., loss of physical functioning, cognitive decline) that frequently emerge in the aging process, understanding family resilience becomes increasingly important. Understanding aging through a family resilience model has the potential to assist families in facing aging related challenges with a shared belief system, connectedness and effective communication. While aging may be a time of challenge for a family, it is also a time where growth and transformation can occur.

The family resilience model assists in understanding how healthy families approach the later stages of development with ease and little difficulty while others seem to struggle with this stage of development. The family resilience model (Walsh, 2002)

suggests that resilience is part of normal healthy family functioning and not always the result of crises. Families with higher levels of resilience will encounter developmental transitions with less stress and difficulty, while families with lower levels of resilience will be more likely to have strain and conflict. A family's ability to come together and adapt around stressors builds resilience in the family (Walsh, 2003), which can provide strength during future transitions. Similarly, aging is a natural part of the life-cycle, understanding this development can provide important explanations about health outcomes in older adults (Depp et al., 2010). Undoubtedly, illness or disability in one member can cause multigenerational issues within the entire family system, such as changing family organization or discord in family beliefs. In addition the family may feel influence from larger social systems they interact with such as doctors, hospitals, and insurance agencies. Recognizing the transitions, adaptations, and recovery processes experienced by families as they age is central to successful aging and the family resilience model provides an appropriate theory for conceptualizing those changes and understanding why some families are better able to maneuver these natural stages.

As individuals live longer, older adults and those around them are intertwined during various life-cycles and play integral roles in each other's lives. As life expectancy increases, it is important that we gain a better understanding of the factors that assist in building family resilience (i.e., belief systems, organizational patterns, communication/problem solving; Walsh, 2003, 2006). Expanding beyond the resilience of the individual, a developmental perspective adds an understanding of the role of the family system and family resilience. When life changes on schedule, in harmony with projected life-cycle development, the family experiences reduced stress and greater well-

being; this is particularly evident when transitions happen outside of the normal life-cycle, such as dementia or disability of a parent. These events have the potential to cause undue stress on the family (Cook, Cohler, Pickett, & Beeler, 1997). It is through these experiences that family resilience is of the utmost importance. Looking at successful aging from a family resilience perspective with its foundation in life-cycle development assists in understanding the importance of health and social integration of older adults and their family (Moen, Dempster-McClain, & Williams, 1992).

Longer life expectancy has broadened the relationships in families, extending and shifting the organization of families to include multiple generations. With this shift has come a deeper connection across generations and greater responsibility for caregiving (Silverstein & Giarrusso, 2010). In addition, grandparents and grandchildren are able to have relationships they never had before; a closeness that was not foreseeable in previous generations (Hebblethwaite & Norris, 2011). The possibility to deepen and strengthen these relationships is sufficient grounds to study successful aging through a family resilience lens. The family resilience framework has the ability to expand our knowledge about successful aging, by integrating a family level concept that seeks to understand more about how social support and relationships assist in successful aging as measured through self-rated successful aging, psychosocial health, cognitive health, and physical health.

### **Conclusion**

Resilience is an important construct in understanding families' abilities to overcome stress and crises in their lives. While individual resilience has been studied for quite some time (Werner, 1971, 1982); the field of family resilience is still developing

(McCubbin & McCubbin, 1996; Walsh, 2003). Individual resilience is characterized by protective factors that assist in adaptation in the face of childhood adversity (Werner, 1982). Family resilience is also seen through the lens of protective factors (McCubbin & McCubbin, 1996), as well as key processes such as belief systems, organizational patterns, and communication/problems solving (Walsh, 2003). Family resilience is grounded in a number of macro-theories (i.e., systems theory, developmental theory, family stress theory) that provide a foundation for the multifaceted and multigenerational context of the theory. Overall the goal of a family resilience model is to gain a better understanding about how families adapt and recover from life's challenges and develop policy and therapeutic interventions to assist families in flourishing regardless of circumstances.

## **CHAPTER THREE**

### **REVIEW OF THE LITERATURE**

“Aging is a multi-faceted process, often complicated not only by an individual’s genetic endowment but also by the culture and politics of the environment” (O’Hara et al., 2010).

There has been a long history of attempting to define successful aging. Originally there was a focus disease and disability in aging and more recently there has been a shift to incorporate multiple dimensions such as cognitive health and emotional health (Depp et al., 2010). Today most studies take in a multicriteria approach that supports freedom from disability, good cognitive functioning, as well as active participation in life (Rowe & Khan, 1987) as necessary for successful aging. Qualitative investigations have demonstrated firsthand the importance of adaption in light of continuing life transitions (Reichstadt et al., 2007) and quantitative studies have shown the importance of resilience to self rated successful aging (Montross et al., 2006). Yet to date, research on successful aging has not incorporated family level variables, such as those in the family resilience model, that consider multigenerational and multidimensional features of aging. As America grays, issues related to older adults will become of the utmost importance to society (McLaughlin, Connell, Heeringa, Li, & Roberts, 2010). Late life is not only an important part of the life-cycle; it is a satisfying time for older adults and their families (Blazer, 2006). Consequently, understanding successful aging through a family resilience lens has the ability to provide a family level frame to understand why some remain resilient during the transition of aging and why others struggle.

## **Successful Aging**

Over the last 50 years, numerous studies have attempted to define successful aging (e.g., Depp et al., 2010; Rowe & Kahn, 1987); unfortunately, outside the nonexistence of disability (Reichstadt et al., 2007; Rowe & Kahn, 1987), there still does not appear to be a consensus on the optimum definition of successful aging or the best way to determine if someone is aging successfully (Depp & Jeste, 2006; Pruchno et al., 2010). In addition, research has not considered family level variables as essential to understanding successful aging. Overtime it has become clear that successful aging cannot be characterized by longevity alone; well-being across multiple domains is imperative for success (Inui, 2003). Across the field there appears to be a debate as to which factors are fundamental to this idea of successful aging and which ones are possibly “ageist” (Strawbridge, Wallhagen & Cohen, 2002). Ultimately, there has been some question as to whether successful aging is best defined by objective versus subjective terms. For this reason, outcome variables for successful in this study will include both subjective and objective measures of aging that will be predicted using family level variables derived from the family resilience model (Walsh, 2003).

When considering the notion of successful aging, some may at first consider the concepts of aging and success are in disagreement with one another. Aging is often considered the end of the life cycle, a time of loss and decline. On the contrary, success creates a picture of achievement and attainment. Conversely, this oppositional relationship between success and aging may demonstrate the possibility of achievement in the later years of life; the notion that the meaning of aging is changing (Baltes & Baltes, 1990). Regardless, it is clear that aging is a developmental process that requires

adjustment and adaptation of the family. Wagnild (2003) suggests that in laymen's terms "successful aging can be defined as the enjoyment of health and vigor of the mind, body, and spirit into middle age and beyond" (p. 49). Unfortunately, from this point of view it is difficult to operationalize the variables that may constitute successful aging. Therefore, successful aging needs to be operationalized to incorporate variables across multiple dimensions including as self-rated successful aging, psychosocial health, cognitive health and physical health, to provide a broad definition that embraces a holistic view of aging.

Cicero (106-43 B.C.) a Roman philosopher and statesman was believed to be the first individual to assert the notion of aging successfully through his essay *De Senectute* (44B.C.). (Baltes & Baltes, 1990). In Cicero's work he was able to exemplify that as one grows older they do not necessarily decline and can live their life productively and positively. In an influential paper by Rowe and Kahn (1987) they proposed that the various age-related changes that affect older adults that have long been considered "normal", such as physiologic and psychologic decline, were actually unnecessary in the aging process. They suggested a three tier model for successful aging that integrated: 1) low-levels of disability, 2) high cognitive and functional capacity, and 3) active engagement in life. Their goal was to break free from the notion that disease and successful aging is positively correlated and cannot exist outside of one another (Strawbridge & Wallhagen, 2003). This appears to be a more comprehensive definition because it considers multiple dimensions of successful aging. As defined by these terms, a larger percentage of older adults can be categorized as successful agers; yet, this remains a budding field that has a great deal of room for expansion and integration of family level research.



Over time there has been an increase in the interest in factors that predict successful aging or positive health outcomes in older adults. The focus has shifted from the deficit focus on the four D's (disease, disability, dementia, and death) to a positive focus on individuals who are flourishing as they age (Strawbridge & Wallhagen, 2003). For example, Pruchno et al. (2010) found that individuals, who volunteer or work, are married, had higher levels of social support and consume moderate amounts of alcohol, were distinguished as aging successfully compared to their counterparts. This is only one example of the multitude of studies that have attempted to understand successful aging; it has become evident that the exploration for constructs indicative of successful aging is complicated and have not included family level variables

To exemplify the ongoing issue in defining successful aging, in a review of large quantitative studies on successful aging conducted by Depp and Jeste (2006), they found 28 articles, published in peer-reviewed journals that “used an operationalized definition of successful aging as a continuous or categorical dependent variable” (p. 7). Across these 28 studies they found a total of 29 different definitions of successful aging. These findings suggest that: 1) there has not been a great deal of quantitative research conducted on successful aging, 2) one definition of successful aging is still indistinguishable. According to this investigation the most commonly cited definition of successful aging was disability/physical functioning, often measured by activities of daily living (ADL); followed closely by measures of cognitive functioning. Other descriptions included life satisfaction/well-being (i.e. no depressed mood, generally happy, contented, and unworried), social/productive engagement (i.e. perceived social support, weekly paying visits to others), presence of illness, longevity, self-rated health, environment/finances,

self-rated successful aging. While the investigators saw variability between the various studies of successful aging, the majority of studies focused on physical disability/physical performance and cognitive functioning to define successful aging. This investigation demonstrates the need for a comprehensive view of successful aging and highlights the absence of family level variables in identifying what it means to age successfully.

As literature on successful aging advances, Baltes and Baltes (1990) suggest that in order to resolve the issue of what it means to age successfully one must invoke a systemic view. The most widely established model for research on successful aging is the multi-criteria approach, which encompasses specific outcome criteria: length of life, biological health, mental health, cognitive efficacy, social competence and productivity, personal control, and life satisfaction (Baltes & Baltes, 1990; Rowe & Kahn, 1987). Phelan, Anderson, LaCroix, and Larson (2004) found that upon questioning, older adults defined successful aging as a multidimensional construct that includes 13 attributes that fall into four dimensions: psychological, social, functional, and physical health. These findings are directly in line with the systemic, multi-criteria approach suggested by Baltes and Baltes (1990). While this view is more inclusive of a holistic approach it does not develop at the family level. Expanding the current literature to consider the way that family interactions through the family resilience model (Walsh, 2003, 2006) relate to multidimensional constructs of successful aging provides a foundation for understanding aging as a family issue that reciprocally affects everyone in the family system.

Qualitative research on successful aging offers researchers a personal and subjective experience of older adults who are living the aging process; this research also provides direction for quantitative research. Reichstadt et al. (2007) conducted 12 focus

groups with 72 community-dwelling older adults – individuals who are not in nursing homes or assisted living facilities – and found that “older adults place greater emphasis on psychosocial factors as being key to successful aging, with less emphasis on factors such as longevity, genetics, absence of disease/disability, function and independence” (p. 194). These findings suggest that when older adults are asked about their beliefs regarding successful aging directly, their responses greatly diverge from researchers regularly operationalized definitions of successful aging. Reichstadt et al. (2007) found 33 categories and four major themes in their qualitative interviews including: “attitude/adaptation, security/stability, health/wellness, and engagement/stimulation” (p. 196). These findings suggest the importance of adjustment and adaptation in the aging process similar to resilience literature. In addition, the need for security/stability and engagement/stimulation are also highlighted which correspond with some of the key processes described in Walsh’s (2003) model of family resilience.

In other qualitative studies, Laditka et al. (2009) conducted focus groups with 396 older adults across ethnic groups and found that although there were some differences between groups, regardless of ethnicity, all groups voiced similar factors in successful aging: “living to advanced age, having good physical health, having a positive mental outlook, being cognitively alert, having a good memory, and being socially involved” (p. S30). Ferri, James, and Pruchno (2009) reported that participants in their qualitative investigation defined successful aging in terms of “activity/exercise, physical health, social relationships, and psychological/cognitive health” (p. 379). It is apparent that across qualitative investigations, physical health was only one of many building blocks of successful aging. In all groups, social relationships were noted as well as cognitive

awareness, as important to self-realized successful aging. It was not clear whether these participants felt that they were aging well in terms of their own definitions.

It is apparent through all of these investigations, both quantitative and qualitative, that there are constructs up and above disability and physical functioning that are integral to successful aging. As an additional example of multi-criteria findings, Montross et al. (2006) found a significant correlation between subjective ratings of successful aging and resilience, activity, number of close friends and health-related quality of life in a quantitative analysis of 205 community-dwelling adults over the age of 60. As a final illustration, Reichstadt et al. (2007) demonstrate disconnection between successful aging and illness, as their study participants illustrate the relationship between successful aging and other psychosocial factors such as their environment, levels of social support, and financial situations. With this in mind, it is important that we consider psychosocial factors in the study of successful aging and take into account that older adults can age successfully regardless of chronic illness and debility; it is clear that there is an interrelationship between constructs related to successful aging. In addition, there appears to be evidence for a budding relationship between family resilience and successful aging as a way of understanding the biopsychosocialspiritual factors in successful aging.

### **Outcome Variables for Successful Aging**

For the purpose of this investigation, successful aging is defined and measured as integration between self-rated successful aging, psychosocial health, cognitive health and physical health. Self-rated successful aging is a subjective rating of successful aging that allows participants' to subjectively rate their own level of successful aging. This outcome of successful aging is extremely important for grasping ones experience of aging and

allows for a complete view of successful aging in conjunction with the other objective outcome variables (psychosocial health, cognitive health, and physical health) of successful aging. The latent factor structure of the family resilience model (three or nine constructs) will be utilized as predictor variables for successful aging. The model will control for age, gender, socioeconomic status and lifestyle variables.

### ***Self-Rated Successful Aging***

Self rated successful aging (SRSA) is becoming a widely used tool to gain information about participants' subjective beliefs about successful aging (e.g., Thompson et al., 2011). Participants are generally asked to rate their subjective estimation of their own successful aging on a 10-point Likert scale, 1 – being not aging well and 10 – being aging successfully (Montross et al., 2006). Strawbridge et al. (2002) measured SRSA in one question as well by asking participants “how strongly they agree or disagree on a four point Likert scale with the statement ‘I am aging successfully (or aging well)’?” (p. 728). Allowing participant to rate their own view of successful aging allows researchers to compare and contrast their beliefs on what it means to age successfully against those who are living the aging process.

As an example of SRSA, in a study of women (N=2,235) aged 60-89, Thompson et al. (2011) found a positive association between sexual activity and SRSA; “SRSA was positively associated with greater levels of sexual desire and greater ability to climax and significantly related to sexual arousal” (p. 1506). These findings suggest that sexuality and self-rated successful aging have a significant relationship. In addition, Strawbridge et al. (2002) compared SRSA with Rowe and Kahn's (1987) three dimensional model of successful aging. They found that 50.3% of individuals rated themselves as successful

agers, in contrast to 18.8% of older adults who would be classified as aging successfully from Rowe and Kahn's theoretical perspective. They established that chronic conditions and functioning were correlated to both definitions of successful aging; yet there were still numerous people who were living with chronic conditions or disability who rated themselves as successful agers.

As discussed above, successful aging should be measured with both these subjective measures as well as other objective measures such as; cognitive health, psychosocial health, as well as physical health (Strawbridge et al., 2002). Combining both subjective and objective measures of successful aging will produce a more holistic outcome measure, and therefore provide a richer context for the family resilience constructs.

### ***Cognitive Health***

The concept of cognition is an expansive designation that incorporates learning and memory, how we process information, how we respond to new details and apply knowledge, along with how we manage our daily routine (Fiocco & Yaffe, 2010). Cognitive health is a widely used construct in the study of successful aging in older adults (e.g., Palmer & Dawes, 2010; Seeman et al., 2001). It has been suggested that while older adults show a decline in cognitive ability, there appears to be more variance in individual scores suggesting that some individuals are better able to maintain higher levels of cognitive functioning into their later life (Hendrie et al., 2010). When measuring cognition in older adults most research investigations concentrate on variables including: attention, working memory, executive functioning, episodic memory, language, processing speed, and social cognition. It has been noted that in terms of successful aging older adults may have higher crystallized abilities than fluid abilities; suggesting that

older adults are not only able to continuously use skills, knowledge and experiences that they have learned throughout their lifetime but these abilities may actually improve over time (Palmer & Dawes, 2010). In contrast, processing speed (or the speed of thinking) appears to be most affected by the process of aging; this includes reaction time (Palmer & Dawes, 2010).

It appears that cognitive functioning has an important relationship with other psychosocial determinants of aging. Seeman et al. (2001) found that good cognitive functioning influences one's ability to retain their independence and increases quality of life. In accordance, Fiocco and Yaffe (2010) convey that individuals with higher cognitive capacity are better able to make decisions, plan, and communicate, which they agree affects their overall autonomy and quality of life. In the MacArthur study of successful aging (Berkman et al., 1993) individuals who showed higher levels of depression had a higher occurrence of cognitive impairment over a seven-year period (Chodosh, Kado, Seeman, & Karlamangla, 2007). This is evident of the undeniable relationship between cognitive health and psychosocial health.

### ***Psychosocial Health***

Psychosocial health is an important area of research in regards to successful aging. This construct in older adults typically includes a wide-range of variables including: emotional intelligence, emotional regulation, and absence of psychiatric illness and negative affect (Depp & Jeste, 2010). Other important concepts related to psychosocial health include resilience, social relationships, self-efficacy, and emotional regulation, in addition to well-being and quality of life (Charles & Horwitz, 2010; Wagnild (2003). These have all been identified as important to successful aging in older

adults (Hendrie et al., 2010). Social and environmental factors also need to be taken into consideration within the context of psychosocial health. As touched on above, there is a direct connection between cognitive health and psychosocial health in older adults (e.g., Chodosh et al., 2007). Older adults tend to make cognitive evaluations that influence psychosocial-related outcomes. For example, older adults make active decisions to focus on more positive stimuli as a way of increasing their overall well-being and preserving important relationships (Charles & Horwitz, 2010).

Depressive symptoms and other mental health issues appear to undermine psychosocial health in older adults. Chodosh et al. (2007) suggest that depressive symptomology throughout the lifespan is predictive of cognitive decline as an older adult. These findings appear to apply to both men and women. Social support also appears to play an important role in both psychosocial and physical health in older adults. Individuals with depression report less social support and may detach from their network of friends and have increased negative interactions with their family members (Gurung et al., 2003). This lack of social support can reduce the interaction an individual has with others which can directly affect their effective cognitive processing. Bruce, Seeman, Merrill, and Blazer (1994) found that individuals who experience depressive symptoms had an earlier onset of physical disability. They suggest that this may be partially due to the fact that depressive symptoms make physical activity more challenging and, in turn, weaken physical health prevention. In a study ( $N=1040$ ) of high functioning older adults “aged 70-79 years, depressive symptoms were associated with increased risk of subsequent onset disability in activities of daily living, even when controlling for baseline physical health and social status” (Bruce et al., 1994, p. 84).



As was previously discussed, resilience has been cited as a positive correlate to successful aging in several studies (e.g., Montross et al., 2006; Wagnild & Young, 1993), across dimensions such as stress management, life satisfaction, depression, and health promotion. Wagnild (2003) suggests that resilience in older adults can be defined by five characteristics: equanimity, meaningfulness, perseverance, existential aloneness, and self-reliance. The notion of successful aging can be seen as synonymous with resilience; those who are resilient throughout their lifespan will also age successfully (Baltes & Baltes, 1990). Wagnild (2003) found that regardless of income, resilience is significantly correlated with multiple indicators of successful aging. The connection between individual resilience, social support, and successful aging provides a foundation for successful aging through a family resilience lens.

From a psychosocial health perspective, social ties have a direct correlation with health outcomes; research suggests that older adults with close personal connections live longer and report improved physical and mental health (Charles & Horwitz, 2010). One's social support network can operate as a resource for companionship and support. Those individuals to whom one feels close provide a sense of belonging and attachment; this secure base allows individuals to feel that they are able to be themselves and will have support when needed (Charles & Horowitz, 2010). Furthermore, older adults who feel useful to friends and family report a decrease in disability and tend to live longer than those who rarely feel useful to others (Gruenewald, Karlamangla, Greendale, Singer, & Seeman, 2007). Unger et al. (1999) found a higher incidence of functional decline and mortality in men who were widowed or socially isolated compared to their female counterparts. In addition, they suggest that social support is more valuable for older

adults in poorer health because they are able to get assistance with activities of daily living as well as emotional support for their illness and/or debility.

In addition to social support, there appears to be a positive correlation between spirituality and successful aging across multiple indicators of health (Blazer & Meador, 2010). It is apparent that being active in a faith community provides a higher level of social support in one's life and is also considered part of a family belief system from the family resilience lens (Walsh, 2003). Older adults often see their faith community as a local family that can assist them in times of need. Blazer (2000) conveys that older adults who are active in a religious community report lower levels of depression. He attributes the decrease in depression to being engaged with others, sharing one's story, and finding meaning within the community.

### ***Physical Health***

While physical health is not the only determinant of successful aging it is indeed important from a biopsychosocialspiritual approach. Moreover, physical health is the most common measure of successful aging. Moderate debility can cause considerable reductions in an individual's normal activities (Rowe & Kahn, 1997). When older adults are unable to participate in their daily activities, whether it is their activities of daily living, running errands or doing recreational activities, it can have disastrous effects on their entire person. Strawbridge et al. (1996) report that subjects with a higher incidence of diabetes, asthma, arthritis, and chronic obstructive pulmonary disease also showed a significant impact on physical activity which reduced their likelihood of successful aging in successive evaluations.

Understandably, aging is the number one cause for disability and eventual death in this country. Aging causes damage to functioning over time as well as the establishment of disease (Cutler & Mattson, 2006). The number one cause of death in older adults is cardiovascular disease (Newman et al., 2003). Individuals who age successfully in other aspects of their life (i.e. free from other disease, cognitively), have a lower likelihood of cardiovascular disease (Newman et al., 2003). Consequently, older adults who are in good health when they enter later life are more likely to remain in good health into their later years. In a study of 60 older adults aged 70 to 101 years, Knight and Ricciardelli (2003) found that while other variables (i.e., close relationships, personal growth) were important, over half of all participants noted health and activity as the most important predictors of successful aging. Taking this into consideration, the bidirectional relationship between physical health and other measures of successful aging is undeniable. Consequently, it makes sense to look at successful aging through a biopsychosocialspiritual lens that reflects on the importance of relationships and other factors in the aging process.

### **Predictors of Successful Aging**

Similar to current limitation of divergent definitions of successful aging presented above, there is no established criterion for measuring the predictors of successful aging (Strawbridge, Cohen, Shema, & Kaplan, 1996). While there has been great insight into potential predictors of successful aging, such as age (Baltes & Smith, 2003), gender (McLaughlin et al., 2010), socio-economic status – education (Rowe & Kahn, 1997), and lifestyle (e.g., Peel et al., 2005), there is still a great degree of variance in which of these variables are most significant, and much of the divergent views might be based on the

different conceptualizations of “successful aging”. For the purpose of this investigation we will be using the confirmed latent structure of the family resilience model to predict successful aging and will be controlling for age, gender, social economic status, education and lifestyle. While these concepts were introduced in chapter two, we will quickly review them again because of their predictive relationship to successful aging in this investigation.

### ***Key Processes in Family Resilience***

The realized latent factor structure found in the family resilience model (Walsh, 2006) during phase I will be utilized as predictor variables for successful aging in this phase II of this investigation. As previously discussed, Walsh (2003, 2006) explains the keys to family resilience as having three domains: family belief systems, organizational patterns, and communication processes.

#### **Belief Systems**

The first key process outlined by Walsh (2003, 2006), family belief systems is at the core of family functioning and highlighted as the most influential piece of family resilience (Walsh, 2006). The three constructs that structure the family belief system are: making meaning of adversity, positive outlook, transcendence and spirituality (Walsh, 2006), and provide the foundation for how families make meaning of life transitions. In regards to successful aging, it is evident through a developmental model that families are intertwined in the process of aging. Belief systems assist the family in organizing around the conditions placed before them (Walsh, 2003) and provide a set of family values that guides the family in their emotional responses and decision making (Walsh, 2006).

Families who have an open relationship and find shared meaning embody a positive, hopeful outlook (Walsh, 2003) that will support successful aging.

### **Organizational Patterns**

Organizational patterns are described as encompassing flexibility, connectedness, and social and economic resources (Walsh, 2003). Since aging requires adaptation (Baltes & Lang, 1997), a flexibility and connectedness on the part of the family is essential for successful aging. Families thrive in situations where the structure remains flexible and they have the ability to change and adjust depending on the demands at the time (Minuchin, 1974; Walsh, 2006). Families who are able to effectively manage the transitions of aging and are able to reorganize around their changing circumstances (Walsh, 2006) are more likely to age successfully.

### **Communication/Problem-Solving**

Communication/problems solving is characterized through clarity, open emotional expression, and collaborative problem solving (Walsh, 2003). In an aging population increased support from the family is associated with better cognitive functioning (Berkman, 2001). The more often older adults are able to express their emotions with others, the greater cognitive health they report (Gurung et al., 2003). Consequently, constructive communication is important for family resilience and is a predictor of successful aging; healthy social ties that allow for clarity, emotional expression and collaborative communication have a direct relationship with a number of health outcomes; individuals with these close personal connections have improved physical and mental health (Charles & Horwitz, 2010). Emotional expression allows family members

to share their feelings openly and honestly, showing a full range of emotions without fear of rejection, which promotes open communication and problem solving in the family.

### **Control Variables for Successful Aging**

#### *Age*

Baltes and Smith (2003) suggest that there is a distinct difference between the third age (young old) and the fourth age (oldest old); proposing that individuals in the third age report a more positive outlook compared to those in the fourth age who are more vulnerable and have less predictability in their lives. In addition, individuals who are considered part of the fourth age (85 years and older) report that successful aging to them is about adaptation; they value their social functioning and well-being above cognitive and physical functioning (Faber et al., 2001). While adaptation is important regardless of age, individuals in a younger old cohort appear to value higher levels of functionality and physicality as well as psychosocial factors (Knight & Ricciardelli, 2003).

In relation to age, there is evidence that differences in socio-economic status becomes less pronounced in fourth generation older adults because individuals who were at higher risk are more likely to die earlier and not live to be the oldest old (Crimmins, Kim, & Seeman, 2009). They go on to suggest that they see individuals with lower income dying at a rate of two to four times higher in each age group below 70 years of age; after which there does not appear to be considerable differences between groups. Lastly, they suggest that poverty has the biggest influence on life expectancy, as individuals who are underprivileged tend to live 20 years less than their counterparts when controlling for gender and biological factors.

### *Gender*

In a sample of older adults across America, McLaughlin et al. (2010) reported no gender differences on measures of successful aging after controlling for demographic variables. While there may not be marked differences between genders on measures of successful aging, Moen et al. (1992) suggest that older women have a higher risk of social isolation and are more likely to live alone without the support of a spouse than their male counterparts. In contrast, Gurung et al. (2003) suggest that while men receive most of their social support from their spouses, older women tend to get their social support from their friends and other family members (i.e. children, siblings); although they did report that women had fewer social ties than their male counterparts. In addition, women may be better at engaging their social support network for emotional support, whereas men may have a more difficult time asking for help emotionally than women (Unger, McAvay, Bruce, Berkman, & Seeman, 1999). These studies suggest that whereas there are no distinguishable differences between male and females on measures of successful aging, there appears to be differences in availability and utilization of social support by gender. These differences on a psychosocial variable, like social support, may account for some divergence when applying a family resilience model.

### *Socio-Economic Status*

In the study of successful aging, it is important to remain aware of social contextual issues, such as race, ethnicity, and socio-economic status, which have a direct effect on the choices and opportunities that older adults are afforded (Kahana, 2005). Sufficient income plays an important role in successful aging, as individuals with better financial resources are better able to participate in physical and social activities that

support health promotion (Wagnild, 2003). In addition, older adults with lower education and income levels show a higher frequency of negative lifestyle health factors such as smoking, being overweight, and sedentary lifestyle.

The AOA (2010) articulates that in 2009 3.4 million older adults (8.9%) were living below the poverty level and 2.1 million older adults (5.4%) were in the “near-poor” category. The distribution of poverty was uneven; “6.6% of Whites [were] poor in 2009, compared to 19.5% of African-Americans, 15.8% of Asians and 18.3% of elderly Hispanics” (AOA, 2010, p. 12). In addition, elderly women had a higher poverty rate than elderly men (10.7% vs. 6.6%) and the highest poverty rate was seen in older Hispanic women (44.6%) and older Black women (33.0%). Rowe and Kahn (1997) propose that in the MacArthur studies, older individuals with an income of less than \$10,000 a year were more likely to possess, high blood pressure, higher body mass index (BMI), lower cognitive performance, as well as a drop in physicality.

McLaughlin et al. (2010) found that individuals with higher levels of income, education, and wealth were more likely to age successfully. They suggest that these findings reflect the increased opportunities that are afforded to individuals who have a higher income. For example, resources for health promotion, increased levels of problem solving, and most likely healthier lifestyles. While McLaughlin et al. (2010) reported a difference between ethnic groups, citing that non-white groups were less likely to age successfully, after controlling for SES they found no difference between groups, suggesting that SES is a more powerful moderator than ethnicity.

Socio-economic status is one of the most significant and stable risk factors in research on successful aging (Seeman et al., 2004). Individuals who live at or below the



poverty level in the early years of their lives show more biological risks and show physiological changes linked with aging when they are much younger (Crimmins et al., 2009). Britton, Shipley, Singh-Manoux, and Marmont (2008) found a strong association between high functioning individuals free from major disease and their place in the social hierarchy, suggesting that individuals with more social capital fare better in later life.

### *Education*

Education should be taken into consideration when reflecting on the idea of social capital and socio-economic status. Seeman et al. (2004) express that educational attainment is widely used as a measure of economic status and is a principal predictor of life expectancy in older adults regardless of gender. In terms of cognitive functioning, education is the strongest predictor of maintaining high cognitive functioning; the higher the number of years of education the lower the likelihood of decreased cognitive capacity (Albert et al., 1995). Vaillant and Mukamal (2001) also suggest that education is one of the most important predictors of successful aging. The AOA (2010) did state that median levels of education are getting higher in older adults implying the revolution of education that has been seen during an older adult's life span and which may play an intricate role in successful aging of the next generation.

In a study of high functioning older adults, Kubzansky, Berkman, Glass and Seeman, (1998) found an association between education and health behaviors, as well as psychosocial and physiological factors. Specifically, they found that individuals with higher educational attainment had lower body mass index (BMI), which is an outcome of healthier diet and increased activity. In addition, they suggest that older adults with more education reported heightened sense of control and agency. They did not find any

relationship between mental health symptoms and educational attainment, indicating that mental health may have more of a biological and/or environmental basis.

### ***Lifestyle***

Up and above the typical predictors addressed above, researchers have begun to look at lifestyle risk factors that can greatly reduce the chance of successful aging (Rowe & Kahn, 1997). These factors include: higher amounts of body fat, reduced physical activity, dietary factors, as well as, smoking and alcohol abuse (Peel et al., 2005). These lifestyle variables can cause greater risk for cardiovascular disease, cerebrovascular disease, diabetes mellitus as well as a host of other health issues. Menec (2003) found that general activity level (i.e., social activities, solitary activities, productive activities) were connected with higher levels of happiness and reduced mortality and increased functionality after 6 years. Correspondingly, Leveille, Guralnik, Ferrucci, and Langlois (1999) found that in both older men and women across ethnic groups, regular moderate physical activity (i.e., gardening, walking) was associated with a reduced chance of debility and a longer life.

### **Conclusion**

The study of successful aging is still developing, and appears to have a promising future filled with possibilities and an understandable need for advancement in research. While there has not been a definitive way of classifying the concept of successful aging, there have been multiple directions taken that seem equally encouraging. What is clear is that successful aging is a multidimensional construct that encompasses, self-rated successful aging, psychological health, cognitive health, and physical health, and can be

expanded by incorporating family level variables as predictors of successful aging. It is apparent that the many studies that have attempted to define successful aging over the last 25 years have laid the groundwork for the future of successful aging research. As we move forward in the examination of successful aging it is imperative that we expand the focus to include multiple psychosocial constructs. Through this investigation, the goal is to advance the family resilience model as a research concept and apply this framework to the notion of successful aging. In this we will consider how key processes such as belief systems, organizational patterns, and communication/problem solving in the family unit can predict successful aging across the domains of self-rated successful aging, psychological health, cognitive health, and physical health.

## **CHAPTER FOUR**

### **METHODS**

A secondary data analysis of data from the University of California, SAGE study of successful aging will be utilized for this investigation. As was previously discussed, this investigation will be carried out in two phases. Each phase is separate, although phase II will build on the findings from phase I. The outcome of the proposed phases will be two publishable articles that will take the place of the results and discussion sections of a traditional dissertation. In Phase I the multiple factors within the family resilience model (Walsh, 2006) will be evaluated through the application of a confirmatory factor analysis, thereby providing empirical validation for the theory and underlying concepts. Furthermore, this process will yield valuable insight into how future research might operationalize empirical measures for family resilience within the context of successful aging, advancing the fields of marriage and family therapy and gerontology. Phase II will utilize the psychometric structure of the data from phase I to predict specific outcome variables of successful aging including; self-rated successful aging, psychosocial health, cognitive health, and physical health.

#### **Phase I**

The family resilience model as prescribed by Walsh (2006) emerges as an innovative approach to studying successful aging. This integration of family resilience and successful aging is ground-breaking because, to date there is not a psychometrically tested tool for measuring family resilience in aging populations (Ungar, 2011), and it allows for the application of family level variables to the study of successful aging. As

previously suggested, the family resilience model is a detailed model comprised of three distinct key processes, Belief Systems, Organizational Patterns, and Communication/Problem Solving, which each have three constructs. In an effort to provide validation to the Family Resilience theory, as well as provide a validated grouping of predictors for Phase II, an exploratory factor analysis followed by a confirmatory factor analysis will be used to explain the interrelated latent structure of the SAGE data. The factor analysis portion of this investigation aims to understand the degree of variability among the variables or key processes proposed by Walsh (2003). The exploratory factor analysis will reveal the fundamental structure of Walsh's family resilience model without presupposed hypotheses. The confirmatory factor analyses will then test the realized variables from the exploratory phase, in a first and second order analysis. Through this process the definitive structure of the family resilience model will be explored, tested, and confirmed.

An illustration of the family resilience model's latent structure is provided (Figure 1) as a representation of possible outcomes of the confirmatory factor analysis. Bryne (2006) suggests a specific set of analytic steps which will guide the confirmatory factor analysis. The steps include testing the relationship as nine separate constructs, as well as a multi-level factor system (or a second order confirmatory factor analysis) with each of the nine sub-constructs within family resilience theory nested within their respective three processes. This stepwise process will follow the hypotheses below.

H<sup>1</sup> = Sample data will be best represented by a nine latent variable construct.

H<sup>2</sup> = The proposed nine latent constructs are best represented by a second order with three latent constructs.

### ***Pre-Analysis Data Screening***

Prior to testing various latent structures within the data, the data must be evaluated in regards to the univariate and multivariate assumptions of structural equation modeling (Bryne, 2006; Raykov & Marcoulides, 2006). These include univariate assumptions of independences, normality as well as linearity. The data will also be evaluated for missing data patterns and missing data will be evaluated for missing at random, completely at random and missing systematically (Cohen, Cohen, West & Aiken, 2003). For multivariate assumptions, each scale will be evaluated for reliability to confirm that each scale can be modeled as a reflective construct (Raykov & Marcoulides, 2006). All other multivariate assumptions will be evaluated during the modeling process as most require the specified model to be generated before the assumption can be evaluated.

### ***Exploratory Factor Analysis***

Factor analysis is a statistical procedure that is utilized to illustrate the underlying structure of a chosen set of variables (Mertler & Vannatta, 2005). The goal of factor analysis is to establish the level of correlation or overlap between variables and to determine the variance between items. Exploratory factor analysis allows the researcher to to identify the underlying latent structure of the data without preconceived notions, maintaining an exploratory stance. Because we theorize (based on the resilience literature (Walsh, 2003)) that the underlying latent factors will share common variance and the factorial dimensions of the items would be intercorrelated, we will perform a principal component analysis with an oblique (promax) rotation. Oblique rotation in EFA assumes that there is some interrelation between hypothesized factors (Tabachnick & Fidell,

2007). Initial analysis will employ the Kaiser's Rule as well as suppressing small communalities (less than .4) and small coefficients (less than .4), this will restrict variables with low correlations from loading or cross-loading on achieved factors.

### ***Confirmatory Factor Analysis***

Confirmatory factor analysis (CFA) is a sophisticated form of factor analysis, which allows for latent constructs to be evaluated together as multi-dimensional construct (Mertler & Vannatta, 2005). Variables for CFA are specifically selected to test the fit of variations in theories (Tabachnick & Fidell, 2007). Model fit statistics then provide an objective scale to determine which theory align with the data best. In this regard, SEM and CFA are confirmatory in nature. While the data might support one theory or one variation of the theory over another, it is possible that a different set of data might find a divergent result. CFA is frequently used as a submodel in preparation for structural equation modeling. "Specifically, it is a measurement model of relations of indicators (manifest variables) to factor (latent variables) as well as relations among the latter. Accordingly, CFA is eminently suited for internal-and cross-structure analysis in the process of construct validation" (Pedhazur & Schmelkin, 1991, p. 632).

Phase I will test three variations of the family resilience model, the first phase being similar to a first order CFA (Byrne, 2008). In this case the nine processes within the family resilience model (Walsh, 2003) will be evaluated for their ability to fit the data. Following this phase, a second order CFA (Byrne, 2008) will be tested to determine whether the nine construct can be further explained by their second order (or higher latent constructs) processes (Belief systems, Communication, Organizational Patterns; Walsh, 2003). Similar to this last phase a third model will be tested which fits a second order

CFA with only one construct at level two. The benefit of testing the models in step two and step three is to determine if the three process within the family resilience model (Walsh, 2006) are truly distinct ideas, or whether the nine constructs form one single idea of family resilience. In other words, is transcendence truly a distinct construct from communication processes? Or are both inseparable from a general concept of family resilience. Figure 1 below represents this second order CFA model. In addition to this model comparison process, the study will also evaluate the influence of common control variables in the latent structure of the data. These variables will include: age, socio-economic status, as well as education level. These controls will be included within each of the modeling steps, and therefore the identified “best fitting model” will represent these controls.



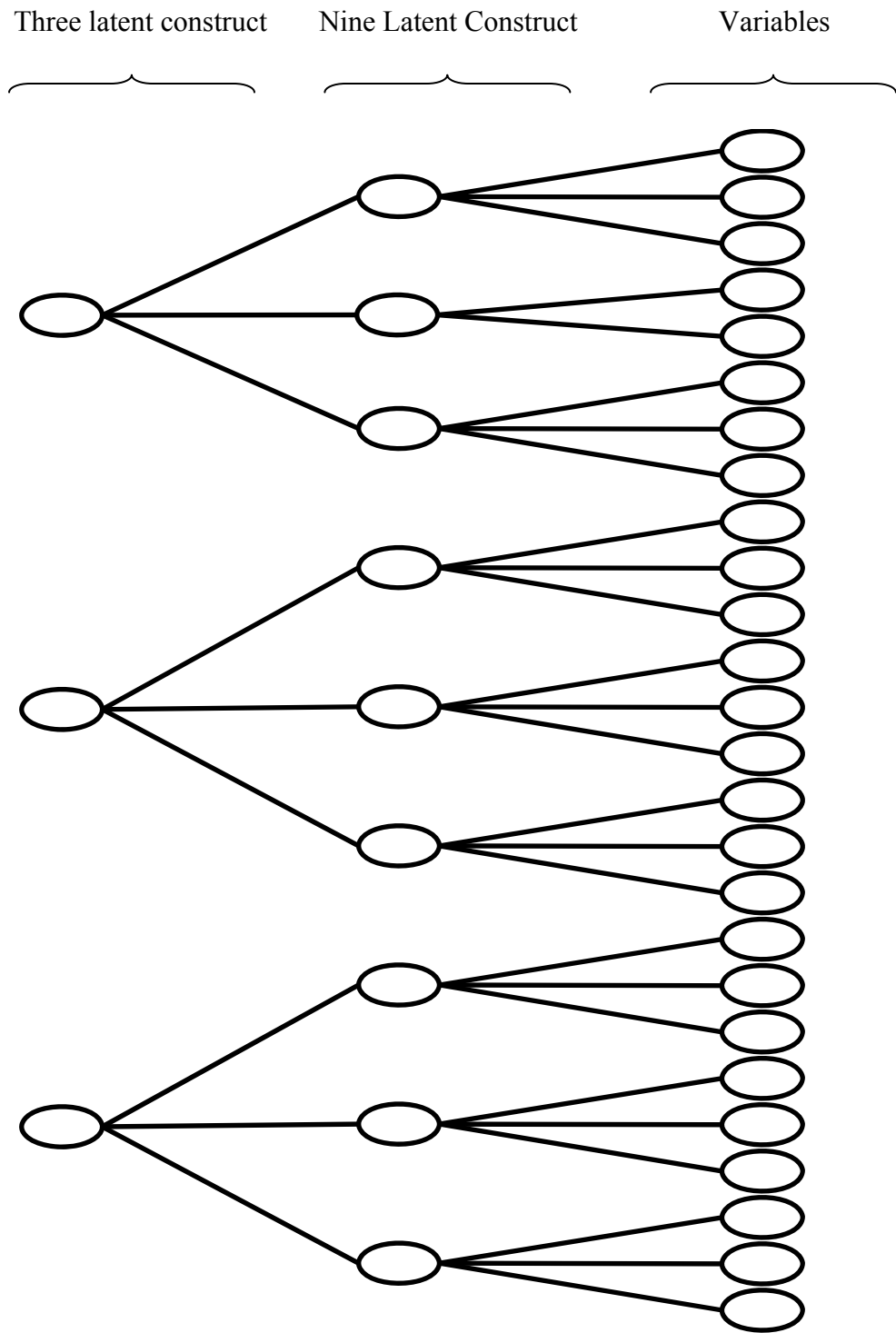


Figure 1. Family resilience model latent structures.

## **Phase II**

Phase II, will use the identified constructs within Phase I to model the importance of each construct in predicting successful aging. Phase II will be primarily based on the findings from phase I. After identifying the best fitting structure of the data, the family resilience model will be utilized in a structural regression to predict specific outcome variables of successful aging including: self-rated successful aging, psychosocial health, cognitive health, and physical health.

H<sup>1</sup> = Successful aging (self-rated successful aging, psychosocial health, cognitive health, and physical health) is directly predicted by the family resilience model (nine or three latent factors) generated in phase I's confirmatory factor analysis.

H<sup>2</sup> = The relationship found in H<sup>1</sup> will remain significant in the presence of control variables (age, education, socio-economic status).

### ***Structural Equation Modeling***

“Structural equation modeling (SEM) or structural regression is a collection of statistical techniques that allows a set of relationships between one or more independent variables (IVs) . . . and one or more DVs . . . to be examined” (Ullman, 2007, p. 676).

The objective is to represent causation between various variables. The causal process being investigated is characterized by a sequence of structural equations and these relationships can be pictorially modeled to provide a comprehensible model of the theory being studied (Byrne, 2008). The suggested model is then tested for goodness of fit and to determine if it is in harmony with the data.

### **Sample: The SAGE Study**

The SAGE study is UC San Diego's department of geriatric psychiatry's Successful Aging Evaluation, which is funded directly by the Stein Institute for Research on Aging at UCSD. This study utilizes a prospective cohort design to measure age differences as well as age changes. For the purpose of this study we will be using participants from phase II of the SAGE investigation, these participants are community-dwelling – not living in nursing homes or assisted living facilities – English speaking, men and women, living in San Diego County, who are 50 years of age or older (see selected subgroups in table 1 below). Phase I of the SAGE study was a pilot phase that was conducted in Los Angeles and Orange Counties and recruited 20 individuals – phase I data will not be used as part of this investigation and therefore will not be expanded on at this time. After recruitment completed, Phase II of the SAGE study enrolled 1,300 individuals from San Diego County.

### ***Sampling Methods for the SAGE Study***

The original target sample size of the SAGE study was 1,000 subjects, stratified by age, gender and race/ethnicity, in order to provide a geographically representative sample of San Diego County residents (see table 1 below). Thirteen hundred individuals agreed to take part in phase II of the SAGE study.

Table 1

*Projected recruitment for the SAGE study.*

	Strata	**Sample Size
Age	50-59	150 (0.15)
	60-69	150 (0.15)
	70-79	200 (0.20)
	80-89	250 (0.25)
	90+	250 (0.25)
Gender	Male	500 (0.50)
	Female	500 (0.50)
Race/ Ethnicity *	White/Caucasian	650 (0.65)
	Hispanic/Latino	200 (0.20)
	Black/African American	50 (0.05)
	Asian/PI	100 (0.10)

*\* Native Americans were not included in these estimates as the predicted number would be very small.*

*\*\*This table represents numbers of the SAGE cohort that will be recruited from San Diego county alone.*

In order to accomplish sampling, phone recruitment, and initial data collection, the SAGE study contracted with California Survey Research Services (CSRS). CSRS is an approved contractor with UCSD purchasing. In order to reach the target sample size of 1,000, a group of 3,000 people living in San Diego County who are eligible to participate in the study were selected. Potential subjects were randomly selected by CSRS using listed telephone numbers of San Diego County residents aged 50 and over obtained from and appended by Scientific Telephone Samples of Foothill Ranch, California. Age appending provides a household head age in the range of 50-59, 60-69, 70-79, 80-89 and 90+. As required to meet the ethnicity goals set for the project, CSRS oversampled listed households with Hispanic surnames and listed households with Asian surnames.

## **CSRS**

CSRS is a data collection and data processing company with experience in commercial, academic and government research data collection. They have worked on research projects for UCLA, USC, UCSD, Veteran's Affairs Center for the Study of Healthcare Provider Behavior, and the Miliken Family Foundation. Prior to engaging in any research activities related to this project, CSRS staff received extensive project-specific training in consultation with the PI of this project. CSRS's demonstrated sensitivity to the requirements of University Institutional Review Boards governing the projects on which they have worked and their excellent reputation in the academic research community suggest that they will be a reliable research partner. The PI and research coordinator of this project monitored CSRS's activities closely throughout the entire project to ensure that all safeguards are followed.

### **Inclusion Criteria (for all subgroups)**

Individuals included in the SAGE study were, 50 years of age and older, physically and mentally able to participate in a phone interview and complete a paper and pencil mail survey, capable of providing informed consent, and English speaking.

### **Exclusion Criteria (for all subgroups)**

Individuals who were excluded from the SAGE study had a diagnosis of dementia, resided in a nursing home or requiring daily skilled nursing care, and/or had a terminal diagnosis or were currently receiving hospice care.

### *Enrollment and Initial Data Collection*

First, in late 2009 the group of 3,000 eligible potential San Diego participants received an initial letter from the PI informing them of the study, telling them that they were identified as San Diego residents through publicly available lists, and that they may be contacted by telephone for purposes of recruitment into the study. People were given an opportunity to have their names removed from the recruitment call list by either calling the toll-free number provided or sending UCSD a tear-off sheet in a self-addressed, postage-paid envelope.

Two to three weeks after the initial mailing, CSRS called people from the recruitment list and asked them if they were willing to complete a brief phone interview and a subsequent mail-in survey. Their oral informed consent was obtained. Once the individual consented to participate, CSRS proceeded to determine eligibility and conducted the phone interview, which included questions related to participants' general health, social support, memory, and symptoms of depression and anxiety. CSRS then informed the participant that they would receive a mailed survey plus \$10 compensation for their participation in the phone interview. After completing the phone interview, CSRS provided all data from completed phone interviews to UCSD's division of geriatric psychiatry and the Stein Institute of Research on Aging. Stein Institute staff then sent subjects a mail-in survey along with the \$10 compensation for completing the phone interview. The mail-in survey included questions related to participants' demographic information, attitudes towards aging, general health and health behaviors, family history, memory and thinking abilities, outlook on life, mental health, religious or spiritual views, perceived social support, physical, social, and sexual activities, and lifetime satisfaction.

The survey took approximately one to two hours to complete. If the participant returned their completed survey to UCSD, they received \$15 compensation.

The face page of the mail-in survey includes the Subject ID# and barcode, along with spaces for the subject to fill in their full name. Because surveys were being filled out in the participants' homes, it was necessary to verify that the survey was indeed being filled out by the person to whom it was mailed. After the survey has been received by UCSD and the name on the face sheet has been confirmed as a match with the Subject ID#, the survey face sheet was removed, with the Subject ID# recorded and barcode placed on the first page of the actual survey to be used for survey identification purposes. The paper surveys are stored in separate locked cabinets accessible only to authorized study staff.

## **Successful Aging through a Family Resilience Lens**

### *Measures*

The following instruments are available as part of the SAGE data collected in 2010. This investigation will use the following assessments in part or in whole depending on the construct of interest. For the confirmation of the family resilience model as well as the outcome variables in phase II, the following assessments will be utilized and are described in detail below:

#### **Brief Multi-Dimensional Measure of Religiousness/Spirituality**

The Brief multi-dimensional measure of religiousness/spirituality (BMMRS) was created to explore the relationship between religion and spirituality, and health outcomes (Fetzer Institute, 1999). The BMMRS includes scales across 12 domains; daily spiritual

experiences, meaning, values, beliefs, forgiveness, private religious practices, religious/spiritual coping, religious support, religious/spiritual history, commitment, organizational religiousness, and religious preferences. For the purpose of the SAGE study and this investigation we utilized the daily spiritual experiences scale and private religious practices scale. In addition, two questions from the BMMRS overall self-ranking domain were added to measure self-rated religiousness and spirituality: 1) To what extent do you consider yourself a religious person (1=very religious to 4=not religious at all), 2) To what extent do you consider yourself a spiritual person (1=very spiritual to 4=not spiritual at all).

### ***Daily Spiritual Experiences***

The daily spiritual experiences scale (Underwood & Teresi, 2002) was developed to gain a better understanding of an individual's perception of their daily relationship with the transcendent. The instrument was not developed for any one specific religion and is meant to be universal. The goal is to understand the relationship of subjective spirituality and health. The original measure included 16 items, each positively scored, on a modified Likert scale, "response categories are, many times a day (1), everyday (2), most days (3), some days (4), once in awhile (5), and never or almost never (6)" (Underwood & Teresi, 2002, p. 25). After an exploratory factor analysis six-items were more frequently endorsed and included in the final scale. Scores range from 6-36; higher religiousness is indicated by lower scores. "Cronbach's alpha estimate of internal consistency was 0.88 for test and 0.92 for retest (p. 28). Construct validity ( $t=8.44$ ,  $p <$



.01) was established through assessment of the mean scale scores in various socio-demographic groups.

### ***Private Religious Practices***

The private religious practice scale measures “non-organizational, informal, and non-institutional religiosity” (Fetzer Institute, 1999), which is distinctively different from public religious practices. No psychometric properties (i.e. reliability, validity) are available for this scale. Although the five items in the scale have been used in other validated scales and has been confirmed in secondary analysis. Four questions are on a modified 8-point Likert scale (1=more than once a day to 8=never) and one question – How often are prayers or grace said before or after meals in your home – is measured on a 5-point Likert scale (1=at all meals to 5=never). Scores can range from 5-40; lower scores indicating higher religiousness.

### **Cognitive Assessment Screening Test**

The Cognitive Assessment Screening Test (CAST; Drachman et al., 1996) is a self-administered cognitive test that screens older adults for dementia. There are three parts of the CAST: part A, part B, and part C. For the purpose of the SAGE study, part A and B were included in the survey. Part A contains 11 questions with 28 scored responses. Part B includes five questions with 14 scored responses that are considered to be more demanding such as: filling out a check to the American Telephone Company for \$137.68 and copying a figure. The CAST was tested in two phases, first with two groups of older adults, the first group (N=19) with mild to moderate dementia, and the second group (N=24) with no cognitive impairment (Drachman et al., 1996). There was a

significant between group difference on part A, part B, and part A and B combined. In the second phase the CAST was administered to 26 medical patients who were 60 years of age and older. The MMSE and the BDS-cog were given to participants as a comparison measure; CAST – part A and B – correlated with both the MMSE and BDS-cog. The results of this investigation suggest that the CAST is a useful self-administered assessment tool to measure mild to moderate dementia.

### **Connor-Davidson Resilience Scale**

The Connor-Davidson resilience scale (CD-RISC-10) 10-item (Campbell-Sills & Stein, 2007) was developed through an exploratory (first two samples) and confirmatory (final sample) factor analysis of the original 25 item CD-RISC (Connor & Davidson, 2003). The CD-RISC-10 is a unidimensional scale with one latent factor; resilience (Campbell-Sills & Stein, 2007). Items are scored on a 5-point Likert Scale (1=not true at all to 5=true nearly all of the time). Scores are determined by adding the sum of all of the questions; higher scores indicate higher levels of resilience (Singh & Choubisa, 2009). Cronbach's alpha for the one factor CD-RISC-10 is 0.85, suggesting internal reliability. The CD-RISC-10 also demonstrated good construct validity when tested with a subsample (N=131) of individuals with history of childhood trauma and psychiatric symptoms (Campbell-Sills & Stein, 2007).

### **Duke Social Support Index – Social Interaction Subscale (four items)**

The Duke Social Support Index (DSSI; Blazer, Hybels & Hughes, 1990) was originally developed to establish an individual's amount of social support. For the purpose of the SAGE study and this investigation, we are using the social interaction

subscale of the abbreviated 11-item DSSI (Koenig et al., 1993), which was developed for use with chronically ill, elderly individuals. Within the sub-scale, the first question – other than members of your family, how many persons in your local area do you feel you can depend on or feel close to – is recoded (1=none, 2=1-2 people, 3=more than 2). Item 2-4 are scored on an 8-point Likert scale (1=none to 8= seven or more). The social interaction sub-scale is determined by the sum of the standard and recoded items; higher scores specify higher levels of social interaction. In a study of 12,939 older (70-75 years old) Australian women, Powers, Goodger and Byles (2004) found a correlation between the four item social interaction subscale and the satisfaction scale of the abbreviated DSSI, as well as with life satisfaction, and physical and mental health scores as measured by the MOS-36 (Ware & Sherbourne, 1992). They also confirm reasonable reliability of the social interaction subscale; Cronbach's  $\alpha=0.76$ .

### **Emotional Support Scale**

The emotional support scale (Seeman, Berkman, Blazer, & Rowe, 1994) is an instrumental support scale. This scale is seven questions scored on a 4-point Likert scale (1=never to 4=frequently). There are two questions about negative aspects (demands/criticisms) of support, asking how often friends and family “make too many demands” and “were critical of what you do”, and one question about lack of support “how often do you feel lonely”. This instrument shows good test-retest reliability (0.73 for emotional support and 0.80 for demands/criticisms). No other psychometric properties are available for this measure. For the purpose of this investigation we are not using the entire scale, but five questions from the instrument across three constructs of the family resilience model.

### **Hardy Gill Resilience Scale**

The Hardy Gill resilience scale (Hardy, Concato, & Gill, 2004) is a scored six item scale that measures life changes since a stressful event. This scale requests the participant to think about the most stressful event that has occurred in the past five years but not in the last month. The first three questions are used to gauge the short-term effects of the event, “how much worse did you feel”, “how much more discouraged were you” and “how much harder was it to get everything done”, which are scored on a 4-point Likert scale (1=a great deal to 4=not at all). The six remaining questions create the developed Hardy Gill resilience scale; these questions are interested in how long it took before the participant felt better, were there changes in important activities, and any permanent changes in feelings about life. Scores are added to create a score from 0-18; higher scores indicate higher levels of resilience. This measure has high test-retest reliability and displays negative correlation with perceived stress and depressive symptoms in a sample of older adults (Hardy et al., 2004).

### **Life Orientation Test – Revised**

The Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) is an abridged version of the original life orientation test (Scheier & Carver, 1985) that measures optimism. The LOT-R is a six item instrument, scored on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Items one, three and six are reversed scored (1=5); higher score after reversed and summed indicates higher levels of optimism. The six item LOT-R has one factor loading accounting for 48.1% of variance (Scheier et al., 1994). Cronbach’s alpha for the LOT-R is 0.78.

### **McArthur Ladder Scale (US)**

The MacArthur Scale of Subjective Social Status (Adler, Epel, Castellazzo, & Ickovics (2000) is a one item measure that quantifies a participants subjective belief of their place in the social hierarchy. Participants are given a picture of a ladder and asked to put an “x” on the rung where they think they stand compared to others in the United States. For clarification, there is an introduction to the ladder that suggests that individuals who are at the top of the ladder “have the most money, the most education, and the most respected jobs”. Adler et al. found that individuals who rated themselves higher on the MacArthur scale of subjective social status also reported better self rated health.

### **Medical Outcomes Study 36-item Short Form**

The Medical Outcomes Study Short Form-36 (SF-36; Ware & Sherbourne, 1992) is comprised of 36-items that produce an eight scale profile of health and well being. The SF-36 yields physical and mental health composite summary scores that can be utilized as outcomes for physical and mental health. The SF-36 has been included in over 1,000 publications to date and is considered a psychometrically sound measure of physical and mental health (Ware, 2000). The eight scales included in the SF-36 form the physical health and mental health clusters. Physical health includes: physical functioning, role-physical, bodily pain, and general health. Mental health includes: vitality, social functioning, role-emotional, and mental health. Scoring of the SF-36 is complex and requires entering the item response data, recoding item response values, determining health domain scale raw scores, transforming health domain scale raw scores to 0-100, transforming health domain scale 0-100 scores to norm based scores, and then scoring

physical and mental component summary measures. Factor analysis confirms that the physical health and mental health factors account for 80-85% of variance across the eight subscales. Reliability statistics for the physical and mental health scores typically exceed 0.90 (Ware, 2000).

### **Perceived Stress Scale**

The perceived stress scale (PSS; Cohen, Kamarack, & Mermelstien, 1983) is a widely used instrument that measures participants' perceive level of stress during the previous month. There are 10-items in the PSS scored on a 5-point Likert Scale (1=never to 5=very often). PSS scores are reversed for four positively stated items (Questions 4, 5, 7, & 8) and then all items are summed for a final score; higher scores indicate higher perceived stress. Cronbach's alphas across three subsamples of college students were 0.84, 0.85, & 0.86 (Cohen et al., 1983). Higher scores on the PSS have been associated with failure to quit smoking (Cohen et al., 1983) and self rated health, health behavior, and smoking status (Cohen & Williamson, 1988).

### **Philadelphia Geriatric Morale Scale**

The Philadelphia geriatric morale scale (PGMS; Lawton, 1975) attitudes toward aging 5-item subscale is used in the SAGE study and as part of this investigation. The original PGMS is a 17-item scale that has three factor loadings; factor two, attitudes towards aging, represents one subscale. Respondents are given two options for each question; agree or disagree. A score of one is given for high morale responses; two of the items are negatively scored. The total number of high morale responses provides the final score. Psychometric properties for the PGMS – attitudes towards aging subscale are not

available. The ultimate goal of the original PGMS was to provide useful information for clinicians, and to supply a basis for communication between clinicians and their clients (Lawton, 2003).

### **Santa Clara Brief Compassion Scale**

The Santa Clara Brief Compassion Scale (SCBSS; Hwang, Plante, & Lackey, 2008) was developed as a brief version of a previously developed compassionate love scale (Sprecher & Fehr, 2005). The five items for the SCBCS were selected through the administration of the original 21-item scale to college participants (N=233). The five items had the highest between items correlation coefficients. Items are scored on a 7-point Likert scale (1=not true of me to 7=very true of me); higher scores indicate higher levels of compassion. “Cronbach’s alpha of the five-item scale was 0.90, while split-half reliabilities were 0.83 and 0.80” (Hwang et al., 2008, p. 423). In a factor analysis, all of the five items loaded on one factor. Hwang et al. (2008) also investigated the relationship between the SCBCS and other variables and found a “significant positive correlations with vocational identity [ $r=0.48$  and  $0.51$ , respectively,  $p<.01$ ] as well as with religious faith [ $r=0.27$ ,  $p<.01$ ] and empathy [ $r=0.65$ ,  $p<.01$ ]” (p. 425).

### **Satisfaction with Life Survey**

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985) is a measure focused on global life satisfaction. The scale was developed by initial construction of a 48-items self-report measure that was distributed to 176 undergraduate students. Three factor loadings were found: “positive affect, negative affect and satisfaction”; items with a loading greater than 0.60 on satisfaction were included in the

SWLS. There are five items in the SWLS, scored on a 7-point Likert scale (1=not at all true to 7=absolutely true); higher scores indicate higher degrees of life satisfaction. After the SWLS was studied in college student populations, Diener et al. utilized a geriatric population to assess the psychometric properties of the SWLS. Fifty-three older adults completed the SWLS and the Life Satisfaction Index (LSI; Adams, 1969). Diener et al. found “The LSI and the SWLS correlated 0.46 . . . The item-total correlations for the five SWLS items were: 0.81, 0.63, 0.61, 0.75, and 0.66, again showing a good level of internal consistency for the scale” (p 74).

### **Self-Rated Successful Aging**

This instrument consists of one question. Participants are asked to rate themselves in terms of “successful aging” on a scale of 1 to 10 (1=least successful to 10=most successful). The survey question asks specifically: Using your own definition, where would you rate yourself in terms of successful aging? (circle one number only)

### **Three Dimensional Wisdom Scale**

The Three-Dimensional Wisdom Scale (3-D Wisdom Scale; Ardelt, 2003), is a comprehensive scale of wisdom that consists of a total of 39 questions across three dimensions of wisdom: cognitive, reflective, and affective. The cognitive dimension (14 items) measures one’s ability to understand a deeper meaning of life experiences and both inter- and intra- personal affairs. The reflective dimension (12 items) is a requirement for the cognitive dimension and measures one’s ability to view reality and gain awareness and insight. The affective dimension (13 items) measures ones relationships with others through positive and negative emotions. Questions are asked on



a 5-point Likert scale (1=Strongly Agree, 5=Strongly disagree; some of the questions are reversed scored. An average score should be obtained from each dimension and then an average for the entire scale can be obtained by calculating an average of those three scores. Empirical assessment of the 3-D wisdom scale suggests that it is a valid and reliable self-administered measure for the latent variable of wisdom. Cronbach's alpha for the three dimensions of wisdom (cognitive, reflective, affective) are internally reliable ranging from 0.71 to 0.85 (Ardelt, 2003) and show high content, predictive, discriminant, and convergent validity. For the purpose of this investigation specific questions that are relevant to the family resilience model will be used from the 3-D wisdom scale.

### **WHI Life Events**

The WHI Life events scale was originally used in the Women's Health Initiative (WHI) investigation to identify the number of life events that had taken place in the last year and their effect on the respondent. The WHI was a 15-year longitudinal study that began in 1991 and whose subjects included 161,808 healthy postmenopausal women. The WHI was intended to understand the effects of postmenopausal hormone medication, diet, and physical health (i.e. heart disease, breast and colorectal cancer). The WHI life events scale was used in a number of investigations, but psychometric properties were never disclosed as it was not a focus of the investigation (e.g., Smoller et al., 2009; Wilcox, 2003). The UCSD division of geriatric psychiatry was one testing site for the WHI and has used the life events scale in subsequent investigations of aging. There are 12 questions in the life events scale (e.g. did you spouse or partner die, did you have a conflict with children or grandchildren, did you or a family member or close friend lose their job or retire). On the first 11 questions participants are asked to respond No or Yes

and it upset me: not too much, moderately, or very much. Therefore there are four possible answers for each question. Question 12 asked if the participant had moved in the last year; yes or no.

### ***Predictor Variables: Family Resilience Model***

Table 2 provides a detailed list of the proposed variables for the second order confirmatory factor analysis of the family resilience model (Walsh, 2003, 2006); all measure proposed in this table have been communicated in the measures section. These questions/scales for constructs were selected because they appeared to embody the characteristics of each one of the key processes and constructs suggested through Walsh's (2003, 2006) model of family resilience. To substantiate the conceptual compatibility of these possible questions/scales for constructs, dissertation chair, Brian Distelberg, Ph.D., met with Froma Walsh creator of this family resilience model at the National Council on Family Relations national conference to discuss the proposed variables. She conveyed excitement about the proposed investigation and the prospect of quantifying the resilience construct. While this conversation should not be elevated to level of validity of a pilot study, is not indicative of qualitative psychometric building procedures and there are still limitations to the items; Dr. Walsh communicated her support and suggested that she had previously considered creating an assessment based on Likert scale items (personal communication, B. Distelberg, November 28, 2011). Consequently, since there is not currently a measure for family resilience this is a first step in attempting to quantify Walsh's model.

Table 2

*Variables for confirmatory factor analysis of the family resilience model.*

Key Processes	Constructs	Possible Questions/Scales for Constructs
Belief Systems	Make Meaning of Adversity	Question 9, Section 7 - Items 9a-9j - <b>Connor-Davidson Resilience Scale</b> - a) I am able to adapt to change, b) I can deal with whatever comes my way, c) I see the humorous side of things, d) I believe coping with stress strengthens me, e) I tend to bounce back after illness or hardship, f) I believe I can achieve my goals, g) Under pressure, I can focus and think clearly, h) I am not easily discouraged by failure, i) I think of myself as a strong person, j) I can handle unpleasant feelings.
		Question 10, Section 7 - Items 10a-10i - <b>Hardy Gill Resilience Scale</b> - Think of the most stressful event that you have experienced in the past 5 years. Do not consider events that have happened in the past month: a) After this event, how much worse did you feel than before it happened, b) after this event how much more discouraged were you, c) after this event, how much harder was it to get everyday things done, d) after this event, how long did it take until you started to feel better again, e) how long ago did this event occur, f) as a result of this event have you stopped doing some activities that were important to you, g) As a result of this event, have you started doing some activities that have become important to you, h) has this event made a permanent change in how you feel about your life, i) if yes: Is that change for the better or for the worse?
		Questions 1-12, Section 11 - <b>WHI Life Events</b> - Please try to think back over the past year to remember if any of these things happened: 1) Did your spouse or partner die, 2) Did a close friend or family member die or have a serious illness (other than your spouse or partner), 3) Did you have any major problems with money, 3) Did you have a divorce or break up with a spouse or partner, 4) Did you have a major conflict with children or grandchildren, 7) Did you have any major accidents, disasters, muggings, unwanted sexual experiences, robberies, or similar events, 8) did you or a family member or close friend lose their job or retire, 9) were you physically abused by being hit, slapped, pushed, shoved, punched or threatened with a weapon by a family member or close friend, 10) were you verbally abused by being made fun of, severely criticized, told you were a stupid or worthless person, or threatened with harm to yourself, your possessions, or your pets, by a family member of close friend, 11) Did a pet die, 12) Have you moved in the past year.
	Positive Outlook	Question 4, Section 3 - Items 4a-4e - <b>Philadelphia Geriatric Morale Scale (PGMS)</b> - Things keep getting worse as I get older, I have as much pep as I had last year, As I get older things are better than I thought they would be, I am as happy now as when I was younger.
	Transcendence and Spirituality	Question 1, Section 7 - Items 1a-1f - <b>Life Orientation Test-Revised (LOT-R)</b> - a) In unclear times, I usually expect the best, b) If something can go wrong for me, it will, c) I'm always hopeful about my future, d) I hardly ever expect things to go my way, e) I rarely count on god things happening to me, f) Overall, I expect more good things to happen to me than bad.
		Question 1, Section 8 - Items 1a-1f - <b>Daily Spiritual Experiences - BMMRS</b> - a) I feel God's presence, b) I find strength and comfort in my religion, c) I feel deep inner peace or harmony, d) I desire to be closer to or in union with God, e) I feel God's love for me, directly or through others, f) I am spiritually touched by the beauty of creation.
Question 2, Section 8 - Items 2a-2e - <b>Private Religious Practices - BMMRS</b> - a) How often do you pray privately in places other than at church or synagogue, b) Within you religious or spiritual tradition, how often do you meditate, c) How often do you watch or listen to religious programs on TV or radio, d) How often do you read the bible or other religious literature, e) How often are prayers or grace said before or after meals in your home?		
		Question 3, Section 8 - To what extent do you consider yourself a <u>religious</u> person?
		Question 4, Section 8 - To what extent do you consider yourself a <u>spiritual</u> person?

*(Continued on the following page)*

Table 2

*Variables for confirmatory factor analysis of the family resilience model. (Cont'd)*

Key Processes	Constructs	Possible Questions/Scales for Constructs
Organizational Patterns	Flexibility	Question 5f, Section 8 ( <b>Question 6 Emotional Support Scale</b> ) - How often are your spouse, children, close friends and/or relatives critical of what you do?
		Question 2, Section 7 - Items 2a-2j - <b>Perceived Stress Scale</b> - a) How often have you been upset because of something that happened unexpectedly, b) How often have you felt that you were unable to control the important things in your life, c) How often have you felt nervous and stressed, d) How often have you felt confident about your ability to handle your problems, e) How often have you felt that things were going your way, f) How often have you felt that you could not cope with all the things that you had to do, g) How often have you been able to control irritations in your life, h) How often have you felt that you were on top of things, i) How often have you been angered because of things that were outside of your control, j) How often have you felt difficulties were piling up so high that you could not overcome them?
		Question 5, Section 13 - Items 5a-5e - <b>Satisfaction with Life Survey (SWLS)</b> - a) In most ways life is close to my ideal, b) The conditions of my life are excellent, c) I am satisfied with my life, d) So far I have gotten the important things I want in life, e) If I could live my life over, I would change almost nothing.
	Connectedness	Question 5a, Section 8 ( <b>Question 1 from Emotional Support Scale</b> ) - How often do your spouse, children, close friends and/or relatives make you feel loved and cared for?
Questions 11-15, Section 7 - <b>Santa Clara Brief Compassion Scale</b> - a) When I hear about someone (a stranger) going through a difficult time, I feel a great deal of compassion for him or her, b) I tend to feel compassion for people, even though I do not know them, c) One of the activities that provides me with the most meaning to my life is helping others in the world when they need help, d) I would rather engage in actions that help others, even though they are strangers, than engage in actions that would help me, e) I often have tender feelings toward people (strangers) when they seem to be in need.		
Social and Economic Resources		Question 5g, Section 8 ( <b>Question 7 from Emotional Support Scale</b> ) - How often do you feel lonely?
		Question 1-4, Section 9 - <b>Duke Social Support Index (4-items)</b> - 1) Other than members of your family, how many persons in your local area do you feel you can depend on or feel very close to, 2) How many times during the past week did you spend time with someone who does not live with you, that is, you went to see them or they can to visit you or you went out together, 3) How many times did you talk to someone (friends, relatives or others) on the telephone in the past week (either they called you, or you called them), 4) About how often did you go to meetings or clubs, religious meetings, or other groups that you belong to in the past week?
		Question 18, Section 7 - <b>McArthur Ladder Scale (US)</b> - At the top of the ladder are the people who are the best off - those who have the most money, the most education and the most respected jobs. At the bottom are the people who are the worst off - who have the least money, least education, and the least respected jobs or no job. The higher you are on this ladder, the closer you are to the people at the very top. - Where would you place yourself on this ladder?
		Question 10b, Section 1 - Including yourself, how many people live with you in your household?

*(Continued on the following page)*

Table 2

*Variables for confirmatory factor analysis of the family resilience model. (Cont'd)*

Key Processes	Constructs	Possible Questions/Scales for Constructs
Communication/Problem Solving	Clarity	Question 4a, Section 7 ( <b>Question 1 from 3-D wisdom scale</b> ) - A problem has little attraction for me if I don't think it has a solution.
		Question 4j, Section 7 ( <b>Question 10 from 3-D wisdom scale</b> ) - Before criticizing somebody, I try to imagine how I would feel if I were in their place.
		Question 4k, Section 7 ( <b>Question 11 from 3-D wisdom scale</b> ) - I sometimes find it difficult to see things from another person's point of view.
		Question 4l, Section 7 ( <b>Question 12 from 3-D wisdom scale</b> ) - When I am confused by a problem, one of the first things I do is survey the situation and consider all of the relevant pieces of information.
	Open Emotional Expression	Question 5b, Section 8 ( <b>from Emotional Support Scale</b> ) - sometimes when people are talking to me, I find myself wishing that they would leave.
		Question 4v, Section 7 ( <b>from 3-D wisdom scale</b> ) - sometimes when people are talking to me, I find myself wishing that they would leave.
		Question 3d, Section 7 ( <b>from 3-D Wisdom Scale</b> ) - There is only right way to do anything.
		Question 3k, Section 7 ( <b>from 3-D Wisdom Scale</b> ) - I am annoyed by unhappy people who just feel sorry for themselves.
		Question 3m, Section 7 ( <b>from 3-D Wisdom Scale</b> ) - There are some people I know I would never like.
		Question 3n, Section 7 ( <b>from 3-D Wisdom Scale</b> ) - I can be comfortable with all kinds of people.
	Collaborative Problem Solving	Question 4s, Section 7 ( <b>from 3-D wisdom scale</b> ) - I often have not comforted another when he or she needed it.
		Question 3o, Section 7 ( <b>from 3-D Wisdom Scale</b> ) - It's not really my problem if others are in trouble and need help.
		Question 5c, Section 8 ( <b>Question 3 from Emotional Support Scale</b> ) - How often do you spouse, children, close friends and/or relatives help with daily tasks like shopping, giving you a ride, or helping you with household tasks?
		Question 5d, Section 8 ( <b>Question 4 from Emotional Support Scale</b> ) - How often do your spouse, children, close friends and/or relatives give you advice or information about medical, financial, or family problems?
		Question 5e, Section 8 ( <b>Question 5 from Emotional Support Scale</b> ) - How often do you spouse, children, close friends and/or relatives make too many demands on you?
		Question 4t, Section 7 ( <b>Question 20 from 3-D wisdom scale</b> ) - I don't like to get involved in listening to another person's troubles.

### ***Outcome Variables: Successful Aging***

Table 3 provides a detailed list of the proposed outcome variables of successful aging as included in the SAGE survey, these outcome variables include: self-rated successful aging, psychosocial health, cognitive health, and physical health.

#### **Self-Rated Successful Aging**

Participants were asked to rate themselves in terms of “successful aging” on a scale of 1 to 10 (1=least successful to 10=most successful). The survey question asks specifically: Using your own definition, where would you rate yourself in terms of successful aging? (circle one number only)

#### **Psychosocial Health**

Emotional health will be measured with the mental health composite score of the Medical Outcomes Study (MOS) Short Form-36 (MOS-SF-36; Ware & Sherbourne, 1992), discussed in the measures section.

#### **Cognitive Health**

Cognitive health outcome will be measured by the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996), which is a self-administered cognitive test that screens older adults for dementia; discussed in the measures section.

## Physical Health

Physical health will be measured with the physical health composite score of the Medical Outcomes Study (MOS) Short Form-36 MOS-SF-36; Ware & Sherbourne, 1992), discussed in the measures section.

Table 3

*Outcome variables for successful aging.*

<b>Outcome Variable</b>	<b>Measure</b>
<b>Self-Rated Successful Aging</b>	Question 1, Section 3 - <b>Self-rated Successful Aging Questionnaire</b>
<b>Psychosocial Health</b>	Question 4, Section 5, items 4a-4d – <b>MOS-SF-36 – Role Emotion (RE) Subscale</b>
	Questions 6 and 9, Section 5 – <b>MOS-SF-36 – Social Functioning Subscale (SF)</b>
	Question 10, Section 5, items 5a, 5e, 5g, & 5i – <b>MOS-SF-36 – Vitality Subscale (VT)</b>
	Question 10, Section 5, items 5b, 5c, 5d, 5f, & 5h – <b>MOS-SF-36 – Mental Health Subscale (MH)</b>
<b>Cognitive Health</b>	Questions 26-31, Section 6 – <b>CAST – part A</b>
	Questions 32-36, Section 6 – <b>CAST – part B</b>
<b>Physical Health</b>	Questions 1 and 11 (items 11a-11d), Section 5 – <b>MOS-SF-36 – General Health Subscale (GH)</b>
	Question 3, Section 5, items 3a-3j – <b>MOS-SF-36 – Physical Functioning Subscale (PF)</b>
	Question 4, Section 5, items 4a-4d – <b>MOS-SF-36 – Role Physical Subscale (RP)</b>
	Questions 7 and 8, Section 5 – <b>MOS-SF-36 –Bodily Pain Subscale (BP)</b>

## *Control Variables*

Table 4 provides a detailed list of the proposed control variables of successful aging as included in the SAGE survey, these outcome variables include: demographic

variables (age, gender, education and income) and health behaviors (diet, physical activity, alcohol use, and smoking history).

### **Demographic Variables**

These variables include age, gender, education and income.

#### ***Age***

Participants were asked to state their age in years.

#### ***Gender***

Participants were asked their gender (Male, Female)

#### ***Education***

Participants were asked, “what is the highest grade in school you finished?” Response options are: 1) Didn’t go to school, 2) Grade school (1-4 years), 3) Grade school (5-8 years, 4) Some high school (9-11 years), 5) High school diploma, 6) GED (actual years completed \_\_\_\_\_), 7) Vocational or training school, 8) Some college or associates degree, 8) college graduate or Bachelor’s degree, 9) College graduate or Bachelor’s degree, 10) some-post graduate or professional, 11) Master’s degree, 12) Doctoral Degree (Ph.D., M.D., J.D., etc), 13) Don’t know. This question was developed for the SAGE survey. The reliability of this measure will be tested before using it in data analysis.



### ***Income***

Participants were asked, “what was the total of your personal income (before taxes) from all sources in the last year?” Response options are: 1) less than \$10,000, 2) \$10,000 to \$19,999, 3) \$20,000 to \$34,999, 4) \$35,000 to \$49,000, 5) \$50,000 to \$74,000, 6) \$75,000 to \$99,000, 7) \$100,000 to \$149,000, 8) \$150,000 or more, 9) Don’t know. Subsequently, the participants were asked, “what was the total of your family income (before taxes) from all sources in the last year?” Response options are: 1) less than \$10,000, 2) \$10,000 to \$19,999, 3) \$20,000 to \$34,999, 4) \$35,000 to \$49,000, 5) \$50,000 to \$74,000, 6) \$75,000 to \$99,000, 7) \$100,000 to \$149,000, 8) \$150,000 or more, 9) Don’t know. These questions were developed for the SAGE survey. The reliability of this measure will be tested before using it in data analysis.

### **Health Behaviors**

Diet, physical activity, alcohol use and smoking are included as predictor variables.

### **Diet**

Participants were asked about their current diet via yes and no questions – 1) I have an illness or condition that made me change the kind and/or amount of food that I eat, 2) I eat fewer than two meals per day, 3) I eat few fruits or vegetables or milk products, 4) I have tooth or mouth problems that make it hard for me to eat, 5) I do not always have enough money to buy the food I need, 6) I eat alone most of the time, 7) Without wanting to, I have lost or gained 10 pounds in the last 6 months, 8) I am not always physically able to shop, cook and/or feed myself. These questions were modified

from the Revised Nutrition Screening Initiative's Checklist (Posner, Jette, Smith, Miller, 1993). This instrument does not have any reported psychometric properties and therefore reliability will be evaluated before using this measure in the current investigation.

### **Physical Activity**

The International Physical Activity Questionnaire Short Form (IPAQ; Craig et al., 2003) was used to measure physical activity in the SAGE participants. The IPAQ consists of seven questions about physical activity during the last seven days. The goal is to understand the level of activity (i.e., vigorous, moderate, walking, sitting) and the amount of time spent doing each of these activities. The IPAQ has been used in populations from 18 to 65 years old, across twelve different countries. The IPAQ was administered eight days apart and demonstrated an average Spearman correlation coefficient of 0.80 indicating good repeatability. In addition, validity was tested by comparing the long and short forms of the IPAQ; "the pooled  $\rho$ , for comparisons between long and short forms was 0.67 (95% CI 0.64-0.70) and for comparisons of different short instruments was 0.58 (0.51-0.64)" (Craig et al., 2003, p. 1385). The IPAQ appears to have acceptable measurement properties in relation to other self-report measures of physical activity (Craig et al., 2003).

### **Alcohol Use**

Participants were asked four questions about their alcohol use. 1) I am a (please check one) – current regular drinker (3 or more drinks/day), current regular drinker (2 or fewer drinks/day, current infrequent drinker, former infrequent drinker, former regular drinker, lifetime abstainer (\*if abstainer, skip to next section), 2) One drink of alcohol is

12 oz. of beer or a wine cooler, 5 oz. of wine, or 1.5 oz. of distilled spirits (vodka, rum, etc.). During the past 30 days, how often have you had a drink containing alcohol – never/not in last 30 days (\*if not in the last 30 days, skip to question #4), once in the last 30 days, 2 to 4 times in the last 30 days, 2 to 3 times a week, 4 or more times a week, 3) During the past 30 days, how many drinks containing alcohol do you have on a typical day when you are drinking – 1 drink, 2 to 4 drinks, 5 or 6 drinks, 7 to 9 drinks, 10 or more drinks, 4) What is your typical choice of drink (please check only one) – beer, red wine, white wine, distilled spirits (vodka, rum, etc.), other (please specify). These questions were developed for the SAGE survey. The reliability of this measure will be tested before using it in data analysis.

### **Smoking**

Participants were asked seven questions about their smoking history. 1) During your entire life, have you smoked at least 100 cigarettes (yes or no), 2) how old were you when you first started smoking regularly (ages in blocks of five from under 15 to 60 and over), 3) Do you smoke now (yes or no), 4) How old were you when you quit smoking (ages in blocks of five from under 15 to 60 and over), 5) Did you quit smoking because you had a health problem that was caused by or made worse by smoking (yes or no), 6) On average, how many cigarettes do you (did you) smoke each day (fill in answer), 7) How many years have you been (were you) a regular smoker (fill in answer). These questions were developed for the SAGE survey. The reliability of this measure will be tested before using it in data analysis.

Table 4

*Control variables for successful aging.*

<b>Control Variable</b>	<b>Measure</b>
<b><i>Demographic Variables</i></b>	
Age	Question 1, section 1
Gender	Question 2, section 1
Education	Question 4, section 1
Income	Question 8 and 9, section 1
<b><i>Health Behaviors</i></b>	
Diet	Question 2, Section 4C, items 2a-2h – <b>Revised Nutrition Screening Initiative Checklist</b>
Physical activity	Questions 3-7, Section 12 – <b>IPAQ-Short Form</b>
Alcohol Use	Questions 1-4, Section 4E
Smoking History	Questions 1-7, Section 4D

## Results

The goal of phase I of this investigation is to confirm the latent structure of the family resilience model (Walsh, 2006). Given that there is not currently a comprehensive assessment of family resilience developed, this opportunity to examine the multiple factors within the theoretical model has the potential to provide important data for the development of a measure of family resilience in the future. Depending on the results of the confirmatory factor analysis there is the prospect to develop a measure of family resilience that can be piloted in upcoming years of the SAGE investigation with the same sample of community-dwelling older adults.

While phase II is somewhat dependent on phase I outcomes, it appears that the family resilience model as prescribed by Walsh (2006) is an innovative approach to studying successful aging. The results of the phase II structural regression will provide an original point of view of successful aging that incorporates a family level analysis. In addition, the hypothesized model developed through the structural equation model has the

potential to expand the knowledge we currently have about successful aging and predict causality between family resilience predictors and outcomes of successful aging.

### **Limitations**

One of the main limitations of the proposed investigation is the uneven distribution of ethnicity in the SAGE sample. While there was oversampling of individuals with Hispanic and Asian surnames, there is still an underrepresentation of ethnic minorities even in projected recruitment. The anticipated cohort of the SAGE study was White/Caucasian (65%), Hispanic (20%), Black (5%) and Asian (10%). While this demographic breakdown was believed to be representative of San Diego County, it does not allow for further investigation of successful aging in individual ethnic groups as there is not sufficient power across groups. While a larger sampling across groups would be beneficial in any case, McLaughlin et al. (2010) reported that after controlling for SES in a study successful aging of ethnically diverse groups, they found no difference between groups. These findings suggest that in the case of successful aging SES appears to be a more powerful predictor than ethnicity.

Another limitation of this investigation is the lack of a pre-existing family resilience measure. Since there is currently not a standardized measure of family resilience a number of alternative measures have to be utilized to test the latent structure of the family resilience framework. Consequently, the currently designated design of the family resilience model is subjective and may not yield a nine latent factor model. I am confident that if there is obscurity with the nine latent factor model, that through the use of the various proposed measures a three latent factor model will emerge. While a

limitation to this investigation, the lack of a family resilience measure provides an opportunity for future directions based on the findings of this investigation.

### **Conclusion**

This chapter outlines the projected methods for the understanding successful aging through a family resilience lens. This investigation is proposed in two phases; phase I – a confirmatory factor analysis to verify a nine or three latent variable factor model of the family resilience model (Walsh, 2006), and phase II- a structural regression utilizing the latent variable structure of the family resilience model developed in phase I to predict successful aging. The results produced as part of this investigation have the potential to 1) assist in the development of a standardized measure of family resilience and, 2) provide valuable information about successful aging at the family level. While there are minor limitations to this investigation, it is a strong study that has the capability of generating knowledge that will be relevant across multiple fields of study.

## **CHAPTER FIVE**

### **IMPLICATIONS**

The study of aging is crucial as there is an apparent shift in the demographic breakdown of our society. More importantly it is imperative that we consider aging from a family systems perspective, attuning to the interplay between individuals and their families. The ability to advance the family resilience model as a useable research tool is invaluable for the field of marriage and family therapy as it provides directionality for a variety of family issues that occur through various developmental life cycles from birth to death. As aging is considered through alternative theories at the family level it has the ability to refocus and progress future research on successful aging, while possibly decreasing the stigma and detaching the negative narratives that are frequently attached to the aging population (Kahana, 2005) by focusing on the strengths in contrast to weaknesses.

As has been discussed throughout this proposal, there is no agreed upon definition of successful aging (Depp et al., 2010). Researchers differ in their positions on successful aging; various models have been suggested (e.g., Phelan et al., 2004; Rowe & Kahn, 1987) but no one theory prevails. With this being said, there is an obvious need to advance the previous literature and consider the reciprocal relationship of the individual and the family in the aging process. While this proposed investigation does not aim to develop a solitary definition of successful aging; it does hope to expand the current literature on successful aging to include a family resilience lens, which has not been considered in the past. This focus has the ability to have a substantial impact on both the field of gerontology and marriage and family therapy.

The family resilience framework is based on the perspective that families have the ability to adapt and be strengthened throughout their lives regardless of circumstances (Simpson et al., 2005). Walsh (2003) provides a useful framework for the family resilience model to guide clinical practice. Just to reiterate, the family resilience model (Walsh, 2003, 2006) is designed with three key process and nine constructs. The first key process, belief systems has three constructs – making meaning of adversity, positive outlook, transcendence and spirituality. The second key process, organizational patterns consists of three constructs – flexibility, connectedness, and social and economic resources. The third key process also has three constructs – clarity, open emotional expression, and collaborative problem solving. While this model is invaluable for clinical practice, the latent factor constructs that function within this model have not been statistically tested, signifying a need for further research. This investigation proposes to gain a better understanding of the latent factor constructs operating within this model, which has the potential to revolutionize research and literature on family resilience and successful aging.

### **Phase I**

Phase I of this investigation will evaluate the multiple factors in the family resilience model (Walsh, 2006) through a confirmatory factor analysis. Through this process the objective is to substantiate the interrelated latent structure of the family resilience model. While the family resilience model has been systematically described as a clinical framework in family systems literature (Walsh, 2003), there has been minimal research related to the application of this model in research (e.g., Black & Lobo, 2008; McCubbin et al., 1997). After meeting with Froma Walsh it is confirmed that to date,



there has not been any investigation to confirm the latent structure of the family resilience model. The confirmatory factor analysis will test the relationship as nine separate constructs, as well as a multi-level factor system (or a second order confirmatory factor analysis) with each of the nine sub-constructs within family resilience theory nested within their respective three processes. This process will yield valuable insight into how future research might operationalize empirical measures for family resilience as well as provide valuable information to guide clinical treatment with families.

Distinguishing the latent factor structure of the family resilience model (Walsh, 2003) has the potential to provide guidance for future studies of family resilience. Initially, this information can direct the development of a family resilience instrument to measure family resilience in relation to various domains (i.e., successful aging, trauma, death and dying). With the development of an instrument to measure family resilience, there is the potential for growth in research using the family resilience model. Given that families are repeatedly faced with stressful events and crises throughout their developmental life stages (Haan, Hawley, & Deal, 2003), the family resilience model appears to be an appropriate and innovative theory for understanding why certain families are able to adapt and recover from traumatic situations. This is significant for the field of marriage and family therapy, as not only does it provide an established framework to provide direction for research within the discipline, it has the potential to guide treatment with families in the many transitions of life.

Though Walsh (2006) originally proposed the family resilience framework as a model for clinical intervention, it is useful to understand the latent factor structure to develop a more exact representation of the model. Understanding the structure of the

model provides valuable insight that can be used clinically to determine the most appropriate place for intervention with clients. For example, if an instrument for family resilience was constructed and utilized in a clinical setting, a clinician would be provided with information about a family's resilience level across a number of constructs. With this knowledge the clinician would have a road map for intervention. If a family scores high on belief systems, and low on organization patterns and communication problem solving, the clinician has gained useful information about the clients and can begin therapy by working on flexibility, connectedness and social and economic resources in the family and/or clarity, open emotional expression, and problem solving. Walsh (2006) provides a practical description for working with families across these various constructs.

The family resilience model provides a path that clinicians can take to assist families responding to life stressors (Haan et al., 2003). As families grow older and continue through various life-cycle stages they may face difficult circumstances (Friedrich, 2001). Unfortunately, with aging often comes disability or illness. Multiple generations can be effected by the process of aging and the burdens of providing a system of care (DeGolia, 2005). For this reason, successful aging through a family resilience model appears to be an excellent fit for understanding the challenges families face in various developmental phases and providing guidance for weathering those obstacles. For instance, one difficult transition that many families may face is caregiving for a member. This responsibility may prove difficult for all members of the family unit and can be considered a systemic issue (Kowal & Johnson, 2003). Consequently, it is important that we understand how to strengthen resilience in these families and assist all members of the family unit in aging successfully.

## **Phase II**

Phase II, will use the identified constructs within phase I to model the importance of each construct in predicting successful aging. After identifying the best fitting structure of the data in phase I, the family resilience model will be utilized in a structural regression to predict specific outcome variables of successful aging including; self-rated successful aging, psychosocial health, cognitive health, and physical health. The outcomes in phase II are dependent on the latent structure found in phase I. Unfortunately, since phase II will be primarily based on the findings from phase I it is difficult to predict the possible outcomes at this point.

The aim of the investigation is to predict successful aging from a family resilience lens. Unfortunately, the latent structure found in phase I may affect outcomes in phase II. At this point, it is difficult to clearly articulate the implications of phase II, until we identify the latent factor structure of the family resilience model in phase I. While the objective is to predict successful aging, it may be that, for example, we find that the latent factor structure in phase I appears to only predict psychosocial health but seems to have no bearing on physical health. While this information is valuable and suggests some connection between family resilience and psychosocial health, it may not predict successful aging in the manner previously hypothesized. The target of the investigation is to provide a better model to explain successful aging from a biopsychosocialspiritual approach that incorporates a family level lens. From this position, future investigations on successful aging would consider family resilience as a major predictor of successful aging - measured by self-rated successful aging, emotional health, cognitive health, and physical health. Despite the current ambiguity it is clear that this study will provide a

comprehensive understanding successful aging and family resilience and will be a catalyst for other investigations in the fields of marriage and family therapy and gerontology.

### **Conclusion**

The need for more research in the field of successful aging from a biopsychosocialspiritual approach is unmistakable. The objective of this study is to predict successful aging through a family resilience framework by first conducting a second order CFA to confirm the latent factor structure of the family resilience model and then apply a structural regression to predict successful aging. This process has the potential to provide valuable information for studies of family resilience and successful aging. Confirming the latent factor structure of family resilience will have the capacity to guide the development of a family resilience measure, which has the potential to guide future research and clinical practice in the field of marriage and family therapy. Phase II may provide useful information about the relationship between the family resilience model and successful aging that will expand current knowledge on successful aging. Overall this study has major research and clinical implications for the field of marriage and family therapy and successful aging.

**CHAPTER SIX**

**PAPER ONE**

**SUCCESSFUL AGING THROUGH A FAMILY RESILIENCE LENS:  
EXPLORATORY FACTOR ANALYSIS AND CONFIRMATORY FACTOR  
ANALYSIS**

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## Abstract

**Purpose:** Identify the underlying resilience latent structures within the Successful AGing Evaluation (SAGE) data and develop a psychometrically tested assessment that can be used to measure family resilience in a population of older adults. **Design and Methods:** A total of 1,006 community-dwelling older adults were analyzed in two equal data sets; one for an exploratory factor analysis (EFA) and one for subsequent confirmatory factor analysis (CFA). The EFA process allowed for identification of the underlying latent structure of the data, while the CFA process confirmed the latent structure identified in the EFA as well as tested the ability of the first order concept to be regressed onto larger concepts of family resilience. **Results:** EFA produced an eight factor structure that appeared clinically relevant for measuring both family and individual resilience. Factors included self efficacy, access to social support network, positive outlook, perceived economic and social resources, spirituality and transcendence, relational stress, emotional expression and communication, and clarity. CFA confirmed the eight factor structure previously achieved and confirmed a second order two factor structure for individual and family resilience. **Implications:** This study advances the family resilience framework in connection with individual resilience by introducing The Multilevel Resilience Measure (MRM) that measures two levels of resilience (family and individual) in older adults and can be utilized in future research and eventual clinical application.

Key Words: Family resilience, successful aging, factor analysis

## **Introduction**

The rapidly changing demographic makeup of America highlights the need for family level research on aging. During the last 100 years, the human lifespan has doubled due in part to advances in health care. At present there are over 40 million individuals over the age of 65 living in the United States and by 2030 that number is expected to grow to 72.1 million (Administration on Aging (AOA); 2010). Yet to date, there has been scant literature focusing on family level features of aging. The concept of family resilience (McCubbin & McCubbin, 1998; Walsh, 2003) provides one platform for understanding the impact of aging on the family system. A family resilience viewpoint considers resilience from a systemic perspective focusing on relational aspects such as shared belief systems, connectedness, and effective communication to assist with adaptability in ever changing situations (Walsh, 1996). Recognizing the transitions, adaptations, and recovery processes experienced by families as they age is central to successful aging; viewing families through a family resilience lens provides direction for conceptualizing those changes. For this reason, as we move forward, aging should be considered a developmental process that impacts the family system. At this point there have not been any established instruments to measure family resilience in older adults.

A major limitation to future study of family resilience and aging is the lack of a psychometrically tested tool for measuring family resilience in aging populations (Ungar, 2011). The development of a psychometrically tested and comprehensible assessment of family resilience is necessary in order to describe and quantify this valuable construct in older adults. The purpose of this study is to assess a large sample of 1,006 aging individuals and identify, through the lens of family resilience, common resilience

patterns. An exploratory factor analysis and confirmatory analysis will be used to identify the underlying resilience latent structures within the data, as well as model the multi-dimensional structure of resilience between individual and family levels.

### **Background**

Over the years there have been a number of researchers that have focused on the importance of individual resilience in the aging process (e.g., Harris, 2008; Lamond et al., 2009). Since aging can be considered a developmental task, which requires functioning and some level of independent thinking, aging can be understood as a period of adaptation (Baltes & Lang, 1997, McCubbin & McCubbin, 1996). While much of the current literature is focused on the deficits associated with aging, Harris (2008) suggests that we should refocus our attention towards resilience as a critical construct for aging. Similarly, Lamond et al. (2009) discussed the protective factors of resilience in aging, suggesting that older adults with higher levels of resilience have higher life satisfaction even in spite of physical disability. From this resilience perspective, scholars highlight the strengths and positive attributes of individuals as they age.

Looking at aging from a family resilience perspective assists in understanding the importance of health and social integration of older adults and their family (Moen, Dempster-McClain, & Williams, 1992). While individual resilience has been cited as a positive correlate to successful aging in several studies (e.g., Montross et al., 2006; Wagnild & Young, 1993), there is no literature connecting the family resilience framework to aging and no assessment to quantify this construct. Understanding aging through a family resilience model has the potential to assist families in facing aging related challenges with a shared belief system, connectedness and effective



communication. Expanding beyond the resilience of the individual, a developmental perspective adds an understanding of the role of the family system and family resilience. When life changes on schedule, in harmony with the projected life-cycle development, the family experiences reduced stress and greater well-being in contrast to when transitions happen outside of the normal life-cycle, such as dementia or disability of a parent. These events have the potential to cause undue stress on the family (Cook, Cohler, Pickett, & Beeler, 1997). Illness or disability in one member can cause multigenerational issues within the entire family system, such as changing family organization or discord in family beliefs. In addition, the family may feel influence from larger social systems they interact with such as doctors, hospitals, and insurance agencies. It is through these experiences that family resilience is of the utmost importance.

The family resilience lens has the ability to expand our knowledge about aging, by integrating a family level concept that seeks to understand more about how social support and relationships assist in aging successful. Black and Lobo (2008) proposed that family resilience models assist in seeing family strengths in contrast to deficiencies. The concept of family resilience assists researchers in seeing families as embodying both universal qualities and diverse strengths and weaknesses (Hooper, 2009; Rolland & Walsh, 2006). It allows the researcher to consider how families remain healthy and functional through all of life's transitions. Difficulties can cause family members to recognize the value in their family and provide meaning for change. Problems experienced by the family have the potential to strengthen the family as they draw together on common ground to struggle and overcome the obstacles as a unified team (Black & Lobo, 2008). Family resilience literature conveys the possibility of relational

transformation, strengthening of family bonds, and development of resources when faced with life's challenges (Rolland & Walsh, 2006).

Originally, McCubbin and McCubbin (1996) developed the "Resiliency Model of Family Stress, Adjustment and Adaptation", with five assumptions: 1) families will experience hardship and stress at different points within their family life cycle, 2) families are able to overcome stress and difficulty resulting from family crisis through developed competencies and strength, 3) during episodes of family stress and crisis, families benefit from connections within their community and relationship outside of the family unit, 4) families naturally look for meaning and shared perspective to assist in moving forward after being faced with difficulty, and 5) families attempt to restore homeostasis after major stressors and crises. This model primarily focuses on protective factors that allow families to adjust and adapt during hardship.

Black and Lobo (2008) suggest that resilient families commonly demonstrate a number of protective factors, "a positive outlook, spirituality, family member accord, flexibility, communication, financial management, time together, mutual recreational interests, routines and rituals, and social support" (p. 37). In contrast Conger and Conger (2002) suggest that resilience is related to demanding life transitions and the generated response to these changes. From this perspective, family resilience is directly related to a family's stage of development and closeness of the family system (Orthner, Jones-Sanpei, & Williamson, 2004). Secombe (2002) suggests that resilient families provide emotional support for each other and have specific expectations for their children. In addition, they have common core values, predictable routines and shared experiences.

For the purpose of this investigation we used Walsh's (1996, 2003) model of family resilience, which identifies fundamental processes that facilitate higher levels of resilience in families, explaining the key to family resilience as having three domains; family belief systems, organizational patterns, and communication processes. Family belief systems are illustrated through making meaning of adversity, positive outlook, and spirituality and transcendence. Organizational patterns are described as encompassing flexibility, connectedness, and social and economic resources (Walsh, 2003). Communication/problem solving is characterized through clarity, open emotional expression, and collaborative problem solving (Walsh, 2003). Walsh's (2003, 2006) model for family resilience embodies the systemic interplay often seen in families during various developmental processes and then provides a detailed structure for clinical intervention. In turn, the concept of family resilience provides a potentially useful framework for research and clinical practice. This investigation attempts to expand the literature on aging and resilience to include a family level concept with the development of a family resilience measure that can be used empirically for future quantitative research and eventual clinical application in an aging population.

## **Methods**

### ***SAGE Study Population***

The Successful AGing Evaluation (SAGE) study (Jeste et al., 2012) developed by the University of California, San Diego (UCSD) department of geriatric psychiatry and the Stein Institute for Research on Aging, was used for this study. The SAGE study is a five year longitudinal study that utilizes a prospective cohort design to measure age differences as well as age changes. For the purpose of this investigation we only used

data that was collected during year one of the SAGE study; second year data is still be collected. The participants were English speaking men and women, living in San Diego County, between the ages 50 and 99 years old who were capable of providing informed consent and physically and mentally able to participate in a phone interview and complete a paper and pencil mail survey. Participants were excluded if they had a diagnosis of dementia, resided in a nursing home, required daily skilled nursing care, had a terminal diagnosis or were currently receiving hospice care.

The sample population was identified and recruited by California Survey Research Services (CSRS) (a data collection and data processing company with experience in commercial, academic and government research data collection). An initial group of 3,000 people living in San Diego County were selected by CSRS. Using listed telephone numbers obtained from Scientific Telephone Samples of Foothill Ranch, California, these potential participants were contacted and 1,300 individuals completed the telephone interview; this interview consisted of demographic information and screening for mental and cognitive health. After completing the telephone interview, a research team from UCSD's division of geriatric psychiatry and the Stein Institute of Research on Aging sent subjects an "at-home" survey to complete. The at-home survey included questions related to participants' demographic information, attitudes towards aging, general health and health behaviors, family history, memory and thinking abilities, outlook on life, mental health, religious or spiritual views, perceived social support, physical, social, and sexual activities, and lifetime satisfaction. The survey took approximately one to two hours to complete.

## Measures

For the purpose of this investigation, questions were chosen qualitatively based on literature that conceptualizes family resilience as reliant on three key processes from Walsh's original theory of family Resilience; belief systems, organizational patterns, and communication/problem solving (Walsh, 2002, 2003). Individual questions from the Brief multi-dimensional measure of religiousness/spirituality (BMMRS; Fetzer Institute, 1999), the Connor-Davidson resilience scale (CD-RISC-10; Campbell-Sills & Stein, 2007), the Emotional support scale (ESS; Seeman, Berkman, Blazer, & Rowe, 1994, 2001), the Life orientation test – revised (LOT-R; Scheier, Carver, & Bridges, 1994), the MacArthur Ladder Scale (Adler, Epel, Castellazzo, & Ickovics, 2000), the Perceived stress scale (PSS; Cohen, Kamarack, & Mermelstien, 1983) and one question about satisfaction with finances, were included in the analysis. Table 5 provides a brief outline of the questions that were chosen based on the family resilience literature.

Table 5

*Variables for factor analysis of the family resilience model.*

Key Processes	Constructs	Possible Question/Scales for Constructs
Belief Systems	Make Meaning of Adversity	Connor- Davidson Resilience Scale - a) I am able to adapt to change. Connor- Davidson Resilience Scale - b) I can deal with whatever comes my way. Connor- Davidson Resilience Scale - e) I tend to bounce back after illness or hardship.
	Positive Outlook	LOT-R - a) In unclear times, I usually expect the best. LOT-R - c) I'm always hopeful about my future. LOT-R - f) Overall, I expect more good things to happen to me than bad.
	Transcendence and Spirituality	BMMRS - To what extent do you consider yourself a <u>religious</u> person? BMMRS - To what extent do you consider yourself a <u>spiritual</u> person?
Organizational Patterns	Flexibility	Perceived Stress Scale - b) How often have you felt that you were unable to control the important things in your life? Perceived Stress Scale - d) How often have you felt confident about your ability to handle your problems? Perceived Stress Scale - g) How often have you been able to control irritations in your life?
	Connectedness	Emotional Support Scale - How often do your spouse, children, close friends and/or relatives make you feel loved and cared for? Emotional Support Scale - How often do you feel lonely?
	Social and Economic Resources	McArthur Ladder Scale (US) How satisfied are you with your finances?
Communication/Problem Solving	Clarity	3-D wisdom scale - Before criticizing somebody, I try to imagine how I would feel if I were in their place. 3-D wisdom scale - I sometimes find it difficult to see things from another person's point of view.
	Open Emotional Expression	Emotional Support Scale - How often are your spouse, children, close friends and/or relatives critical of what you do? Emotional Support Scale - How often are your spouse, children, close friends and/or relatives willing to listen when you need to talk about your worries or problems? 3-D wisdom scale - Sometimes when people are talking to me, I find myself wishing that they would leave. 3-D wisdom scale - I often have not comforted another when he or she needed it.
	Collaborative Problem Solving	Emotional Support Scale - How often do you spouse, children, close friends and/or relatives help with daily tasks like shopping, giving you a ride, or helping you with household tasks?
		Emotional Support Scale - How often do your spouse, children, close friends and/or relatives give you advice or information about medical, financial, or family problems? Emotional Support Scale - How often do you spouse, children, close friends and/or relatives make too many demands on you?

### ***Brief Multi-Dimensional Measure of Religiousness/Spirituality***

The Brief multi-dimensional measure of religiousness/spirituality (BMMRS) was created to explore the relationship between religion and spirituality, and health outcomes (Fetzer Institute, 1999). For the purpose of this investigation we utilized two questions from the BMMRS overall self-ranking.

### ***Connor-Davidson Resilience Scale***

The Connor-Davidson resilience scale 10-item (CD-RISC-10; Campbell-Sills & Stein, 2007) was developed to measure resilience. Items are scored on a 5-point Likert Scale (1=not true at all to 5=true nearly all of the time). Scores are determined by adding the sum of all of the questions; higher scores indicate higher levels of resilience (Singh & Choubisa, 2009). We utilized three questions from the CDRS.

### ***Emotional Support Scale***

The emotional support scale (Seeman, Berkman, Blazer, & Rowe, 1994, 2001) is an instrumental support scale. The ESS is seven questions scored on a 4-point Likert scale (1=never to 4=frequently). All questions from the emotional support scale were utilized in this analysis.

### ***Life Orientation Test – Revised***

The Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994) measures optimism. The LOT-R is scored on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). Three items were included in this investigation.

### ***McArthur Ladder Scale (US)***

The MacArthur Scale of Subjective Social Status (Adler, Epel, Castellazzo, & Ickovics, 2000) is a one item measure that quantifies a participants subjective belief of their place in the social hierarchy. Participants are given a picture of a ladder and asked to put an “x” on the rung where they think they stand compared to others in the United States. For clarification, there is an introduction to the ladder that suggests that individuals who are at the top of the ladder “have the most money, the most education, and the most respected jobs”. This question was recoded from a 10-point Likert to a 5-pt Likert scale in order to provide uniformity with the other variables of interest.

### ***Perceived Stress Scale***

The Perceived Stress Scale (PSS; Cohen, Kamarack, & Mermelstien, 1983) is a widely used instrument that measures participants’ perceived level of stress during the previous month. There are 10-items in the PSS scored on a 5-point Likert Scale (1=never to 5=very often). Three questions from the PSS were utilized.

### ***Satisfaction with Finances***

Participants were asked, “In general, how satisfied are you with your finances?” Question was asked on a 10-point Likert Scale (1=not satisfied at all, 10=very satisfied). This question was recoded from a 10-point Likert to a 5-pt Likert scale in order to provide uniformity with the other variables of interest.



### ***Sociodemographic Characteristics***

Age, gender, ethnicity, income, work status, alcohol use, and smoking use were included in the pre-analysis screening to compare the randomly selected datasets for use in the exploratory and confirmatory factor analysis.

### ***Three Dimensional Wisdom Scale***

The Three-Dimensional Wisdom Scale (3-D Wisdom Scale; Ardelt, 2003), is a comprehensive scale of wisdom that consists of a total of 39 questions across three dimensions of wisdom: cognitive, reflective, and affective. Questions are asked on a 5-point Likert scale (1=Strongly Agree, 5=Strongly disagree). Five questions from the 3D-W were used.

### **Sample Characteristics**

A total of 1,006 community-dwelling older adults – individuals who are not in nursing homes or assisted living facilities – provided sufficient information to be considered for inclusion in this analysis. Respondents had a mean age of 77.35 years ( $SD = 12.16$ , range=51–99 years), and 51.4% were male. The sample was 80.7% Caucasian, 11.7% Hispanic, 5.3% Asian, 1.3% African American, 0.2% Native American, and 1% of other or unknown ethnicities. The majority of respondents were either presently married (48.8%) or widowed (31.5%) with 13.5% divorced or separated, 3.2% never married, and 2.3% in a marriage-like (partner or cohabitating) relationship. With respect to highest level of education, 37.6% of respondents had an associate's degree, some college or vocational school, 28.4% had professional degrees (i.e., post-graduate, master's degree, doctorate degree), 15.4% were college graduates, 13.8% completed high school or GED,

and 4.2% did not complete high school. Table 6 provides a summary of demographic data associated with this sample.

Table 6

*Demographics of SAGE participants.*

Variables	No. (%) of subjects
Overall	1,006
Age (years)	
50-59 years	122 (12.1%)
60-69 years	162 (16.1%)
70-79 years	193 (19.2%)
80-89 years	347 (34.5%)
90+ years	183 (18.2%)
Gender	
Female	488 (48.6%)
Male	518 (51.4%)
Ethnic background	
Caucasian	813 (80.7%)
African American	13 (1.3%)
Hispanic	112 (11.1%)
Asian	53 (5.3%)
Native American	2 (.2%)
Other	10 (1.0%)
Marital Status	
Never Married	32 (3.2%)
Divorced/Separated	135 (13.4%)
Widowed	317 (31.5%)
Presently married	491 (48.8%)
Living in a marriage-like relationship	23 (2.3%)
Education	
≤ 11 years	42 (4.2%)
High school diploma or GED	139 (13.8%)
Some college of vocational training	319 (31.7%)
Bachelor's degree	155 (15.4%)
Some post-graduate or professional	95 (9.4%)
Graduate degree	192 (19%)
Family Income (annual)	
≤ \$10,000	19 (1.9%)
\$10,000-\$19,999	65 (6.5%)
\$20,000-\$34,999	136 (13.5%)
\$35,000-\$49,000	133 (13.2%)
\$50,000-\$74,999	163 (16.2%)
\$75,000-\$99,000	101 (10.0%)
\$100,000-\$149,000	112 (11.1%)
\$150,000+	75 (7.4%)
Do not know	30 (3.0%)

## Analyses

Statistical analyses were carried out using SPSS 18 and EQS 6.2 (Bentler, 2006). Data was cleaned and screened prior to analyses being completed to detect and repair any problems. Guidelines for preparing and screening multivariate data from Tabachnick and Fidell (2007) were followed. This included testing univariate assumptions of independences, normality as well as linearity. The data was also evaluated for missing data patterns and missing data was evaluated for missing at random, completely at random and missing systematically (Cohen, Cohen, West & Aiken, 2003). One hundred eighty four individuals (18%) were missing data on at least one of the 25 proposed variables. The missing and non-missing groups were compared across demographic variables (i.e., age, gender, gender, ethnicity, income, work status, alcohol use, smoking use) and no significant differences between groups were found.

Since the goal of the investigation is to develop an instrument for family resilience, principle component factor analysis procedures were used to identify the underlying structure of a chosen set of variables (Mertler & Vannatta, 2005). Using a split sample procedure in SPSS, the total data set ( $N = 1,006$ ) was divided into two equal data sets; one for the exploratory factor analysis (EFA;  $n = 503$ ) and one for the subsequent confirmatory factor analysis (CFA;  $n = 503$ ). The EFA process allows the researchers to identify the underlying latent structure of the data, while maintaining an exploratory stance. The CFA process utilized the second half of the data set to confirm the latent structure identified in the EFA as well as test the ability of the first order concept to be regressed onto larger or second order, concepts of family resilience. After dividing the SAGE dataset into two even datasets, descriptive statistics were run on both

data sets to ensure their uniformity. No significant differences were found between the datasets.

## **Results**

### ***Exploratory Factor Analysis***

We theorized (based on the resilience literature (Walsh, 2003) that the underlying latent factors would share common variance and therefore the factorial dimensions of the items would be intercorrelated, due to this assumption a principal component analysis with an oblique (promax) rotation was performed. Initial analysis employed the Kaiser's Rule as well as suppressing small communalities (less than .4) and small coefficients (less than .4). These criteria allowed for eight factors to be extracted which explained 58.60% of the variance in the data.

In order to enhance the factor structure, items were examined and removed based on their utility and factorability. The initial analysis revealed two items from the PSS (pss\_4r, pss-7r) cross-loaded and failed to load on one single factor. Another variable (pss\_2) showed a lower single-factor loading on a theoretically uninterruptable factor. These three items were removed and an exploratory factor analysis using the previously outlined parameters was conducted on the remaining 22 items. The Kaiser-Meyer-Olkin (KMO) was .68, and the Barlett test for sphericity was significant at  $p < .01$ , which suggests appropriateness for factor analytic procedures with these items. Eight factors were extracted in this subsequent analysis, which accounted for 62.28% of the variance. Communalities on the items were strong, with all communalities above .45. All items loaded above .61 on their respective factor. The intercorrelations between the eight factors were low, ranging from .024 to .275, suggesting that there is not a strong

intercorrelation between the factors and that the oblique rotation was not necessary. The factors were extracted again but this time with an orthogonal rotation (varimax). An identical factor solution was obtained. This final exploratory factor analysis was run twice, once with the missing data removed listwise and again with the missing data replaced with mean imputation to assure that there was no difference between groups because of missing data; no significant differences were found.

Originally the aim of this investigation was to represent Walsh's (2003, 2006) model of family resilience through the factor structure of the items. After analysis, the achieved factor structure appears to better represent two levels of resilience, individual and family. While the predicted factors loaded on the first factor, the name was changed from making meaning of adversity to self-efficacy to represent the underlying language of the items. In addition, taking into account the other factors, positive outlook and clarity appeared to be more indicative of individual resilience. The originally proposed factors flexibility, connectedness, open emotional expression, and collaborative problem solving were not found in this analysis. In addition, several of the factors included items that were previously unspecified in the a priori hypotheses.

The structured factor loadings, eigenvalues and percentage of variance explained are presented in Table 7. Based on theoretical interpretation of the items, the identified factors were labeled as (1) Self Efficacy, (2) Access to Social Support Network, (3) Positive Outlook, (4) Perceived Economic and Social Resources, (5) Spirituality and Transcendence, (6) Relational Stress, (7) Emotional Expression and Communication, (8) Clarity. Items from these eight factors appear clinically relevant for measuring both

family and individual resilience. Below we briefly provide a conceptual definition of each factor.

Table 7

*Factor loadings from a principal axis factor analysis. (N = 503)*

Items		$\alpha$	$M (SD)$	Factor loading									
				1	2	3	4	5	6	7	8		
Factor 1: Self Efficacy		.79	9.70 (2.00)										
CDRS_4	Deal with whatever comes my way	.69	3.20 (0.76)	<b>.87</b>									
CDRS_1	Able to adapt to change	.64	3.23 (0.82)	<b>.85</b>									
CDRS_8	Bounce back after hardship	.58	3.32 (0.74)	<b>.78</b>									
Factor 2: Access to Support Network		.67	8.84 (2.41)										
ESS_4	Advice or information	.55	1.66 (0.94)		<b>.77</b>								
ESS_3	Help with daily tasks	.49	1.88 (1.10)		<b>.71</b>								
ESS_2	Listen when you need to talk	.45	2.57 (0.67)		<b>.70</b>								
ESS_1	Loved and cared for	.43	2.76 (0.54)		<b>.68</b>								
Factor 3: Positive Outlook		.58	11.45 (1.89)										
LOT-R_6	Expect more good things than bad	.38	3.99 (0.89)			<b>.73</b>							
LOT-R_3	Hopeful about my future	.44	4.01 (0.75)			<b>.72</b>							
LOT-R_1	Usually expect the best	.39	3.60 (0.79)			<b>.67</b>							
Factor 4: Perceived Economic and Social Resources		.55	9.83 (1.99)										
Ldr2	Ladder scale	.44	3.80 (0.79)				<b>.79</b>						
Swfinan	Satisfaction with finances	.37	3.95 (0.99)				<b>.73</b>						
ESS_7	How often do you feel lonely	.25	2.10 (0.95)				<b>.61</b>						
Factor 5: Spirituality and Transcendence		.73	4.96 (1.76)										
Bmmrs_37	Religious person	.59	2.30 (0.98)					<b>.88</b>					
Bmmrs_38	Spiritual person	.59	2.59 (1.02)					<b>.84</b>					
Factor 6: Relational Stress		.58	4.44 (1.41)										
ESS_5	Too many demands on you	.40	2.28 (0.87)						<b>.79</b>				
ESS_6	Critical of what you do	.40	2.20 (0.78)						<b>.75</b>				
Factor 7: Emotional Expression and Communication		.39	9.95 (2.32)										
Wsdm_r7	See things from another point of view	.19	3.17 (1.11)									<b>.64</b>	
Wsdm_a8	Not comforted another	.28	3.69 (1.17)									<b>.61</b>	
Wsdm_a11	When people talk, wish they would leave	.30	3.12 (1.19)									<b>.61</b>	

*(Continued on the following page)*

Table 7

*Factor loadings from a principal axis factor analysis. (N = 503; Cont'd)*

Items	$\alpha$	$M (SD)$	Factor loading								
			1	2	3	4	5	6	7	8	
Factor 8: Clarity	.43	7.88 (1.94)									
Wsdm_r8r Consider all pieces of information	.34	4.05 (0.86)									<b>.78</b>
Wsdm_r6r Before criticizing, imagine how I would feel	.34	3.82 (0.90)									<b>.71</b>
Total Items	.72	67.32 (7.29)									
Eigen value			3.45	2.14	1.63	1.58	1.51	1.24	1.11	1.00	
% of Variance			15.84	9.72	7.38	7.20	6.90	5.66	5.03	4.55	

All Factor Loadings > .40 are included boldface



### **Self Efficacy**

The first factor achieved an eigenvalue of 3.45, explaining 15.84% of the variance and consisting of three items that were labeled as self efficacy. Items loading on the first factor appeared to be closely related to an individual's ability to attain their goals or make meaning of adversity regardless of the various situations they encounter. While originally the items were interpreted as "making meaning of adversity" from a family resilience perspective the individual language used in the questions, made us consider the notion of self-efficacy. After, consideration we decided that conceptually the items on this factor appeared to be based on individual resilience in contrast to family resilience.

### **Access to Support Network**

The second factor, access to support network, achieved an eigenvalue of 2.14, explaining 9.72% of the variance and consisting of four items. These items appeared connected to an individual's confidence in their personal network to provide them with both tangible and emotional support.

### **Positive Outlook**

The third factor achieved an eigenvalue of 1.63, explaining 7.38% of the variance and consisting of three items that were labeled positive outlook. The items on this factor appeared to symbolize one's personal ability to remain optimistic regardless of circumstance. Because the questions are worded in a manner that seems independent from family it could be considered individualistic, at the same time, positive outlook is

included as a construct on the key process of belief systems in Walsh's family resilience model (2003) which suggests that it may have a relational component to it as well.

### **Perceived Economic and Social Resources**

The fourth factor, perceived economic and social resources, achieved an eigenvalue of 1.58, explaining 7.20% of the variance with three items. This item appeared to embody one's belief in the amount of resources they have both financially and in their collective community. This factor possesses relational level variables, in that the ladder scale is concerned with one's place in the larger society, finances have a large impact on the family system, and loneliness speaks to the notion of the social capital a person experiences, which is often dependent on the amount of close relationships one feels that they have. This factor is in line with the family resilience model's key process of organizational patterns.

### **Spirituality and Transcendence**

The fifth factor achieved an eigenvalue of 1.52, explaining 6.90% of the variance and consisting of two items named spirituality and transcendence. Both of these items related to a person's belief in a higher power, deeper meaning and/or a connectedness with a larger reality. Similar to factor three, positive outlook, the items seem as though they could intersect with both individual and family resilience. However from the point of view of the family resilience framework, transcendent beliefs can provide multigenerational stability, as well as purpose, meaning and a sense of connection to something outside of ourselves and our conditions (Walsh, 2006). In addition, spirituality

and religion join individuals and families with shared faith communities that have the ability to provide support (Walsh, 2006).

### **Relational Stress**

The sixth factor, relational stress, achieved an eigenvalue of 1.24, explaining 5.66% of the variance and consisting of two items. These items appear to represent the difficulty and strain that can be experienced when family and/or close friends puts high demands or pressure on a member. This factor is in line with the key processes of communication/problems solving in the family resilience model.

### **Emotional Expression and Communication**

The seventh factor achieved an eigenvalue of 1.11, explaining 5.03% of the variance and consisting of three items labeled emotional expression and communication. This factor characterizes the relational manner in which people interact, consideration of other people's feelings, and ability to understand the way that one relates to another. Similar to relational stress, this factor is in harmony with the family resilience models communication/problem solving construct yet has its own characteristics that separate it from relational stress. Certainly this factor is in alignment with family level resilience.

### **Clarity**

The eighth factor, empathetic problem solving, achieved an eigenvalue of 1.0, explaining 4.55% of the variance and consisting of two items. The items on this factor seem slightly in contrast to the items that loaded on factor seven, emotional expression and communication, in the respect that they are related very much to inwardly processing

while problem solving. Similar to factors three and seven, this factor appears to be related to both individual and family levels of resilience due to the internalized nature of the questions.

### ***Confirmatory Factor Analysis***

After obtaining the eight-factor structure through EFA procedures outlined above, the second half of the sample ( $n = 503$ ) was accessed for the confirmatory factor analysis (CFA) phase. The eight-factor model from the EFA phase was imposed on the second half of the data using EQS 6.2 (Bentler, 2006). This phase began by simply constraining the data to the eight factor solution found in the EFA phase. It then progressed through modification steps, and finally a series of second order models were applied to test the assumption in the resilience theories (Walsh, 2003) that the individual latent concepts work together to create the larger concept of resilience.

Model 1a was created using the eight factors from the EFA phase. While there appeared to be low correlation between factors in the EFA model, all of the variables in this CFA model were allowed to covary. Fit statistics for model 1a suggested slight misspecification, with values showing adequate fit, ( $\chi^2 = 394.4$ ,  $df = 181$ ): NNFI=.849, CFI=.882, RMSEA=.053 with a 90% CI between .046 and .060. To further explore the eight-factor structure model, 1b was developed with covariances added between error terms 14 and 15 (ESS\_3 & ESS\_4), as well as 16 and 17 (Ldr2 & Swfinan), per the Lagrange Multiplier Test (LM test). The addition of covariances, conceptually, appeared to be a good fit between advice and information (ESS\_3) from family members and help with daily tasks (ESS\_4) from family members, as the two items appear comparable and an increase in one would most likely cause an increase in the other. Similarly the Ladder

scale (Ldr2) and satisfaction with finances (swfinan) have a very close relationship; theoretically satisfaction with finances would, in all probability, have an interdependent relationship with how one would rate themselves on a social ladder based on income, education, and employment. With these imposed constraints model 1b was fit. Fit statistics for model 1b suggested a good model of fit, ( $\chi^2 = 297.3$ ,  $df = 179$ ): NNFI=.915, CFI=.935, RMSEA=.040 with a 90% CI between .032 and .048. Because there appeared to be low correlation between the factors in the EFA phase, the covariances in the CFA were constrained to 0 to test the orthogonal relationship between the factors in the EFA process developing model 1c. Fit statistics for model 1c suggested considerable misspecification, with values showing an inadequate fit, ( $\chi^2 = 663.1$ ,  $df = 207$ ): NNFI=.718, CFI=.747 RMSEA=.073 with a 90% CI between .067 and .079. As a result of the first order CFA models 1a, 1b, and 1c, it appeared that model 1b fit the data well, and can be considered to have a good model fit.

In contrast to the EFA, findings from the CFA suggest that there was a covariance between the factors in the eight factor structure. Given these findings, and the proposed nesting of processes in the family resilience theory (Walsh, 2003), it was hypothesized that each of the eight factors were nested within one of two higher order factors; in this case family resilience and individual resilience. To test this theoretical assumption, each of the factors were evaluated to determine whether they would fit with the larger, individual or family resilience concepts. Accordingly, a second order confirmatory factor analysis was developed with five factors for Family Resilience: access to support network, perceived economic and social resources, relational stress, spirituality and transcendence, and emotional expression and communication and three factors for

individual resilience: self-efficacy, positive outlook, and clarity. Fit statistics for this second order solution (model 2a) suggested some misspecification but an acceptable model of fit, ( $\chi^2 = 475.8$ ,  $df = 197$ ): NNFI=.819, CFI=.846, RMSEA=.058 with a 90% CI between .052 and .065. To further investigate this notion of a second order CFA, a covariance between the two second order factors was added for model 2b (conceptually implying that individual and family resilience are interdependent). Fit statistics for model 2b suggested a good model of fit, ( $\chi^2 = 360.5$ ,  $df = 196$ ): NNFI=.893, CFI=.909, RMSEA=.045 with a 90% CI between .038 and .052. Model 2b was considered the best fitting model and most appropriate representation of the data. In this model, five factors form the concept family resilience and three form the concept individual resilience. These two second order concepts are interrelated. In other words, high individual resilience is likely to create higher levels of family resilience and vice versa. Table 8 provides a model summary of all four variations of the model.

Table 8

*Confirmatory factor analysis model summary.*

Model	Model fit
1a All items and covariance's	$\chi^2(181)=394.4$ NNFI=.849 CFI=.882 RMSEA=.053 RMSEA 90% CI = .046-.060
1b Error variances added (14-15, 16-17)	$\chi^2(179)=297.3$ NNFI=.915 CFI=.935 RMSEA=.040 RMSEA 90% CI = .032-.048
1c All items – covariance's removed	$\chi^2(207)=663.1$ NNFI=.718 CFI=.747 RMSEA=.073 RMSEA 90% CI = .067-.079
2a Second order – two factor – no covariance	$\chi^2(197)=475.8$ NNFI=.819 CFI=.846 RMSEA=.058 RMSEA 90% CI = .052-.065
2b Second order – two factor – with covariance	$\chi^2(196)=360.5$ NNFI=.893 CFI=.909 RMSEA=.045 RMSEA 90% CI = .038-.052

## Discussion

The major focus of this investigation was to develop a psychometrically tested assessment that can be used to measure family resilience in a population of older adults. Walsh's (2003, 2006) model of family resilience was used as a template for selecting items that appeared to be indicative of key constructs of family resilience; belief systems, organizational patterns, and communication processes. Because this was a secondary data analysis in which data was previously collected it was necessary to compromise when choosing items to represent the various family resilience constructs and consider items that included individual level language to develop this idea. It was apparent that the items

available were not all perfectly constructed for use at the family level. What was clear is that the items chosen for this investigation all came from previously validated scales with a strong history of validation and testing. Future research on family resilience can expand these findings by testing our current family resilience items in combination with new items to develop the constructs that were not found in this investigation.

To summarize the results, the SAGE dataset was analyzed first with EFA to determine the underlying latent structure of the 25 proposed items. These 25 items were reduced to 22 items which formed eight factors (Self Efficacy, Access to Support Network, Positive Outlook, and Perceived Economic and Social Resources, Spirituality and Transcendence, Relational Stress, Emotional Expression and Communication, Clarity). These eight factors appeared to be robust and replicable. In addition there was good reliability on the total score of all factors, as demonstrated by a strong internal consistency estimate. Theoretically there was some uncertainty as to the composition of some of the established factors, indicating that there may be two levels of resilience at play; family resilience and individual resilience. This was investigated further through the confirmatory factor analytic procedures.

This initial eight factor structure was confirmed through the confirmatory factor analysis, showing a good model of fit when all of the factors demonstrated a relationship or covariance with one another. When some of the covariances were removed between items the model was no longer adequate suggesting that the relationship between factors is important. To further the notion of a two level scale that measures both family and individual resilience, we utilized a second order confirmatory factor analysis which suggested that five of the factors (Access to Support Network, Perceived Economic and



Social Resources, Spirituality and Transcendence, Relational Stress, and Emotional Expression) had a direct relationship with a larger factor of Family Resilience, while three of the factors (Self Efficacy, Positive Outlook, and Clarity) demonstrated a direct relationship with the larger factor Individual Resilience. These two second order factors also covaried with each other. This suggests some level of reciprocal relationship between family resilience and individual resilience.

These analyses would suggest that the developed 22-item assessment, the Multilevel Resilience Measure (MRM), can be used as a reliable measure of family and individual resilience and may be particularly useful in studies with older adults. This instrument has been psychometrically tested and can be found in appendix A. With the development of the MRM, there is the potential for growth in multi-discipline research using the family resilience model. Given that families are repeatedly faced with stressful events and transitions throughout their developmental life stages (Haan, Hawley, & Deal, 2003), the concept of family resilience appears to be an appropriate and innovative theory for understanding why certain families are able to adapt and recover from demanding situations.

### **Clinical Implications**

Clinically, incorporating the concept of family resilience has the potential to guide treatment with families through the many transitions of life (Haan et al., 2003). For example, utilizing the proposed multilevel resilience measure (MRM) in a clinical setting, a clinician would be provided with information about a family's resilience level across a number of constructs (i.e., access to support network, relational stress), as well as individual resilience levels (e.g., positive outlook). With this knowledge the clinician

would have a road map for intervention. If a family scores high on relational stress, and low on access to support network and emotional expression and communication, the clinician has gained useful information about the clients and can begin therapy by working on generating access and communication in the family. Walsh (2006) provides a practical description for working with families across various constructs.

As families grow older and continue through various life-cycle stages they may face difficult circumstances (Friedrich, 2001). Multiple generations can be effected by the process of aging (DeGolia, 2005). For instance, one difficult transition that many families may face is care giving for a member. This responsibility may prove difficult for all members of the family unit and can be considered a systemic issue (Kowal & Johnson, 2003). Working with the concept of family resilience as the foundation for clinical intervention allows for a collaborative and empowering therapeutic relationship (Rolland & Walsh, 2006). Consequently, it is important that we understand how to strengthen resilience in these families and assist all members of the family unit in aging successfully. For this reason, considering aging in accordance with family resilience assists in conceptualizing the challenges families face in various developmental phases and provides direction for working with families to overcome obstacles.

### **Limitations**

There were a number of limitations in this investigation that should be acknowledged. The SAGE sample consisted of primarily Caucasian participants and all other ethnic minorities were underrepresented in comparison to the U.S. population. While there was oversampling of individuals with Hispanic and Asian surnames during the recruitment process, there was still an underrepresentation of ethnic minorities in the

sample. In addition, since the SAGE study was conducted in San Diego County it is unclear if the same results would be generated in a sample of participants from other regions. Future research, including the testing of the Multilevel Resilience Measure should include ethnic minority groups and be conducted in areas outside of San Diego to develop test norms. Since there is currently not a standardized measure of family resilience, it was necessary to utilize 25 items from the SAGE survey that appeared to be theoretically appropriate to test the concept of family resilience. While we carefully selected the items to be representative of the concept of family resilience, we were accepting of individual level language since this was a secondary data analysis. The style of some of the questions may have influenced the belief that some of the factors were better explained by individual resilience than family resilience. Also, since the items used for this investigation were from various instruments they are on different Likert-point scales. While the scale has been included in Appendix A with the questions as originally scaled; future research may want to consider modifying the scaling of the questions to be uniform across the 22 items. Lastly, the Ladder question was originally written to include a picture of a ladder, in the attached MRM the Ladder scale has been modified to a 10-point Likert scale that is represented by a line from lowest to highest to conform to the appearance of other scale items.

### **Conclusion**

Because resilience has become a broad construct that involves several concepts of adaption both during developmental processes and in the face of adversity it is an appropriate fit for working with older adults and their family members. While, individual resilience has been an area of study for many years (Werner, 1971, 1982), family

resilience has emerged more recently (McCubbin & McCubbin, 1996, 1998; Walsh, 1996, 2003) and there have not yet been substantiated measures of family resilience for use with older adults (Ungar, 2011). This study assists in the advancement of a family resilience framework in connection with the notion of individual resilience by introducing The Multilevel Resilience Measure (MRM) that measures two levels of resilience – family resilience and individual resilience – across eight subscales. Overall the findings of this investigation demonstrate that, while in need of further modifications and analyses, the MRM demonstrates potential as a family and individual resilience assessment for use in older adults that can be utilized in future research and eventual clinical application.

**CHAPTER SEVEN**  
**PAPER TWO**  
**AGING AND RESILIENCE:**  
**THE ROLE OF FAMILY AND INDIVIDUAL RESILIENCE IN**  
**SUCCESSFUL AGING**

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## **Abstract**

This paper applied a family resilience lens to the study of successful aging across four domains; self-rated successful aging, psychosocial health, cognitive decline, and physical health. A total of 1,006 community-dwelling older adults from the SAGE study on successful aging were analyzed using structural equation modeling to, first, understand the predictive power of individual and family resilience on outcomes of successful aging, and then, to test the cause and effect relationship of individual and family resilience on aging as well as the interdependence relationship between individual and family resilience. Our results showed individual and family resilience operate as interdependent concepts and produce unique predictive validity for measures of successful aging. These findings are in line with previous literature that suggests the importance of ecological and developmental perspectives that integrate both individual and family resilience. Understanding aging from a family resilience lens assists in recognizing the transitions, adaptations, and recovery processes experienced by families as they age and provides direction for conceptualizing those changes.

## Introduction

During the last 100 years, the human lifespan has doubled due in part to advances in health care. Currently one in eight Americans are over 65 years of age. In the next two decades that number will continue to grow exponentially (Moody, 2005). At present there are over 40 million individuals over the age of 65 living in the United States and by 2030 that number is expected to grow to 72.1 million (Administration on Aging (AOA), 2010). This rapidly shifting distribution of older adults as well as the appearance of various biopsychosocial issues in this population is grounds for the assertion that “aging is the number one public health issue faced by the developed world” (Depp, Vahia, & Jeste, 2010, p. 528). Because aging can be considered a developmental process that has the ability to put stress on the family unit, the family resilience framework emerges as a fitting theoretical lens to conceptualize the process of aging (O’Brien, 2005; Walsh, 2006).

Over the course of the coming years it is important that attention is given to family research identifying the reasons why older adults do or do not age successfully and the reciprocal relationship on the family. Earlier research on the aging process concentrated on the way that disease and disability affect older adults (Strawbridge & Wallhagen, 2003). More recently, research has begun to focus on successful aging across multiple domains (Reichstadt, Depp, Palinkas, Folsom & Jeste, 2007). To date, there has been scant literature on the family’s interaction in the aging process. Over the last 50 years, numerous studies have attempted to define successful aging (e.g., Depp et al., 2010; Rowe & Kahn, 1987); unfortunately, there still does not appear to be a consensus on the optimum definition of successful aging (Depp & Jeste, 2006; Pruchno et al., 2010).

It is believed that Cicero (106-43 B.C.) a Roman philosopher and statesman was the first to think about aging as “successful” rather than a deficit in life (Baltes & Baltes, 1990). In Cicero’s work he argued that as one grows older they do not necessarily decline but rather live life productively and positively. Much later Rowe and Kahn (1987) proposed that the various age-related changes that affect older adults are in fact “normal”, and as such physiological and psychological declines could be considered unnecessary in the aging process. Their goal was to break free from the notion that disease and aging are positively correlated and cannot exist outside of one another (Strawbridge, Wallhagen, & Cohen, 2002). As defined in these terms, a larger percentage of older adults can be categorized as successful agers.

As literature on successful aging advances, Baltes and Baltes (1990) suggest that in order to resolve the issue of what it means to age successfully one must invoke a systemic view. The most widely established model for research on successful aging is the multi-criteria approach, which encompasses specific outcome criteria: length of life, biological health, mental health, cognitive efficacy, social competence and productivity, personal control, and life satisfaction (Baltes & Baltes, 1990; Rowe & Kahn, 1987). Similarly, Phelan, Anderson, LaCroix, and Larson (2004) found through qualitative means that older adults’ defined successful aging as a multidimensional construct that included 13 attributes which fell into four dimensions: psychological, social, functional, and physical health. These findings are directly in line with the systemic, multi-criteria approach suggested by Baltes and Baltes (1990). While this view is more inclusive of a holistic approach it does not develop at the family level. Expanding the current literature to consider how family resilience relates to multidimensional constructs of successful



aging provides a foundation for understanding aging as a family issue that reciprocally affects everyone in the family system. From this viewpoint successful aging is defined and can be measured through the combination of self-rated successful aging, psychosocial health, cognitive decline and physical health.

This study tracks these outcome measures, and uses individual and family resilience concepts to predict these outcomes. In addition, the use of both individual and family resilience concepts within the study will help future researchers understand the interdependent role between individual and family resilience. While individual and family resilience are more than likely interdependent social ecological levels of the broader idea of resilience (Black & Lobo, 2008; Ungar, 2011), the current literature on family resilience has yet to explore the differential impact of individual and family resilience on unique outcomes. For example, do both individual and family resilience predict cognitive abilities in later stages of life, or is it individual resilience specifically that is most directly involved in the continued cognitive health of successful agers? This depth of understanding on resilience will help researchers, policy makers and practitioners effectively focus in on the distinct resilience concepts in relationship to specific outcomes of interest.

## **Resilience**

### ***Individual Resilience***

Theoretically, the concept of individual resilience is one's capacity to endure and recuperate in the face of adversity; this term appears to be directly related to the resources and connections we have in our lives (McMurray, Connolly, Preston-Shoot, & Wigley, 2008). The original notion of individual resilience was brought about by psychiatrists and

developmental psychologists who were interested in understanding how stressful life events had the potential to influence a child's well-being and development (Hooper, 2009). Additionally, much of the literature on individual resilience focuses primarily on children and their ability to endure severe trauma during childhood and still develop into stable and secure adults (Hawley & DeHaan, 1996; Werner, 2000).

Early on in the study of individual resilience, research focused on how children who experienced similar stressors did not necessarily have the same outcomes, which was in contrast to the previous deterministic theories of development (Walsh, 2002). A major extension of this early work was the notion of positive or protective factors (Bartley, Head & Stansfeld, 2007) which is the idea that constructive attributes, built during one stage of life, could be used in further stages of life for enduring hardship. Similarly, Masten (2001) suggested that if development is healthy, and not delayed even in the face of adversity; then the risk of developmental issues are typically prevented. In contrast, when there are ongoing stressors that affect the natural developmental process, ongoing developmental problems are much more likely. In addition to the developmental focus of much of the individual resilience theories, some theories have argued that resilience can be bolstered when the individual has emotional ties that are affectionate, and promote autonomy and trust in the child (Werner, 2000). From these perspectives of individual resilience, resilience is the developmental process and associated accumulation of protective factors that assist in reducing the negative long term effects of difficult life experiences (Luthar, Sawyer, & Brown, 2006).

While much of the individual resilience research focuses on children and early life stages of development, over the years, there have been a number of researchers that have

focused on the importance of individual resilience in the aging process (e.g., Harris, 2008; Lamond et al., 2009). Similar to much of the individual resilience focus, aging can be considered a part of the developmental process, which requires functioning and some level of independent thinking. Additional to the protective factors lens addressed above, aging resilience literature includes a large focus on the process of adaptation (Baltes & Lang, 1997, McCubbin & McCubbin, 1996). Also, similar to the resilience literature around earlier stages of development, the aging resilience research advocates a focus on the normal and healthy processes of development (Harris, 2008). As such Lamond et al. (2009) suggest that older adults, with higher levels of resilience, have higher life satisfaction even in spite of physical disability.

### *Family Resilience*

While individual resilience has been cited as a positive correlate to successful aging in several studies (e.g., Montross et al., 2006; Wagnild & Young, 1993), there is no literature connecting the family resilience framework to aging. Understanding aging through a family resilience lens has the potential to assist families in facing aging related challenges with a shared belief system, connectedness and effective communication. Expanding beyond the resilience of the individual, a developmental perspective adds an understanding of the role of the family system and family resilience (Walsh, 2006). When life changes on schedule, in harmony with the projected life-cycle development, the family experiences reduced stress and greater well-being in contrast to when transitions happen outside of the normal life-cycle, such as dementia or disability of a parent (Dore, 2008). These events have the potential to cause undue stress on the family (Cook, Cohler, Pickett, & Beeler, 1997). Illness or disability in one member can cause multigenerational

issues within the entire family system, such as changing family organization or discord in family beliefs. In addition, the family may feel influence from larger social systems they interact with such as doctors, hospitals, and insurance agencies. It is through these experiences that family resilience is of the utmost importance.

The family resilience lens has the ability to expand our knowledge about aging, by integrating a family level concept that seeks to understand more about how social support and relationships assist in aging successful. Black and Lobo (2008) proposed that family resilience models assist in seeing family strengths in contrast to deficiencies. The concept of family resilience assists researchers in seeing families as embodying both universal qualities and diverse strengths and weaknesses (Hooper, 2009; Rolland & Walsh, 2006). It allows the researcher to consider how families remain healthy and functional through all of life's transitions. Difficulties can cause family members to recognize the value in their family and provide meaning for change. Problems experienced by the family have the potential to strengthen the family as they draw together on common ground to struggle and overcome the obstacles as a unified team (Black & Lobo, 2008). Family resilience literature conveys the possibility of relational transformation, strengthening of family bonds, and development of resources when faced with life's challenges (Rolland & Walsh, 2006).

Originally, McCubbin and McCubbin (1996) developed the "Resiliency Model of Family Stress, Adjustment and Adaptation", with five assumptions: 1) families will experience hardship and stress at different points within their family life cycle, 2) families are able to overcome stress and difficulty resulting from family crisis through developed competencies and strength, 3) during episodes of family stress and crisis,

families benefit from connections within their community and relationship outside of the family unit, 4) families naturally look for meaning and shared perspective to assist in moving forward after being faced with difficulty, and 5) families attempt to restore homeostasis after major stressors and crises. This model primarily focuses on protective factors that allow families to adjust and adapt during hardship.

Black and Lobo (2008) suggest that resilient families commonly demonstrate a number of protective factors, “a positive outlook, spirituality, family member accord, flexibility, communication, financial management, time together, mutual recreational interests, routines and rituals, and social support” (p. 37). From earlier perspectives on resilience, resilience has been defined as “the ability of a family to respond positively . . . and emerge from [a] situation feeling strengthened, more resourceful, and more confident than its prior state” (Simon, Murphy, & Smith, 2005, p.427). In contrast to previously discussed models and in accordance with a developmental view, Conger and Conger (2002) suggest that resilience is related to demanding life transitions and the generated response to these changes. From this perspective, family resilience is directly related to a family’s stage of development and closeness of the family system (Orthner, Jones-Sanpei, & Williamson, 2004). Seccombe (2002) suggest that resilient families provide emotional support for each other and have specific expectations for their children. In addition, they have common core values, predictable routines and shared experiences.

Walsh (1996) added to these earlier definitions by focusing the concept of resilience away from adversity and behavioral outcomes to the process of building resilience. Walsh’s theory of resilience remains focused on crucial interactions that assist families in enduring and recovering from difficulties they experience. Crucial to this

theory, families encounter a range of life stressors, and resilience is built by interacting with these ecological stressors. At times resilience comes as a result of adversity but can also arise as part of developmental processes. Difficulties and crises have the potential to make individuals and families stronger as they forge through the challenges; “effective family processes matter most for healthy functioning and resilience” (Walsh, 2006, p. 17).

Walsh’s formulation of family resilience (2002, 2003) was the basis for the measure of family resilience used in this study. Walsh (1996, 2003) identifies fundamental processes that facilitate higher levels of resilience in families, explaining the key to family resilience as having three domains: family belief systems, organizational patterns, and communication processes. Family belief systems are illustrated through making meaning of adversity, positive outlook, and spirituality and transcendence. Organizational patterns are described as encompassing flexibility, connectedness, and social and economic resources (Walsh, 2003). Communication/problem solving is characterized through clarity, open emotional expression, and collaborative problem solving (Walsh, 2003). Walsh’s (2003, 2006) model for family resilience embodies the systemic interplay often seen in families during various developmental processes and provides a detailed structure for clinical intervention. In turn, the concept of family resilience provides a potentially useful framework for research and clinical practice. For the purpose of this investigation, resilience can be defined as the ability to maintain healthy functioning through the process of life development. While not all families face high levels of adversity and crises within their lifetime, the developmental process of aging can often be considered challenging and a period of transitions for the family unit.

Families who have higher levels of resilience are able to thrive regardless of diverse life circumstances. This family view of resilience has the potential to fortify both the family and individual. The family resilience framework allows the researcher to consider how families remain healthy and functional throughout every life-cycle.

## **Successful Aging**

### ***Outcomes for Successful Aging***

As previously stated, for the purpose of this investigation successful aging has been defined as the integration between self-rated successful aging, psychosocial health, cognitive decline and physical health. Self rated successful aging is a subjective rating of successful aging that allows participants' to subjectively rate their own level of successful aging. Combining both subjective and objective measures of successful aging will produce a more holistic outcome measure (Montross et al., 2006; Strawbridge et al., 2002), and therefore provide a richer context for the family resilience construct.

### **Self-Rated Successful Aging**

Self rated successful aging (SRSA) has become a widely used tool to gain information about participants' subjective beliefs about successful aging (e.g., Thompson et al., 2011). Participants are generally asked to rate their subjective estimation of their own successful aging on a 10-point Likert scale, 1 – being not aging well and 10 – being aging successfully (Montross et al., 2006). Strawbridge et al. (2002) measured SRSA in one question as well by asking participants “how strongly they agree or disagree on a four point Likert scale with the statement ‘I am aging successfully (or aging well)’?” (p. 728). Strawbridge et al. (2002) compared SRSA with Rowe and Kahn's (1987) three

dimensional model of successful aging. They found that 50.3% of individuals rated themselves as successful agers, in contrast to 18.8% of older adults who would be classified as aging successfully from Rowe and Kahn's theoretical perspective. They established that chronic conditions and functioning were correlated to both definitions of successful aging; yet there were still numerous people who were living with chronic conditions or disability who rated themselves as successful agers. This illustrates the differential outcomes of subjective and objective measures, and the necessity to use both the study of successful aging.

### **Cognitive Decline**

The concept of cognition is an expansive designation that incorporates learning and memory, how we process information, how we respond to new details and apply knowledge, along with how we manage our daily routine (Fiocco & Yaffe, 2010). Cognitive health is a widely used construct in the study of successful aging in older adults (e.g., Palmer & Dawes, 2010; Seeman, Lusignolo, Albert, & Berkman, 2001). It has been suggested that while older adults show a decline in cognitive ability, there appears to be more variance in individual scores suggesting that some individuals are better able to maintain higher levels of cognitive functioning into their later life (Hendrie, Purnell, Wicklund, & Weintraub, 2010). When measuring cognition in older adults most research investigations concentrate on variables including: attention, working memory, executive functioning, episodic memory, language, processing speed, and social cognition. It has been noted that in terms of successful aging, older adults may have higher crystallized abilities than fluid abilities; suggesting that older adults are not only able to continuously use skills, knowledge and experiences that they have learned



throughout their lifetime but these abilities may actually improve over time (Palmer & Dawes, 2010). In contrast, processing speed (or the speed of thinking) appears to be most affected by the process of aging; this includes reaction time (Palmer & Dawes, 2010).

It appears that cognitive functioning also has an important relationship with other psychosocial determinants of aging. Seeman et al. (2001) found that good cognitive functioning influences one's ability to retain their independence and increases quality of life. In accordance, Fiocco and Yaffe (2010) convey that individuals with higher cognitive capacity are better able to make decisions, plan and communicate, which they agree affects their overall autonomy and quality of life. In the MacArthur study of successful aging (Berkman et al., 1993), individuals who showed higher levels of depression had a higher occurrence of cognitive impairment over a seven-year period (Chodosh, Kado, Seeman, & Karlamangla, 2007). This is evident of the undeniable relationship between cognitive health and psychosocial health.

### **Psychosocial Health**

Psychosocial health is an important area of research in regards to successful aging. This construct in older adults typically includes a wide-range of variables including; emotional intelligence, emotional regulation, and absence of psychiatric illness and negative affect (Depp & Jeste, 2010). Other important concepts related to psychosocial health include resilience, social relationships, self-efficacy, and emotional regulation, as well as well-being and quality of life (Charles & Horwitz, 2010; Wagnild, 2003). These have all been identified as important to successful aging in older adults (Hendrie et al., 2010). Social and environmental factors also need to be taken into consideration within the context of psychosocial health. As touched on above, there

appears to be a direct connection between cognitive health and psychosocial health in older adults (e.g., Chodosh et al., 2007). Older adults tend to make cognitive evaluations that influence psychosocial-related outcomes. For illustration, older adults make active decisions to focus on more positive stimuli as a way of increasing their overall well-being and preserving important relationships (Charles & Horwitz, 2010).

Depressive symptoms and other mental health issues appear to undermine psychosocial health in older adults. Chodosh et al. (2007) suggest that depressive symptomology throughout the lifespan is predictive of cognitive decline as an older adult. These findings appear to apply to both men and women. Social support also appears to play an important role in both psychosocial and physical health in older adults.

Individuals with depression report less social support and may detach from their network of friends and have increased negative interactions with their family members (Gurung, Taylor, & Seeman, 2003). This lack of social support can reduce the interaction an individual has with others which can directly affect their effective cognitive processing. Bruce, Seeman, Merrill, and Blazer (1994) found that individuals who experience depressive symptoms had an earlier onset of physical disability. They suggest that this may be partially due to the fact that depressive symptoms make physical activity more challenging and, in turn, weaken physical health prevention.

From a psychosocial health perspective, social ties have a direct correlation with health outcomes; research suggests that older adults with close personal connections live longer and report improved physical and mental health (Charles & Horwitz, 2010). One's social support network can operate as a resource for companionship and support. Those individuals whom one feels close to provide a sense of belonging and attachment; this

secure base allows individuals to feel that they are able to be themselves and will have support when needed (Charles & Horowitz, 2010). Furthermore, older adults who feel useful to friends and family report a decrease in disability and tend to live longer than those who rarely feel useful to others (Gruenewald, Karlamangla, Greendale, Singer, & Seeman, 2007). Unger, McAvay, Bruce, Berman, and Seeman (1999) found a higher incidence of functional decline and mortality in men who were widowed or socially isolated compared to their female counterparts. In addition, they suggest that social support is more valuable for older adults in poorer health because they are able to get assistance with activities of daily living as well as emotional support for their illness and/or debility. In addition to social support, there appears to be a positive correlation between spirituality and successful aging across multiple indicators of health (Blazer & Meador, 2010). It is apparent that being active in a faith community provides a higher level of social support in one's life and is also considered part of a family belief system from a family resilience lens (Walsh, 2003). Older adults often see their faith community as a local family that can assist them in times of need. Blazer (2000) conveys that older adults who are active in a religious community report lower levels of depression. He attributes the decrease in depression to being engaged with others, sharing one's story, and finding meaning within the community.

### **Physical Health**

While physical health is not the only determinant of successful aging it is indeed important from a biopsychosocialspiritual approach. Moreover, physical health is the most common measure of successful aging. Moderate debility can cause considerable reductions in an individual's normal activities (Rowe & Kahn, 1997). When older adults

are unable to participate in their daily activities, whether it is their activities of daily living, running errands or doing recreational activities, it can have disastrous effects on their entire person. Understandably, aging is the number one cause for disability and eventual death in this country. Aging causes damage to functioning over time as well as the establishment of disease (Cutler & Mattson, 2006). Older adults who are in good health when they enter later life are more likely to remain in good health into their later years. In a study of 60 older adults aged 70 to 101 years, Knight and Ricciardelli (2003) found that while other variables (i.e., close relationships, personal growth) were important, over half of all participants noted health and activity as the most important predictors of successful aging. Taking this into consideration, the bidirectional relationship between physical health and other measures of successful aging is undeniable. Consequently, it makes sense to look at successful aging through a biopsychosocialspiritual lens that reflects on the importance of relationships and other factors in the aging process.

### **Successful Aging and Family Resilience**

Through the lens of family resilience aging is a normal developmental process which can be accomplished with success, but also through the lens of family resilience, when this developmental process is stalled or in some way challenged, stress and conflict can evolve within the family system. For some families, the ability to adapt and come together around these stressor will inevitable build resilience (Walsh, 2003), whereas the inability to adapt and move through these developmental stages will reduce some families resilience. Accordingly, this study hypothesizes that families with higher levels of

resilience will present less physical, psychological and cognitive declines, in comparison to families with lower levels of resilience.

While this study hypothesizes the strong predictive relationship of family resilience, it is still somewhat unclear as to how family resilience affects positive outcomes of the aging process. For example, is family resilience an indirect effect of aging through its ability to bolster individual resilience (Wagnild & Young, 1993), or is resilience, as stated by Ungar (2011) more of an interdependent construct, where specific individual, family and larger social ecological factors interact with each other in a systemic and cyclical fashion; rather than a linear top down effect. In this regard this study attempts to address two specific aims. First, this study will fit a model that uses both individual and family resilience factors to predict outcomes of successful aging. The quality of this model fit will either provide support for the inclusion of a family resilience lens, or the lack of support. The second aim is to test the cause and effect relationship of individual and family resilience on aging as well as the more complex interdependence relationship between individual and family resilience.

## **Methods**

### ***SAGE Study Population***

The Successful Aging Evaluation (SAGE) study (Jeste et al., 2012) developed by the University of California, San Diego (UCSD) department of geriatric psychiatry and the Stein Institute for Research on Aging, was used for this study. The SAGE study is a five year longitudinal study that utilizes a prospective cohort design to measure age differences as well as age changes. For the purpose of this investigation we used data collected during year one of the SAGE study; second year data is still to be collected. The

participants were English speaking men and women, living in San Diego County, between the ages 50 and 99 years old who were capable of providing informed consent and physically and mentally able to participate in a phone interview and complete a paper and pencil mail survey. Participants were excluded if they had a diagnosis of dementia, resided in a nursing home, required daily skilled nursing care, had a terminal diagnosis or were currently receiving hospice care.

The sample population was identified and recruited by California Survey Research Services (CSRS) (a data collection and data processing company with experience in commercial, academic and government research data collection). An initial group of 3,000 people living in San Diego County were selected by CSRS. Using listed telephone numbers obtained from Scientific Telephone Samples of Foothill Ranch, California; these potential participants were contacted and 1,300 individuals completed the telephone interview, which consisted of demographic information and screening for mental and cognitive health. After completing the telephone interview, a research team from UCSD's division of geriatric psychiatry and the Stein Institute of Research on Aging sent subjects an "at-home" survey to complete. The at-home survey included questions related to participants' demographic information, attitudes towards aging, general health and health behaviors, family history, memory and thinking abilities, outlook on life, mental health, religious or spiritual views, perceived social support, physical, social, and sexual activities, and lifetime satisfaction. The survey took approximately one to two hours to complete.

### *Measures*

For the purpose of this investigation, the cognitive failures questionnaire (CFQ; Broadbent, Cooper, FitzGerald & Parkes, 1982), the medical outcomes study 36-item short form (SF-36; Ware & Sherbourne), the multilevel resilience measure (MRM; Martin, Distelberg, & Jeste, in progress), one question about self rated successful aging, as well as sociodemographic variables were used in the analyses. These instruments were chosen to characterize family and individual level resilience, self rated successful aging, psychological functioning, physical functioning, and cognitive decline. Table 9 provides the descriptive statistics and correlations for all of the items used within this investigation.

Table 9

*Descriptive statistics and correlations.*

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Gender	-.01	-										
3. Physical functioning	-.39**	.13**	-									
4. Role physical	-.32**	.06	.62	-								
5. Role emotional	-.13**	.10**	.26**	.41**	-							
6. Energy/vitality	-.15**	.05	.52**	.59**	.38**	-						
7. Emotional health	.10**	.11**	.20**	.30**	.49**	.52**	-					
8. Social functioning	-.12**	.10**	.48**	.55**	.44**	.52**	.46**	-				
9. General health	-.11**	.02	.49**	.52**	.33**	.62**	.45**	.47**	-			
10. Bodily pain	-.11**	.09**	.52**	.55**	.28**	.54**	.35**	.49**	.51**	-		
11. CFQ total score	.13**	-.05	-.20**	-.33**	-.34**	-.41**	-.43**	-.31**	.31**	-.26**	-	
12. Usually expect the best	-.06	-.08*	.09**	.13**	.15**	.20**	.25**	.17**	.22**	.11**	-.21**	-
13. Hopeful about my future	-.05	-.03	.13**	.14**	.22**	.29**	.37**	.23**	.30**	.13**	-.24**	.36**
14. Expect more good things than bad	-.06*	-.01	.14**	.12**	.15**	.22**	.27**	.18**	.27**	.15**	-.11**	.28**
15. Before criticizing, imagine how I would feel	.03	-.11	.00	-.02	.03	-.03	.05	.02	.04	-.02	-.10**	.08**
16. See things from another point of view	-.13**	.01	.12**	.07*	.09**	.10**	.10**	.05	.10**	.05	-.23**	.09**
17. Consider all pieces of information	-.10**	.04	.08*	.03	.06	.08*	.13**	.08*	.10**	.03	-.13**	.11**
18. Not comforted another	-.08*	-.14**	.09*	.11**	.12**	.12**	.16**	.12**	.14**	.02	-.23**	.18*
19. When people talk, wish they would leave	-.03	-.08**	.08*	.10**	.10**	.17**	.19**	.08**	.15**	.12**	-.26**	.15**
20. Able to adapt to change	.03	-.04	.16**	.12**	.19**	.23**	.34**	.19**	.24**	.15**	-.23**	.15**
21. Deal with whatever comes my way	-.06	.04	.19**	.18**	.23**	.30**	.29**	.23**	.34**	.18**	-.35**	.19**
22. Bounce back after hardship	.01	.01	.22**	.20**	-.26**	.33**	.43**	.25**	.37**	.24**	-.31**	.19**
23. Religious person	.07*	-.11**	-.03	-.02	-.02	.07*	.11**	.03	.07*	.00	.00	.12**
24. Spiritual person	-.14**	-.23**	.06	.03	-.03	.05	.04	.03	.09**	-.01	-.02	.20**
25. Loved and cared for	.09**	-.06	.00	.05	.13**	.12**	.28**	.11**	.111**	.03	-.12**	.12**
26. Listened when you need to talk	-.04	-.09**	.07*	.12**	.12**	.12**	.20**	.13**	.13**	.05	-.14**	.13**
27. Help with daily tasks	.12**	.05	-.16**	-.12**	-.03	-.06*	.07*	-.08*	-.05	-.08*	.02	.03
28. Advice or information	.04	-.02	-.13**	-.11**	-.06	-.06	-.01	-.10**	-.08*	-.10**	.15**	.02
29. How often do you feel lonely	-.07*	.19**	-.17**	.24**	.34**	.25**	.44*	.27**	.26**	.18**	-.26**	.09**
30. Critical of what you do	.12**	-.05	.04	.09**	.17**	.14**	.25**	.18**	.12**	.12**	-.21**	.10**
31. Too many demands on you	.24**	.03	-.03	.03	.09**	.04	.18**	.10**	.06	.07*	-.14**	.03
32. Ladder scale question	.04	.14**	.13**	.17**	.21**	.20**	.30**	.17**	.23**	.19**	.24**	.17**
33. Satisfaction with finances	.23**	.08*	.07*	.06	.16**	.20**	.32**	.17**	.22**	.15**	.16**	.13**
34. Self rated successful aging	.11**	.02	.27**	.24**	.19**	.35	.37**	.28**	.43**	.29**	-.17**	.16**
Mean	3.30	.51	71.07	60.68	82.51	62.78	82.57	85.76	71.95	68.12	29.36	3.50
SD	1.26	.50	26.26	40.81	32.39	18.76	13.53	20.63	18.69	23.33	11.73	.88



Table 9

*Descriptive statistics and correlations. (Cont'd)*

Variables	13	14	15	16	17	18	19	20	21	22	23	24
13. Hopeful about my future	-											
14. Expect more good things than bad	.35**	-										
15. Before criticizing, imagine how I would feel	.09**	.05	-									
16. See things from another point of view	.15**	-.01	.10**	-								
17. Consider all pieces of information	.14**	.10**	.34**	.12**	-							
18. Not comforted another	.07*	.03	.10**	.14**	.08*	-						
19. When people talk, wish they would leave	.13**	.03	.08*	.17**	.02	.28**	-					
20. Able to adapt to change	.20**	.15**	.12**	.14**	.14**	.19**	.15**	-				
21. Deal with whatever comes my way	.29**	.17**	.13**	.14**	.21**	.20**	.17**	.63**	-			
22. Bounce back after hardship	.28**	.20**	.12**	.13**	.16**	.20**	.17**	.49**	.56**	-		
23. Religious person	.10**	.11**	.07*	-.10**	.03	.03	.07*	.02	.04	.05	-	
24. Spiritual person	.14**	.11**	.10**	.03	.09**	.11**	.13**	.09**	.09**	.07*	-.59**	-
25. Loved and cared for	.14**	.11**	.12**	.08*	.09**	.18**	.12**	.15**	.15**	.16**	-.14**	-.10**
26. Listened when you need to talk	.13**	.11**	.06	.07*	.10**	.22**	.11**	.13**	.12**	.16**	-.08*	-.11**
27. Help with daily tasks	.07*	.03	.00	-.07*	.07*	-.09	-.04	.02	.01	.05	-.07*	-.04
28. Advice or information	.01	.01	.03	-.04	.03	-.00	-.07*	-.01	-.04	-.02	-.05	-.02
29. How often do you feel lonely	.23**	.13**	.01	.09*	.12**	.11**	.10**	.17**	.14**	.23**	-.03	.01
30. Critical of what you do	.08*	.05	.05	.09**	.04	.15**	.13**	.11**	.13**	.12**	.02	.00
31. Too many demands on you	.06	.04	.10**	-.02	.05	.08*	.08*	.03	.17*	.10**	.04	.06
32. Ladder scale question	.21**	.19**	.03	.13**	.11**	.05	.01	.16**	.19**	.16**	.04	-.02
33. Satisfaction with finances	.19**	.15**	.09**	.04	.08*	.04	.10**	.18**	.18**	.18**	-.03	.05
34. Self rated successful aging	.25**	.21**	.12**	.08	.13**	.12**	.05	.28	.31**	.37**	-.09**	-.07*
Mean	3.99	4.01	3.80	3.13	4.03	3.72	3.18	3.22	3.19	3.32	2.61	2.39
SD	.79	.87	.93	1.13	.90	1.16	1.19	.84	.77	.75	.98	1.00

Table 9

*Descriptive statistics and correlations. (Cont'd)*

Variables	25	26	27	28	29	30	31	32	33	34
25. Loved and cared for	-									
26. Listened when you need to talk	.55**	-								
27. Help with daily tasks	.25**	.28**	-							
28. Advice or information	.28**	.33**	.52**	-						
29. How often do you feel lonely	.19**	.14**	.08*	-.02	-					
30. Critical of what you do	.11**	.09**	-.10**	-.14**	-.18**	-				
31. Too many demands on you	.08*	.10**	-.04	-.12**	.12**	.40**	-			
32. Ladder scale question	.13**	.11**	.11**	.00	.25**	.08*	.04	-		
33. Satisfaction with finances	.11**	.09**	.07*	.01	.18**	.16**	.10**	.44**	-	
34. Self rated successful aging	.14**	.12**	.06*	-.04	.22**	.09**	.12**	.27**	.30**	-
Mean	2.75	2.54	1.90	1.70	2.09	2.12	2.23	3.80	3.93	4.31
<i>SD</i>	.57	.68	1.10	.99	.95	.83	.88	.77	1.03	.76

\*  $p < .05$ . \*\*  $p < .01$  (two-tailed)

### **Cognitive Failures Questionnaire**

The Cognitive failures questionnaire (CFQ; Broadbent et al., 1982) was designed as an indicator of general cognitive functioning that measures memory, perceptions and lapses in motor skills in everyday life (Wagle, Berrios, & Ho, 1999). The CFQ is a 25 item questionnaire where participants respond to their functioning over the previous six months on a 5-point Likert scale. Wallace (2004) reports an internal consistency of 0.96 and a four factor structure that includes distraction, memory, blunders and names.

### **Medical Outcomes Study 36-item Short Form**

The Medical Outcomes Study Short Form-36 (SF-36; Ware & Sherbourne, 1992) is comprised of 36-items that produce an eight scale profile of health and well being. The SF-36 yields physical and mental health composite summary scores that can be utilized as outcomes for physical and mental health. The SF-36 has been included in over 1,000 publications to date and is considered a psychometrically sound measure of physical and mental health (Ware, 2000.). For the purpose of this investigation, the four physical health subscales, physical functioning, role-physical, bodily pain, and general health were used to represent physical health. The four mental health subscales, vitality, social functioning, role-emotional, and mental health were representative of mental health. Factor analysis confirms that the physical health and mental health factors account for 80-85% of variance across the eight subscales. Reliability statistics for the physical and mental health scores typically exceed 0.90 (Ware, 2000).

### **Multilevel Resilience Measure**

The multilevel resilience measure (MRM; Martin et al., In process) is a 22 item instrument that measures family resilience and individual resilience. Walsh's formulation of family resilience was the basis for the development of this measure of family resilience. This measure was designed with five factors for family resilience: access to support network, perceived economic and social resources, relational stress, spirituality and transcendence, and emotional expression and communication and three factors for individual resilience: self-efficacy, positive outlook, and clarity. These eight factors appeared to be robust and replicable. In addition there was high reliability on the total score of all factors, as demonstrated by good internal consistency estimate of .72.

### **Self-Rated Successful Aging**

Participants are asked to rate themselves in terms of "successful aging" on a scale of 1 to 10 (1=least successful to 10=most successful). The survey question asks specifically: Using your own definition, where would you rate yourself in terms of successful aging? (circle one number only).

### **Sociodemographic Characteristics**

Age, gender, ethnicity, income, work status, alcohol use, and smoking use were included in the pre-analysis screening to compare missing and non-missing groups. Age, gender, income, education, and smoking use were considered as control variables having a direct effect on outcome variables in tested measurement models.

### *Sample Characteristics*

A total of 1,006 community-dwelling older adults – individuals who are not in nursing homes or assisted living facilities – provided sufficient information to be considered for inclusion in this analysis. Respondents had a mean age of 77.35 years ( $SD = 12.16$ , range=51–99 years), and 51.4% were male. The sample was 80.7% Caucasian, 11.7% Hispanic, 5.3% Asian, 1.3% African American, 0.2% Native American, and 1% of other or unknown ethnicities. The majority of respondents were either presently married (48.8%) or widowed (31.5%) with 13.5% divorced or separated, 3.2% never married, and 2.3% in a marriage-like (partner or cohabitating) relationship. With respect to highest level of education, 37.6% of respondents had an associate's degree, some college or vocational school, 28.4% had professional degrees (i.e., post-graduate, master's degree, doctorate degree), 15.4% were college graduates, 13.8% completed high school or GED, and 4.2% did not complete high school. Table 10 provides a summary of demographic data associated with this sample.

Table 10

*Demographics of SAGE participants.*

Variables	No. (%) of subjects
Overall	1,006
Age (years)	
50-59 years	122 (12.1%)
60-69 years	162 (16.1%)
70-79 years	193 (19.2%)
80-89 years	347 (34.5%)
90+ years	183 (18.2%)
Gender	
Female	488 (48.6%)
Male	518 (51.4%)
Ethnic background	
Caucasian	813 (80.7%)
African American	13 (1.3%)
Hispanic	112 (11.1%)
Asian	53 (5.3%)
Native American	2 (.2%)
Other	10 (1.0%)
Marital Status	
Never Married	32 (3.2%)
Divorced/Separated	135 (13.4%)
Widowed	317 (31.5%)
Presently married	491 (48.8%)
Living in a marriage-like relationship	23 (2.3%)
Education	
≤ 11 years	42 (4.2%)
High school diploma or GED	139 (13.8%)
Some college or vocational training	319 (31.7%)
Bachelor's degree	155 (15.4%)
Some post-graduate or professional	95 (9.4%)
Graduate degree	192 (19%)
Family Income (annual)	
≤ \$10,000	19 (1.9%)
\$10,000-\$19,999	65 (6.5%)
\$20,000-\$34,999	136 (13.5%)
\$35,000-\$49,000	133 (13.2%)
\$50,000-\$74,999	163 (16.2%)
\$75,000-\$99,000	101 (10.0%)
\$100,000-\$149,000	112 (11.1%)
\$150,000+	75 (7.4%)
Do not know	30 (3.0%)

### Analyses

Statistical analyses were carried out using SPSS 18 and EQS 6.2 (Bentler, 2006).

Data was cleaned and screened prior to analyses being completed to detect and repair any

problems. Guidelines for preparing and screening multivariate data from Tabachnick and Fidell (2007) were followed. This included testing univariate assumptions of independences, normality as well as linearity. The data was also evaluated for missing data patterns and missing data was evaluated for missing at random, completely at random and missing systematically (Cohen, Cohen, West & Aiken, 2003). Three hundred forty six individuals (34%) were missing data on at least one of the variables used in these analyses. The missing and non-missing groups were compared across demographic variables (i.e., age, gender, gender, ethnicity, income, work status, alcohol use, smoking use) and no significant differences between groups were found.

The analysis process begins by fitting a base or measurement model. This ability to create a well fitting measurement will serve as the foundation for specific aim 2, but also provides insight in the first specific aim of this study.

## **Results**

To address the first specific aim (determine whether family resilience could be used to predict outcomes of successful aging) we began by considering the direct affect of the latent resilience factors on the outcome variables of successful aging. We assessed the adequacy of our measurement models with model fit, model comparison, and model parsimony indicators. Model of fit was first measured by the relative chi-square ratio ( $\chi^2/df$ ) and Akaike Information Criterion (AIC). Conservative estimates suggest a relative chi-square of less than three for a good model fit (Garson, 2004). In addition, the Bentler-Bonett non-normed fit index (NNFI) and comparative fit index (CFI) that compare a proposed model with a null or baseline model (Raycov & Marcoulides (2006) were utilized for model comparison. Values range from zero to 1.00 and a value greater than

.90 is considered necessary for a well-fitting model. Lastly, the root mean-square error of approximation (RMSEA), a badness-of-fit index of model parsimony that indicates model fit using  $df$  was examined. RMSEA less than .05 designates good fit (Byrnes, 2006; Kline, 2011).

The measurement model included the second order factor structure of individual and family resilience presented in Martin et al. (In process) and the four outcome variables of successful aging (physical health, psychological health, self rated successful aging, and cognitive decline). In addition, no control variables were used in this first measurement model. Fit statistics for this model suggested a misspecification, with values showing less than adequate fit, ( $\chi^2 = 1624.12$ ,  $df = 446$ ): NNFI=.797, CFI=.817, RMSEA=.061 with a 90% CI between .058 and .065. At this point the control variables were added for age, gender, income, education, and smoking (specifically these controls were regressed onto the outcome indicators). When evaluating these control variables it was noted that only age and income variables had significant relationships with the outcome variables and were retained in the proceeding models. In addition, modifications were identified through the Lagrange Multiplier (LM) test. Conceptually appropriate modifications were retained and included an error covariance between the error terms for MRM 12 (ladder question) and MRM 13 (satisfaction with finances), and covariance between the exogenous variables self rated successful aging, psychological health and physical health. This model (model 1) provided a better fitting base model ( $\chi^2 = 1088.5$ ,  $df = 404$ ): NNFI=.849, CFI=.869, RMSEA=.051 RMSEA 90% CI between .047-.054). The fit of this model suggests that both family and individual resilience predict the



outcomes for successful aging. The measurement model (Model 1) is listed below in Table 11 along with the remaining models used in specific aim 2.

Table 11

*Structural equation model summary.*

Model		Model fit
1	Measurement model	$\chi^2(404)=1088.3$ AIC=280.5 NNFI=.849 CFI=.869 RMSEA=.051 RMSEA 90% CI = .047-.054
2	Correlation between family and individual resilience	$\chi^2(403)=915.2$ AIC=109.2 NNFI=.887 CFI=.902 RMSEA=.044 RMSEA 90% CI = .040-.048
3	Unidirectional path from family resilience to individual resilience added	$\chi^2(403)=915.2$ AIC=109.2 NNFI=.887 CFI=.902 RMSEA=.044 RMSEA 90% CI = .040-.048
4	Unidirectional paths from family resilience to outcome variables removed	$\chi^2(406)=959.8$ AIC=147.8 NNFI=.878 CFI=.894 RMSEA=.045 RMSEA 90% CI = .042-.049

To test the interdependent versus linear relationship between family and individual resilience (Specific Aim 2), three models were fit to the data. The first allowed the individual and family resilience latent factors to covary. This model (model 2) fit the data well ( $\chi^2 = 915.2$ ,  $df = 403$ ): NNFI=.887, CFI=.902, RMSEA=.044 RMSEA 90% CI between .040-.048), and produced a better fit than the measurement model. Therefore the

more conservative assumption, which depicts the interdependent relationship between family resilience and individual resilience, is supported in part with this model. Next we test the linear predictive relationship between individual and family resilience.

Model 3 removed the covariance between the individual and family resilience factors and added a directional path from family resilience to individual resilience. Conceptually this model tested whether the family resilience concepts produced an indirect effect on aging through a relationship with individual resilience. This model fit the data equally well ( $\chi^2 = 915.2$ ,  $df = 403$ ): NNFI=.887, CFI=.902, RMSEA=.044 with a 90% CI between .040 and .048.). Additionally a fully direct model (Model 4) with no pathways from the family resilience to the outcome variable was fit to the data. This model produced a lesser quality fit ( $\chi^2 = 959.8$ ,  $df = 406$ ): NNFI=.878, CFI=.894, RMSEA=.045 with a 90% CI between .042 and .049. Given the lesser fit of this final model it would seem that family resilience concepts do not encourage aging outcomes through a fully mediated relationship with individual resilience, but rather contribute to aging outcomes uniquely. While Model 3 fit the data as well as model 2, and one could conclude that an appropriate fit of the data includes a predictive relationship between family resilience and individual resilience, a further investigation of the path coefficients reveal little difference between the two models. Therefore we tend to prefer the more conservative model 2, which suggests that family resilience and individual resilience are interdependent concepts. Therefore we present an illustration of model 2 in Figure 2 below.

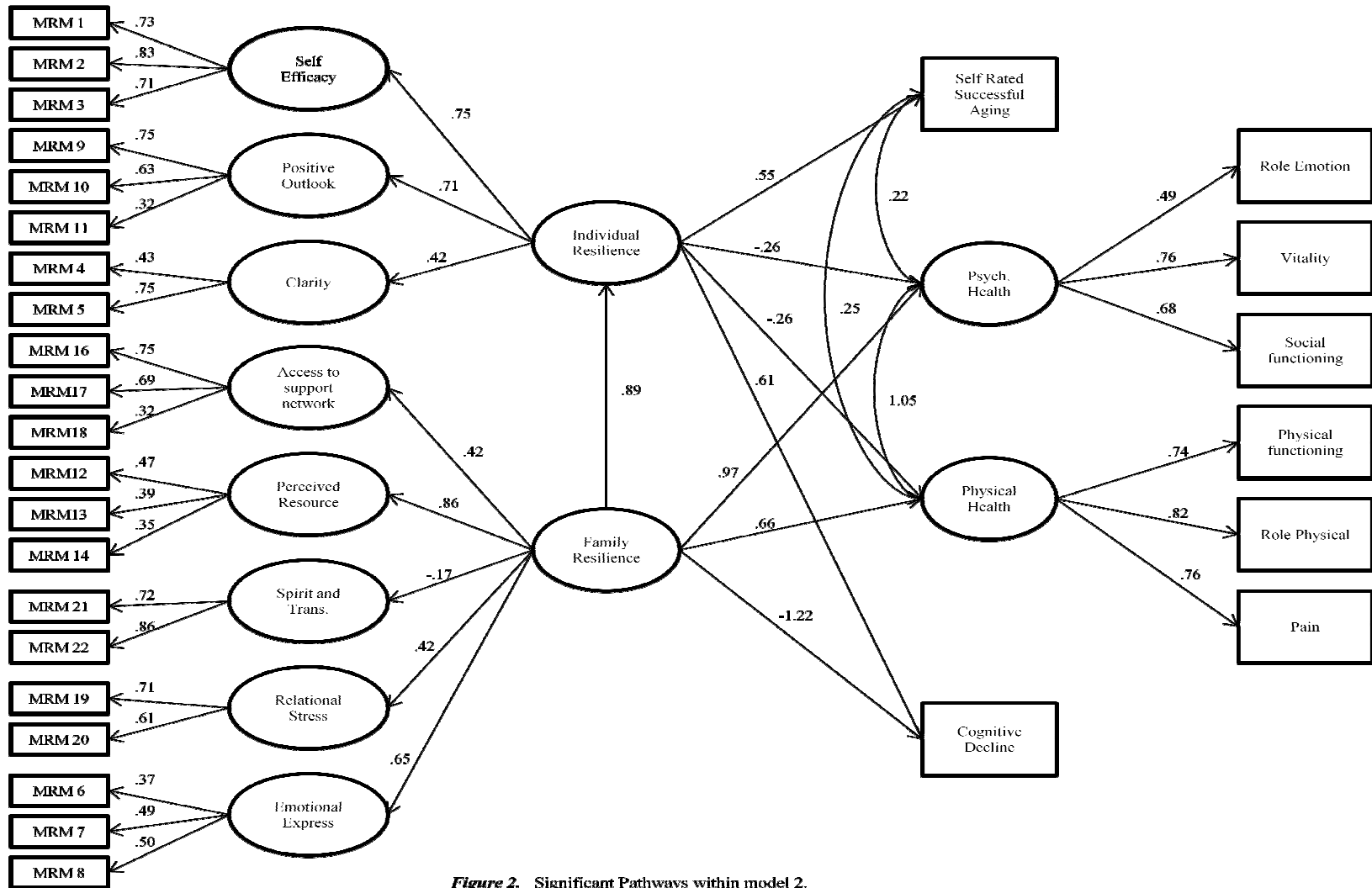


Figure 2. Significant Pathways within model 2.

Path coefficients in model 2 suggest noteworthy relationships between individual and family resilience and outcomes variables of successful aging. Specifically, individual resilience was related positively to self rated successful aging (SRSA;  $\beta=.55$ ,  $B=.83$ ,  $SE=.062$ ,  $p < .05$ ). In contrast, family resilience did not have a significant relationship with SRSA suggesting that family resilience does not play a direct role in predicting SRSA. The covariance between individual and family resilience ( $cov(X,Y)=.89$ ) suggests that higher family resilience is indicative of individual resilience; consequently, family resilience still has an indirect relationship with SRSA through its relationship with individual resilience. In addition, SRSA showed significant covariances between psychological health ( $cov(X,Y)=.22$ ) and physical health ( $cov(X,Y)=.25$ ) highlighting the interdependent relationship of SRSA with other domains of successful aging.

Furthermore, family resilience was found to have a negative relationship with cognitive decline ( $\beta= -1.22$ ,  $B= -15.79$ ,  $SE=14.24$ ,  $p < .05$ ), while individual resilience demonstrated a positive relationship with cognitive decline ( $\beta=.61$ ,  $B=15.51$ ,  $SE=7.58$ ,  $p < .05$ ). The combination of these effects could be thought of as a moderating effect between family resilience, individual resilience and cognitive decline. In this case individual resilience has a small and negative effect on cognitive abilities, but family resilience produces a positive and strong effect. In other words, those with high levels of family resilience are much less likely to experience cognitive decline, while those with high levels of individual residence, without additional family resilience, will experience some normal processes of cognitive decline. In practice though, one needs to consider the covariance between family and individual resilience. In this regard, those with high individual resilience will likely experience high family resilience and vice versa.

Similar to cognitive decline, psychological health showed a strong positive relationship with family resilience ( $\beta=.97, B=46.97, SE=11.32, p < .05$ ) and a slightly negative relationship with individual resilience ( $\beta= -.26, B= -7.57, SE=6.07, p < .05$ ). Additionally, physical health demonstrated a positive relationship with family resilience ( $\beta=.66, B=42.42, SE=12.27, p < .05$ ) and a slightly negative relationship with individual resilience ( $\beta= -.26, B= -10.01, SE=6.92, p < .05$ ). We also note that the strong covariance found between psychological health and physical health ( $cov(X,Y)=1.05$ ) indicating the interdependence of these domains. The robust positive relationships between family resilience and psychological and physical health, in combination with the slightly negative relationships with individual resilience suggest the moderating effect of family resilience on these outcomes of successful aging. As people age they may show a natural decline in psychological and physical health, but family resilience will moderate that decline, while individual resilience alone may have less of an effect. Because of the strong interdependent relationship between family and individual resilience, these results suggest that having moderate individual resilience in combination with high family resilience is better than having high individual resilience and low family resilience. Overall it appears that family resilience is a stronger predictor of successful aging outcomes.

## Discussion

The primary goal of this study was to examine the relationship between family and individual resilience and successful aging as measured by four domains; self rated successful aging, psychosocial health, cognitive decline, and physical health. We began by creating a model that had a direct relationship from family resilience and individual resilience to the four successful aging domains. In this model we found that individual and family resilience produce predictive validity for measures of successful aging. While previous literature on individual resilience has highlighted its significance to domains of successful aging (e.g., Montross et al., 2006; Wagnild, 2003) this is the first investigation that focuses on the implications of family resilience on successful aging. In order to expand the meaning of resilience it is useful to consider the construct at the family level. This viewpoint assists in appreciating the interaction between the individual and family that strengthens resilience and determination in the family unit when presented with both stressful crises and expected transitions (Hooper, 2009) such as aging. While the initial measurement model yielded a less than adequate fitting model, the inclusion of an interdependence assumption between individual and family resilience (as modeled with a covariance) improved the fit significantly and the significant paths from family resilience to psychological health, physical health, and cognitive decline suggest the value of a systemic view of successful aging through a family resilience lens.

Specific aim two tested whether the interdependent or linear explanation of resilience was a better fit for the data. In summary model 2, with an interdependent relationship between family and individual resilience, was seen as the most appropriate and best fitting representation of the data. Therefore this study supports the assumption

that individual and family resilience concepts operate as interdependent concepts. In other words family resilience is directly related to individual resilience and vice versa. Furthermore individual and family resilience offer unique predictive abilities. For example, family resilience has a strong relationship with both psychological and physical health, while moderating the relationship between individual resilience and these variables. In contrast, SRSA has a positive direct relationship with individual resilience but an insignificant relationship with family resilience. There appears to be an indirect relationship between SRSA and family resilience through the relationship with individual resilience, as well as the covariance between psychological and physical health. These findings appear to be in line with Seccombe's (2002) view of resilience that considers ecological and developmental perspectives and integrates both individual and family resilience. From this standpoint, problems and their solutions can be understood in the context of multiple influences including the individual, family, and society (Walsh, 2002). Seccombe (2002) highlights the crucial influence of relationships, proposing that resilience is more than just one's individual capacity and is determined by the social structure of the family. Gaining an understanding of the interdependent relationship between family resilience and individual resilience supports a systemic view of aging by considering the reciprocal relationship between the individual and family. From this position, understanding family resilience allows the researcher to consider how families remain healthy and functional in the context of their collective transitions.

As families grow older and continue through various life-cycle stages they face ever changing circumstances (Friedrich, 2001). Multiple generations can be effected by the process of aging and the burdens of providing a system of care (DeGolia, 2005).

Working with the concept of family resilience as the foundation for clinical intervention allows for a collaborative and empowering therapeutic relationship (Rolland & Walsh, 2006). Theoretically the family resilience model takes into account the strengths and resources that families embody and capitalizes on protective family processes (Walsh, 2006). A family resilience viewpoint focuses on relational aspects such as shared belief systems, connectedness, and effective communication to assist with adaptability in ever changing situations (Walsh, 1996). Recognizing the transitions, adaptations, and recovery processes experienced by families as they age is central to successful aging; viewing families through a family resilience lens provides direction for conceptualizing those changes.

### **Limitations**

There were a number of limitations in this investigation that should be acknowledged. First, the SAGE sample consisted of primarily Caucasian participants and all other ethnic minorities were underrepresented in comparison to the U.S. population. While there was oversampling of individuals with Hispanic and Asian surnames during the recruitment process, there was still an underrepresentation of ethnic minorities in the sample. Secondly, since the SAGE study was conducted in San Diego County it is unclear if the same results would be generated in a sample of participants from other regions. Future research should extend the SAGE survey to a primarily minority population. In addition, it would be beneficial to expand the SAGE survey to individuals outside of southern California to confirm these findings extend both demographically and geographically. Furthermore, the cross-sectional nature of the data used for this study provides another limitation; longitudinal data may be more appropriately suited for



understanding resilience over the course of the aging process. Based on the original design of the SAGE study only one person was sampled in each household; future studies would benefit from multiple members in the household taking part in the MRM to provide a better systemic view of the family.

### **Conclusion**

The study of successful aging is still developing and appears to have a promising future filled with possibilities and an understandable need for advancement in research. While there has not been a definitive way of classifying the concept of successful aging in the past, this study provides a framework to understand aging as closely related to both individual and family resilience. What is clear is that successful aging is a multidimensional construct that encompasses, self-rated successful aging, psychological health, cognitive decline, and physical health, and can be conceptualized through the inclusion of family and individual resilience as interdependent predictors of successful aging. As we move forward in the examination of successful aging it is imperative that we continue to expand the focus to include family level variables. This application of family resilience to the study of aging offers valuable information to guide future research, practice, and policy by providing a framework to understand families as they age.

## REFERENCES

- Adams, D. L. (1969). Analysis of a life satisfaction index. *Journal of Gerontology, 24*, 470-474.
- Administration on Aging (2010). *A profile of older Americans: 2010*. Washington, D.C.: U.S. Department of Health and Human Services.
- Adler, N.E., Epel, E.S., Castellazzo, G., & Ickovics, J.R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19*, 586-592.
- Albert, M.S., Savage, C.R., Jones, K., Berkman, L., Seeman, T., Blazer, D., & Rowe, J.W. (1995). Predictors of cognitive change in older persons: MacArthur studies of successful aging. *Psychology and Aging, 10*, 578-589.
- Ardelt, M. (2003). Empirical assessment of a three-dimensional wisdom scale. *Research on Aging, 25*, 275-324.
- Baltes, M.M., & Lang, F.R. (1997). Everyday functioning and successful aging: The impact of resources. *Psychology and Aging, 12*, 433-443.
- Baltes, P.B., & Baltes, M.M. (1990). Psychological perspectives on successful aging: The model of selective optimization with compensation. In P.B. Baltes & M.M. Baltes (Eds.), *Successful aging: Perspectives from the behavioral sciences* (pp.1-34). New York, NY: Cambridge University Press.
- Baltes, P.B., & Smith, J. (2003). New frontiers in the future of aging: From successful aging of the young old to the dilemmas of the fourth age. *Gerontology, 49*, 123-135.
- Bartley, M., Head, J., & Stansfeld, S. (2007). Is attachment style a source of resilience against health inequalities at work? *Social Science and Medicine, 64*, 765-775.
- Bentler, P.M. (2006). *EQS 6 structural equations program manual*. Encino, CA: Multivariate Software, Inc.
- Berkman, L.F., Seeman, T.E., Albert, M., Blazer, D., Kahn, R., Mohs, R., Finch, C., Schneider, E., Cotman, C., & McClearn, G. (1993). High, usual and impaired functioning in community-swelling older men and women: Findings from the MacArthur Foundation Research Network on successful aging. *Journal of Clinical Epidemiology, 46*, 1129-1140.

- Black, K. & Lobo, M. (2008). A conceptual review of family resilience factors. *Journal of family nursing, 14*, 33-55.
- Blazer, D. (2000). Spirituality, aging and depression. In J. Thorson, (Ed.). *Perspective on spiritual well-being and aging*. (pp. 161-169). Springfield, IL: Charles C. Thomas.
- Blazer, D., Hybels, C., & Hughes, D.C. (1990). *Duke social support index*. Princeton, NJ: Educational Testing Service.
- Blazer, D.G. (2006). Successful aging. *American Journal of Geriatric Psychiatry, 13*, 2-5.
- Blazer, D.G., & Meador, K.G. (2010). The role of spirituality in healthy aging. In C.A. Depp, D.V. Jeste, (Eds.). *Successful cognitive and emotional aging*. (pp. 73-85). Arlington, VA: American Psychiatric Publishing, Inc.
- Breunlin, D.C. (1983). Therapy in stages: A life cycle view. In J. Hansen & H. Liddle, (Eds.). *Clinical implications of the family life cycle*. (pp. 1-11). Rockville, MD: Royal Turnbridge Wells.
- Britton, A., Shipley, M., Singh-Manoux, & Marmont, M.G. (2008). Successful aging: The contributions of early-life and midlife risk factors. *The American Geriatrics Society, 56*, 1098-1105.
- Broadbent, D.E., Cooper, P.F., FitzGerald, P., & Parkes, K.R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology, 21*, 1-16.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 513-531*.
- Bruce, M.L., Seeman, T.E., Merrill, S.S., & Blazer, D.G. (1994). The impact of depressive symptomatology on physical disability: MacArthur studies of successful aging. *American Journal of Public Health, 84*, 1796-1799.
- Byrne, B.M. (2006). *Structural equation modeling with EQS: Basic concepts, applications, and programming*, (2<sup>nd</sup> ed.). New York, NY: Psychology Press.
- Campbell-Sills, L., & Stein, M.B. (2007). Psychometric analysis and refinement of the Connor-Davidson resilience scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress, 20*, 1019-1028.
- Charles, S.T., & Horwitz, B.N. (2010) Positive emotions and health: What we know about aging. In C.A. Depp, D.V. Jeste, (Eds.). *Successful cognitive and emotional aging*. (pp. 55-72). Arlington, VA: American Psychiatric Publishing, Inc.

- Chodosh, J., Kado, D.M., Seeman, T.E., & Karlamangla, A.S. (2007). Depressive symptoms as a predictor of cognitive decline: MacArthur studies of successful aging. *American Journal of Geriatric Psychiatry, 15*, 406-415.
- Cohen, J., Cohen, P., West, S., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3<sup>rd</sup> ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior, 24*, 386-396.
- Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. S. Spacapan, and S. Oskamp, (Eds.). *The social psychology of health*. Newbury Park, CA: Sage.
- Cohler, B.J. (1987). Adversity, resilience and the study of lives. In E.J. Anthony, & B.J. Cohler, (Eds.). *The invulnerable child*. (pp. 363-424). New York, NY: The Guilford Press.
- Conger, R.D., & Conger, K.J. (2002). Resilience in midwestern families: Selected findings from the first decade of a prospective, longitudinal study. *Journal of Marriage and Family, 64*, 361-373.
- Connor, K.M., & Davidson, J.R.T. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety, 18*, 76-82.
- Cook, J.A., Cohler, B.J., Pickett, S.A., & Beeler, J.A. (1997). Life-course and severe mental illness: Implications for caregiving within the family of later life. *Family Relations, 46*, 427-436.
- Craig, C., Marshall, A., Sjostrom, M., Bauman, A., Booth, M., Ainsworth, B., Pratt, M., Ekelund, U., Yngve, A., Sallis, J., & Oja, P. (2003). International physical activity questionnaire: 12-Country reliability and validity. *Medicine and Science in Sports and Exercise, 35*, 1381-1395.
- Crimmins, E.M., Kim, J.K., & Seeman, T.E. (2009). Poverty and biological risk: The earlier aging of the poor. *Journal of Gerontology: Medical Sciences, 64*, 286-292.
- Cutler, R.G., & Mattson, M.P. (2006). Introduction: The adversities of aging. *Ageing Research Reviews, 5*, 221-238.
- DeGolia, P.A. (2005). Multigenerational issues that impact on successful aging in seniors: Caregiving—A precious gift. In M.L. Wykle, P.J. Whitehouse, D.L. Morris, (Eds.). *Successful aging through the life span: Intergenerational issues in health*. (pp. 131-142). New York, NY: Springer Publishing Company.

- Depp, C.A., & Jeste, D.V. (2006). Definitions and predictors of successful aging: A comprehensive review of larger quantitative studies. *American Journal of Psychiatry, 14*, 6-20.
- Depp, C., Vahia, I.V., & Jeste, D. (2010). Successful aging: Focus on cognitive and emotional health. *Annual Review of Clinical Psychology, 6*, 527-550.
- Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*, 71-75.
- Dore, M.M. (2008). Family systems theory. In K.M. Sower, W. Rowe, & L.A. Rapp-Paglicci, (Eds.). *Comprehensive handbook of social work & social welfare*. (pp. 431-462). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Drachman, D.A., Swearer, J.M., Kane, K., Osgood, D., O'Toole, C., & Moonis, M. (1996). The cognitive assessment screening test (CAST) for dementia. *Journal of Geriatric Psychiatry and Neurology, 9*, 200-208.
- Faber, M., Bootsma-van der Wiel, A., Exel, E., Gussekloo, J., Lagaay, A.M., Dongen, E., Knook, D.L, Geest, S., & Westendorp, R.G.J. (2001). Successful aging in the oldest old: Who can be characterized as successfully aged? *Archives of Internal Medicine, 161*, 2694-2700.
- Ferri, C., James, I., & Pruchno, R. (2009). Successful aging: Definitions and subjective assessment according to older adults. *Clinical Gerontologist, 32*, 379-388.
- Fetzer Institute. (1999). Multidimensional measurement of religiousness/spirituality for use in health research: A report of the Fetzer Institute/National Institute on aging working group. Kalamazoo, MI: Fetzer Institute.
- Fiocco, A.J., & Yaffe, K. (2010). Defining successful aging: The importance of including cognitive function over time. *Archives of Neurology, 67*, 876-880.
- Friedrich, D.D. (2001). *Successful aging: Integrating contemporary ideas, research findings, and intervention strategies*. Springfield, IL: Charles C. Thomas.
- Garson, G.D. (2004). Structural Equation Modeling Example Using Win AMOS (webpage). Retrieved from <http://faculty.chass.ncsu.edu/garson/PA765/semamos1.htm>.
- Gilgun, J.F. (1999). Mapping resilience as process among adults with childhood adversities. In H.I. McCubbin, E.A. Thompson, A.I. Thompson, & J.A. Futrell, (Eds.). *The dynamics of resilient families*. (pp. 41-70). Thousand Oaks, CA: SAGE publications.

- Gruenewald, T.L., Karlamangla, A.S., Greendale, G.A., Singer, B.H., & Seeman, T.E. (2007). Feelings of usefulness to others, disability, and mortality in older adults: The MacArthur study of successful aging. *Journal of Gerontology, 62*, 28-37.
- Gurung, R.A.R., Taylor, S.E., & Seeman, T.E. (2003). Accounting for changes in social support among married older adults: Insights from the MacArthur studies of successful aging. *Psychology and Aging, 18*, 487-496.
- Haan, L., Hawley, D.R., & Deal, J.E. (2002). Operationalizing family resilience: A methodological strategy. *The American Journal of Family Therapy, 30*, 275-291.
- Hardy, S.E., Concato, J., & Gill, T.M. (2004). Resilience of community-dwelling older persons. *Journal of the American Geriatric Society, 52*, 257-262.
- Harris, P.B. (2008). Another wrinkle in the debate about successful aging: The undervalued concept of resilience and the lived experience of dementia. *International Journal of Aging and Human Development, 67*, 43-61.
- Hawley, D.R., & DeHaan, L. (1996). Toward a definition of family resilience: Integrating life-span and family perspectives. *Family Process, 35*, 283-298.
- Hebblethwaite, S., & Norris, J. (2011). Expressions of generativity through family leisure: Experiences of grandparents and adults grandchildren. *Family Relations, 60*, 121-133.
- Hendrie, H.C., Purnell, C., Wicklund, A.H., & Weintraub, S. (2010). Defining and assessing cognitive and emotional health in later life. In C.A. Depp, D.V. Jeste, (Eds.). *Successful cognitive and emotional aging*. (pp. 17-36). Arlington, VA: American Psychiatric Publishing, Inc.
- Hooper, L.M. (2009). Individual and family resilience: Definitions, research, and frameworks relevant for all counselors. *The Alabama Counseling Association Journal, 35*, 19-26.
- Hwang, J.Y., Plante, T., & Lackey, K. (2008). The development of the Santa Clara brief compassion scale: An abbreviation of Sprecher and Fehr's compassionate love scale. *Pastoral Psychology, 56*, 421-428.
- Inui, T.S. (2003). The need for an integrated biopsychosocial approach to research on successful aging. *Annals of Internal Medicine, 139*, 391-394.
- Jeste, D.V., Savla, G.N., Thompson, W.K., Vahia, I.V., Glorioso, D.K., Martin, A., . . . Depp, C.A. (2012) Paradox of aging: Study of self-rated successful aging in 1,006 community-dwelling adults aged 50-99. Manuscript submitted for publication.

- Kahana, E., King, C., Kahana, B., Menne, H., Webster, N.J., Dan, A., Kercher, K., Bohne, A., & Lechner, C. (2005). Successful aging in the face of chronic disease. In M.L. Wykle, P.J. Whitehouse, D.L. Morris, (Eds.). *Successful aging through the life span: Intergenerational issues in health*. (pp. 101-129). New York, NY: Springer Publishing Company.
- Kline, R.B. (2011). *Principles and practice of structural equation modeling*, (3<sup>rd</sup> ed.). New York, NY: The Guilford Press.
- Knight, T., & Ricciardelli, L.A. (2003). Successful aging: Perceptions of adults aged between 70 and 101 years. *International Journal of Aging and Human Development*, *56*, 223-245.
- Koenig, H.G., Westlund, R.E., George, L.K., Hughes, D.C., Blazer, D.G., & Hybels, C. (1993). Abbreviating the Duke social support index for use in chronically ill elderly individuals. *Psychosomatics*, *34*, 61-69.
- Kowal, J., & Johnson, S.M. (2003). Chronic illness in couples: A case for emotionally focused therapy. *Journal of Marital and Family Therapy*, *29*, 299-310.
- Kubzansky, L.D., Berkman, L.F., Glass, T., & Seeman, T.E. (1998). In educational attainment associated with shared determinants of health in the elderly? Findings from the MacArthur studies of successful aging. *Psychosomatic Medicine*, *60*, 578-585.
- Laditka, S.B., Corwin, S.J., Laditka, J., Liu, R., Tseng, W., Wu, B., Beard, R.L., Sharkey, J.R., & Ivey, S.L. (2009). Attitudes about aging well among a diverse group of older Americans: Implications for promoting cognitive health. *The Gerontologist*, *49*, S30-S39.
- Lamond, A.J., Depp, C.A., Allison, M., Langer, R., Reichstadt, J., Moore, D.J., Golshan, S., Ganiats, T.G., & Jeste, D.V. (2009). Measurement and predictors of resilience among community-dwelling older women. *Journal of Psychiatric Research*, *43*, 148-154.
- Lawton, M.P. (1975). The Philadelphia geriatric center morale scale: A revision. *Journal of Gerontology*, *30*, 85-89.
- Lawton, M.P. (2003). Lawton's PGC morale scale [Morale Scale created by M. Powell Lawton (1923-2001) while at the Polisher Research Institute of the Philadelphia Geriatric Center (now known as the Abramson Center for Jewish Life)]. Retrieved October 10, 2011 from <http://www.abramsoncenter.org/PRI/> (Scales page).
- Leveille, S.G., Guralnik, J.M., Ferrucci, L., & Langlois, J.A. (1999). Aging successfully until death in old age: Opportunities for increasing active life expectancy. *American Journal of Epidemiology*, *149*, p. 654-664.

- Luthar, S.S., Sawyer, J.A., & Brown, P.J. (2006). Conceptual issues in studies of resilience: Past, present, and future research. *Annals New York Academy of Science*, 1094, 105-115.
- Martin, A.S., Distelberg, B., Jeste, D.V. (in process). Successful aging through a family resilience lens: Exploratory factor analysis and confirmatory factor analysis.
- Masten, A.S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56, 227-238.
- Masten, A.S., & Obradovic, J. (2006). Competence and resilience in development. *Annals New York Academy of Sciences*, 1094, 13-27.
- McCubbin, M., Balling, K., Possin, P., Friedrich, S., & Bryne, B. (2002). Family resilience in childhood cancer. *Family Relations*, 51, 103-111.
- McCubbin, M., & McCubbin, H. (1996). Resiliency in families: A conceptual model of family adjustment and adaptational response to stress and crisis. In H. McCubbin, A Thompson, & M. McCubbin (Eds.). *Family assessment: Resiliency, coping and adaptation—inventories for research and practice* (pp. 1-64). Madison: University of Wisconsin System.
- McCubbin, M., & McCubbin, H. (1998). Typologies of resilient families: Emerging roles of social class and ethnicity. *Family Relations*, 37, 247-254.
- McCubbin, H., & McCubbin, M., Thompson, A.I., Han, S.Y., & Allen, C.T. (1997). Families under stress: What makes them resilient. *Journal of family and consumer sciences*, 89, 2-11.
- McLaughlin, S.J., Connell, C.M., Heeringa, S.G., Li, L.W., Roberts, J.S. (2010). Successful aging in the United States: Prevalence estimates from a national sample of older adults. *Journal of Gerontology: Social Sciences*, 65, 216-226.
- McMurray, I., Connolly, H., Preston-Shoot, M., & Wigley, V. (2008). Constructing resilience: Social workers' understandings and practice. *Health and Social Care in the Community*, 16, 299-309.
- Menec, V.H. (2003). The relation between everyday activities and successful aging: A 6-year longitudinal study. *Journal of Gerontology*, 58, S74-S82.
- Mertler, C.A., & Vannatta, R.A. (2005). *Advanced and multivariate statistical methods*, (3<sup>rd</sup> ed.). Glendale, CA: Pyrczak Publishing.
- Minuchin, S. (1974). *Families and Family Therapy*. Cambridge, MA: Harvard University Press.



- Minuchin, S., & Fishman, H.C. (1981). *Family Therapy Techniques*. Cambridge, MA: Harvard University Press.
- Moen, P., Dempster-McClain, D., & Williams, R.M. (1992). A life-course perspective on women's multiple roles and health. *American Journal of Sociology*, *97*, 1612-1638.
- Montross, L.P., Depp, C., Daly, J., Reichstadt, J., Golshan, S., Moore, D., Sitzer, D., & Jeste, D. (2006). Correlates of self-rated successful aging among community-dwelling older adults. *American Journal of Psychiatry*, *14*, 43-51.
- Moody, H.R. (2005). From successful aging to conscious aging. In M.L. Wykle, P.J. Whitehouse, D.L. Morris, (Eds.). *Successful aging through the life span: Intergenerational issues in health*. (pp. 55-68). New York, NY: Springer Publishing Company.
- Newman, A.B., Arnold, A.M., Naydeck, B.L., Fried, L.P., Burke, G.L., Enright, P., Gorradiener, J., Hirsch, C., O'Leary, D., & Tracy, R. (2003). Successful aging: Effect of subclinical cardiovascular disease. *Archives of Internal Medicine*, *163*, 2315-2322.
- O'Brien, M. (2005). Studying individual and family development: Linking theory and research. *Journal of Marriage and Family*, *67*, 880-890.
- O'Hara, R., Beaudreau, S.A., Luzon, A., Hah, M., Hubbard, J.T., & Sommer, B. (2010). Stress, resilience, and the aging brain. In C.A. Depp, D.V. Jeste, (Eds.). *Successful cognitive and emotional aging*. (pp. 173-196). Arlington, VA: American Psychiatric Publishing, Inc.
- Olson, L.N., Fine, M.A., & Lloyd, S.A. (2006). Theorizing about aggression between intimates. In V. Bengtson, A. Acock, K. Allen, P. Dilworth-Anderson, D. & D. Klein, (Eds.). *Sourcebook of family theory and research*. (pp. 315-340). Thousand Oaks, CA: Sage Publications.
- O'Rand, A.M., & Krecker, M.L. (1990). Concepts of the life cycle: Their history, meanings, and uses in the social sciences. *Annual Review of Sociology*, *16*, 241-262.
- Orthner, D.K., Jones-Sanpei, H., & Williamson, S. (2004). The resilience and strengths of low-income families. *Family Relations*, *53*, 159-167.
- Ouwehand, C., Ridder, D.T.D., & Bensing, J.M. (2007). A review of successful aging models: Proposing proactive coping as an important additional strategy. *Clinical Psychology Review*, *27*, 873-884.

- Palmer, B.W., & Dawes, S.E. (2010). Cognitive aging: From basic skills to scripts and schemata. In C.A. Depp, D.V. Jeste, (Eds.). *Successful cognitive and emotional aging*. (pp. 37-54). Arlington, VA: American Psychiatric Publishing, Inc.
- Patterson, J.M. (2002a). Integrating family resilience and family stress theory. *Journal of Marriage and Family*, *64*, 349-360.
- Patterson, J. (2002b). Understanding family resilience. *Journal of Clinical Psychology*, *58*, 233-246.
- Pedhazur, E.J., & Schmelkin, L.P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.
- Peel, N.M., McClure, R.J., & Bartlett, H.P. (2005). Behavioral determinants of healthy aging. *American Journal of Preventive Medicine*, *28*, 298-304.
- Phelan, E.A., Anderson, L.A., LaCroix, A.Z., & Larson, E.B. (2004). Older adults' views of successful aging: How do they compare with researchers' definitions? *American Geriatrics Society*, *52*, 211-216.
- Phelan, E.A., & Larson, E.B. (2002). Successful aging: Where next? *American Geriatrics Society*, *50*, 1306-1308.
- Pinquart, M., & Silbereisen, R.K. (2006). Influences of parents and siblings on the development of children and adolescents. In V. Bengtson, A. Acock, K. Allen, P. Dilworth-Anderson, D. & D. Klein, (Eds.). *Sourcebook of family theory and research*. (pp. 367-420). Thousand Oaks, CA: Sage Publications.
- Posner, B.M., Jette, A.M., Smith, K.W., & Miller, D.R. (1993). Nutrition and health risk in the elderly: The nutrition screening initiative. *American Journal of Public Health*, *83*, 972-978.
- Powers, J.R., Goodger, B., & Byles, J.E. (2004). Assessment of the abbreviated Duke social support index in a cohort of older Australian women. *Australasian Journal on Ageing*, *23*, 71-76.
- Pruchno, R.A., Wilson-Genderson, M., Rose, M., & Cartwright, F. (2010). Successful aging: Early influences and contemporary characteristics. *The Gerontologist*, *50*, 821-833.
- Raykov, T., & Marcoulides, G.A. (2006). *A first course in structural equation modeling (2<sup>nd</sup> Ed.)*. Lawrence Erlbaum Associates, Inc. Publishers.
- Reed, S.B., Crespo, C.J., Harvey, W., & Andersen, R.E. (2011). Social isolation and physical inactivity in older US adults: Results from the third national health and nutrition examination survey. *European Journal of Sport Science*, *11*, 347-353.

- Reichstadt, J., Depp, C.A., Palinkas, L.A., Folsom, D.P., & Jeste, D.V. (2007). Building blocks of successful aging: A focus group study of older adults' perceived contributors to successful aging. *American Journal of Geriatric Psychiatry, 15*, 194-201.
- Rolland, J.S., & Walsh, F. (2006). Facilitating family resilience with childhood illness and disability. *Current Opinion in Pediatrics, 18*, 527-538.
- Rosenblatt, P.C. (1994). *Metaphors of family systems theory: Toward new constructions*. New York, NY: The Guilford Press.
- Rowe, J.W., & Kahn, R.L. (1987). Human aging: Usual and successful. *Science, 237*, 143-149.
- Rowe, J.W., & Kahn, R.L. (1997). Successful aging. *The Gerontologist, 37*, 433-440.
- Scheier, M.F., & Carver, C.S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*, 219-247.
- Scheier, M.F., Carver, C.S., & Bridges, M.W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the life orientation test. *Journal of Personality and Social Psychology, 67*, 1063-1078.
- Secombe, K. (2002). Beating the odds versus changing the odds: Poverty, resilience, and family policy. *Journal of Marriage and Family, 64*, 384-394.
- Seeman, T.E., Berkman, L.F., Blazer, D., & Rowe, J.W. (1994). Social ties and support and neuroendocrine function: The MacArthur studies of successful aging. *Annals of Behavioral Medicine, 16*, 95-106.
- Seeman, T.E., Crimmins, E., Huang, M.H., Singer, B., Bucur, A., Gruenewald, T., Berkman, L.F., & Reuben, D.B. (2004). Cumulative biological risk and socio-economic differences in mortality: MacArthur studies of successful aging. *Social Science & Medicine, 58*, 1985-1997.
- Seeman, T.E., Lusignolo, T.M., Albert, M., & Berkman, L. (2001). Social relationships, social support, and patterns of cognitive aging in healthy, high-functioning older adults: MacArthur studies of successful aging. *Health Psychology, 20*, 243-255.
- Shapiro, E.R. (1988). Individual change and family development: Individuation as a family process. In A. Gurman (Ed.), *Family transitions: continuity and change over the life cycle*. (pp. 159-180). New York, NY: The Guilford Press.

- Silverstein, M., & Giarrusso, R. (2010). Aging and family life: A decade review. *Journal of Marriage and Family*, 72, 1039-1058.
- Simon, J.B., Murphy, J.J., & Smith, S.M. (2005). Understanding and fostering family resilience. *The Family Journal: Counseling and Therapy for Couples and Families*, 13, 427-436.
- Singh, K., & Choubisa, R. (2009). Effectiveness of self focused intervention for enhancing students' well-being. *Journal of the Indian Academy of Applied Psychology*, 35, 23-32.
- Smoller, J.W., Allison, M., Cochrane, B.B., Curb, J.D., Perlis, R.H., Robinson, J.G., Rosal, M.C., Wenger, N.K., Wassertheil-Smoller, S. (2009). Antidepressant use and risk of incident cardiovascular morbidity and mortality among postmenopausal women in the women's health initiative study. *Archives of Internal Medicine*, 169, 2128-2139.
- Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships*, 22, 629-651.
- Strawbridge, W.J., Cohen, R.D., Shema, S.J., & Kaplan, G.A. (1996). Successful aging: Predictors and associated activities. *American Journal of Epidemiology*, 144, 135-141.
- Strawbridge, W.J., Wallhagen, M.I., & Cohen, R.D. (2002). Successful aging and well-being: Self-rated compared with Rowe and Kahn. *Gerontologist*, 42, 727-733.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics*, (5<sup>th</sup> ed.). Boston, MA: Pearson Education, Inc.
- Thompson, W.K., Charo, L., Vahia, I.V., Depp, C., Allison, M., & Jeste, D.V. (2011). Association between higher levels of sexual function, activity, and satisfaction and self-rated successful aging in older postmenopausal women. *Journal of the American Geriatric Society*, 59, 1503-1508.
- Ullman, J.B. (2007). Structural equation modeling. In B.G. Tabachnick, & L.S. Fidell, (Eds.). *Using multivariate statistics*, (5<sup>th</sup> ed., pp. 676-780).
- Ungar, M. (2011). Social ecology of resilience: Addressing contextual and cultural ambiguity of a nascent construct. *Journal of Orthopsychiatry*, 81, 1-17.
- Ungar, M., Liebenberg, L., Boothroyd, R., Kwong, W.M., Lee, T.Y., Leblanc, J., Duque, L., Makhnatch, A. (2008). The study of youth resilience across cultures: Lessons from a pilot study of measurement development. *Research in Human Development*, 5, 166-180.

- Unger, J.B., McAvay, G., Bruce, M.L., Berman, L., & Seeman, T. (1999). Variation in the impact of social network characteristics. *Journal of Gerontology, 54*, S245-S251.
- Underwood, L.G., & Teresi, J.A. (2002). The daily spiritual experience scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. *Annals of Behavioral Medicine, 24*, 22-33.
- Wagle, A.C., Berrios, G.E., & Ho, L. (1999). The cognitive failures questionnaire in psychiatry. *Comprehensive psychiatry, 40*, 478-484.
- Wagnild, G. (2003). Resilience and successful aging: Comparison among low and high income older adults. *Journal of Gerontological Nursing, 29*, 42-49.
- Wagnild, G., & Young, H.M. (1993). Development and psychometric evaluation of the resilience scale. *Journal of Nursing Measurement, 1*, 165-177.
- Wallace, J.C. (2004). Confirmatory factor analysis of the cognitive failures questionnaire: Evidence for dimensionality and construct validity. *Personality and Individual Differences, 37*, 307-324.
- Walsh, F. (1996). The concept of family resilience: Crisis and challenge. *Family Process, 35*, 261-281.
- Walsh, F. (2002). A family resilience framework: Innovative practice applications. *Family Relations, 51*, 130-137.
- Walsh, F. (2003). Family resilience: A framework for clinical practice. *Family Process, 42*, 1-18
- Walsh, F. (2006). *Strengthening family resilience* (2<sup>nd</sup> ed.). New York, NY: The Guilford Press.
- Ware, J.E. (2000). SF-36 health survey. *Spine, 25*, 3130-3139.
- Ware, J.E., & Sherbourne, C.D. (1992). The MOS 36-item short-form health survey (SF-36): Conceptual framework and item selection. *Medical Care, 30*, 473-483.
- Waugh, C.E., Fredrickson, B.L., Taylor, S.F. (2008). Adapting to life's slings and arrows: Individual differences in resilience when recovering from an anticipated threat. *Journal of Research in Personality, 42*, 1031-1046.
- Werner, E.E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai longitudinal study. *Development and psychopathology, 5*, 503-515.

- Werner, E.E. (2000). Protective factors and individual resilience. In J.P. Shonkoff & S.J. Meisels, (Eds.). *Handbook of early childhood intervention* (2<sup>nd</sup> ed.). (pp. 115-132). New York, NY: Cambridge University Press.
- Werner, E.E., Bierman, J.M., & French, F. (1971). *The children of Kauai*. Honolulu, HI: University of Hawaii Press.
- Werner, E.E., & Smith, R.S. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York, NY: McGraw-Hill Book Company.
- Werner, E.E., & Smith, R.S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.
- Werner, E.E., & Smith, R.S. (2001). *Journeys from childhood to midlife*. Ithaca, NY: Cornell University Press.
- Wilcox, S., Evenson, K.R., Aragaki, A., Wassertheil-Smoller, S., Mouton, C.P., & Loevinger, B.L. (2003). The effects of widowhood on physical and mental health, health behaviors, and health outcomes: The Women's Health Initiative. *Health Psychology, 22*, 513-522.
- Vaillant, G.E., & Mukamal, K. (2001). Successful aging, *American Journal of Psychiatry, 158*, 839-847.
- Vetere, A. (2001). Structural family therapy. *Child Psychology & Psychiatry Review, 6*, 133-139.

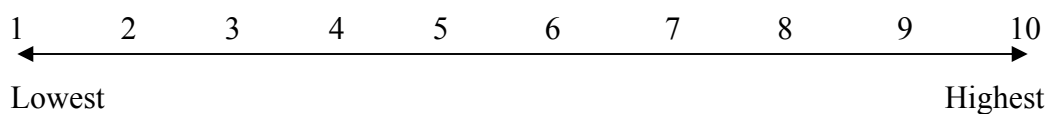
## APPENDIX A

### THE MULTILEVEL RESILIENCE MEASURE (MRM)

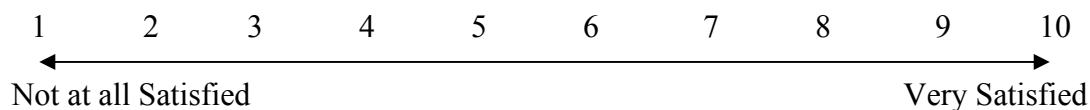
For each question below, please mark one box with your answer.					
	Not True At All	Rarely True	Sometimes True	Often True	True Nearly All of the Time
1. I can deal with whatever comes my way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am able to adapt to change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I tend to bounce back after illness or hardship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When I am confused by a problem, one of the first things I do is survey the situation and consider all the relevant pieces of information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Before criticizing somebody, I try to imagine how they would feel if I were in their place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I sometimes find it difficult to see things from another person's point of view.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I often have not comforted another when he or she needed it.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sometimes when people are talking to me, I find myself wishing that they would leave.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
9. Overall, I expect more good things to happen to me than bad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I'm always hopeful about my future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. In unclear times, I usually expect the best.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Where do you think you stand at this time in your life, relative to other people in the United States? (People who score 10 have the most money, the most education and the most respected jobs. The higher you are, the closer you are to the people at the top).



13. In general, how satisfied are you with your finances?



	<b>Never</b>	<b>A Little of the Time</b>	<b>Sometimes</b>	<b>Frequently</b>
14. How often do you feel lonely?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. How often do your spouse, children, close friends and/or relatives give you advice or information about medical, financial, or family problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. How often do your spouse, children, close friends and/or relatives help with daily tasks like shopping giving you a ride, or helping you with household tasks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	Never	A Little of the Time	Sometimes	Frequently
17. How often are your spouse, children, close friends and/or relatives willing to listen when you need to talk about your worries or problems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. How often do your spouse, children, close friends and/or relatives make you feel loved and cared for?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. How often do your spouse, children, close friends make too many demands on you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. How often are your spouse, children, close friends and/or relatives critical of what you do?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Not at All	Slightly	Moderately	Very
21. To what extent do you consider yourself a <u>religious</u> person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. To what extent do you consider yourself a <u>spiritual</u> person?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>