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When Life Gives You Lemons: The Development and Validation of the Resilience Scale for Older Adults

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ABSTRACT

The study of resilience, or positive adaptation in the face of adversity, is important across the lifespan, but may be particularly relevant for older adults who tend to experience an increasing number of challenges. Traditionally, resilience assessment has largely focused on child and young-to-middle aged adult populations, and as such, the literature is lacking a validated resilience measure developed specifically for older adults. This dissertation aimed to improve the measurement of resilience in older populations by developing and validating a new resilience measure that is relevant and appropriate for older adults. In Study 1, a qualitative metasynthesis was conducted to develop a theoretical model of resilience in older adulthood that is grounded in numerous qualitative studies examining resilience from older adults' perspectives. Using this new theoretical model, Studies 2a, 2b and 2c employed exploratory factor analyses, confirmatory factor analyses, and analysis of gender invariance to develop and provide initial validation for the Resilience Scale for Older Adults (RSOA). The RSOA consists of four factors that measure resilience protective factors in the following domains: Intrapersonal, Interpersonal, Spiritual, and Experiential. Lastly, Study 3 evaluated the practical applicability of the RSOA by using this new measure to explore the relationship between perceived stress, adverse life events, and quality of life (QOL) in older adults. Overall, results provide promising initial validity evidence for the RSOA and findings suggest it is generally appropriate for an older adult population, although the Spiritual factor may be better suited as a supplemental, rather than core protective factor. Additionally, resilience as measured by the RSOA mediates the relationship between perceived stress and QOL, but only the Interpersonal resilience factor plays a key role in the relationship between cumulative adverse life events and QOL. The implications for resilience assessment in research and practice are discussed.

Keywords: resilience, protective factors, older adults, scale development, scale validation

SUMMARY FOR LAY AUDIENCE

Resilience, also known as “bouncing back” when faced with hardship, is associated with a number of positive outcomes across the lifespan. Much of the earlier work examining resilience has focused on the factors that contribute to resilience in children and young or middle-aged adults. However, resilience is also relevant during older adulthood because aging is associated with many unique challenges and therefore it is important we understand what contributes to resilience in older adults. In order to appropriately study resilience in older individuals, we need a questionnaire that was developed specifically for this age group because resilience can change across one’s lifetime. The purpose of this research was to develop a resilience questionnaire that is appropriate to use with older adults. The first study aimed to determine what factors contribute to resilience in older adults by compiling the findings from previous studies that have asked individuals directly how they would describe resilience. Using this information, the second study developed the new questionnaire called the Resilience Scale for Older Adults (RSOA). The RSOA is made up of four factors that contribute to resilience in older adults: factors that relate to the individual self, factors that involve social support from others, spiritual factors, and factors that come from previous experience. The RSOA was distributed to several samples of older adults to ensure the scale was working as expected. Finally, the third study found that resilience, as measured by the RSOA, plays a key role in the relationship between stress and older individuals’ quality of life. Overall, the findings of this research demonstrate that the RSOA is generally an appropriate questionnaire for measuring resilience in older adults, but that spiritual factors may play less of a key role than anticipated. This new questionnaire is useful for researchers and clinicians who work with older adults by providing a tool to more appropriately capture their experiences and may improve our assessment of resilience in older individuals.

COAUTHORSHIP STATEMENT

Chapter two represents a fully published, peer-reviewed, journal article undertaken in collaboration with co-authors. Chapters three and four represent articles that have been submitted for publication. Claire Wilson was the primary investigator across all articles and took the lead role in all aspects of the research and writing. References are provided below, in the order in which they appear within the dissertation.

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TABLE OF CONTENTS

ABSTRACT ..... **ii**

SUMMARY FOR LAY AUDIENCE ..... **iv**

COAUTHORSHIP STATEMENT ..... **v**

ACKNOWLEDGEMENTS ..... **vi**

TABLE OF CONTENTS ..... **vii**

LIST OF TABLES ..... **xiii**

LIST OF FIGURES ..... **xiv**

LIST OF APPENDICES ..... **xv**

CHAPTER 1: Introduction and Literature Review **1**

1.1 Introduction **1**

1.2. Defining Resilience 2

1.3. The Resilience Process 3

1.4. Differentiating Resilience from Similar Concepts 6

1.5. Relevance of Resilience in Older Adulthood 7

1.6. Measuring Resilience in Older Adulthood 9

1.7. Overview of Current Studies 10

1.8. References **12**

CHAPTER 2: Study 1: Developing a Model of Resilience in Older Adulthood: A Qualitative Metasynthesis **23**

2.1. Introduction 23

2.1.1. Existing Adult Resilience Models 25

2.1.2. Resilience from Older Adults' Perspectives 27

2.1.3. Study Objectives and Rationale 28

2.2. Method 29

2.2.1. Synthesis Methodology 29

2.2.2. Data Sources 30

2.2.3. Inclusion/Exclusion Criteria 30

2.2.4. Data Analysis 31

2.3. Results 34

2.3.1. Synthesis Output and Themes 36

2.3.2. Model Development 43

2.4. Discussion 45

2.4.1 Limitations and Future Directions 51

2.5. References 53

CHAPTER 3: Study 2: Assessing Resilience in Older Adulthood: Development and Validation of the Resilience Scale for Older Adults 66

3.1 Introduction 66

3.1.1. Measuring Resilience in Older Adults 67

3.1.2. The Resilience Scale for Older Adults 71

3.1.3. Objectives 72

3.2. Study 2a: Item Reduction and Evaluation 73

3.3 Method 73

3.3.1. Participants and Procedure 73

3.3.2. Measures 75

3.3.3. Data Analytic Strategy 75

3.4. Results 76

3.4.1. Exploratory Factor Analyses 76

3.5. Discussion 81

3.6. Study 2b: Initial Scale Validation and Validity Exploration 82

3.7. Method 82

3.7.1. Participants and Procedure 82

3.7.2. Materials 83

3.7.3. Data Analytic Strategy 84

3.8. Results 85

3.8.1. Data Screening 85

3.8.2. Descriptive Statistics and Convergent Validity 86

3.8.3. Item-Level Confirmatory Factor Analyses 86

3.8.4. Facet-Level Confirmatory Factor Analyses 87

3.9. Discussion 90

3.10. Study 2c: Additional Scale Validation and Gender Invariance Analysis 92

3.11. Method 92

3.11.1. Participants and Procedure 92

3.11.2. Materials 93

3.11.3. Data Analytic Strategy 94

3.12. Results 95

3.12.1. Data Screening 95

3.12.2. Descriptive Statistics and Convergent Validity 95

3.12.3. Facet-Level Confirmatory Factor Analyses 96

3.12.4. Gender Invariance 98

3.13. Discussion 99

3.14. General Discussion 100

3.14.1. Limitations and Future Directions 102

3.15. References 104

CHAPTER 4: Study 3: Older Adults' Quality of Life and Experiences of Adversity: The Mediating Role of Resilience Protective Factors 115

4.1. Introduction 115

4.1.1. The Resilience Process 116

4.1.2. Adversity, Resilience, and Quality of Life 121

4.1.3. The Present Study 122

4.2. Method 123

4.2.1. Participants and Procedure 123

4.2.2. Materials 124

4.2.3. Data Analytic Strategy 126

4.3. Results 127

4.3.1. Data Screening 127

4.3.2. Descriptive Statistics and Correlations 128

4.3.3. Measurement Model 129

4.3.4. Mediation Model of Perceived Stress, Resilience, and Quality of Life..... 129

4.3.5. Mediation Analysis of Adverse Life Events, Resilience, and Quality of Life 131

4.4. Discussion..... 133

4.4.1. Limitations and Future Directions 138

4.5. References..... 141

Chapter 5: General Discussion 151

5.1. The RSOA: A New Model and Measure of Resilience in Older Adulthood..... 153

5.2. Applications and Implications 155

5.3. Limitations and Directions for Future Research..... 159

5.4. Conclusion 161

5.5. References..... 163

APPENDICES..... 172

Appendix A: Research Ethics Approval Forms..... 172

Appendix B: Modified Cognitive Screening Items 178

Appendix C: The Resilience Scale for Older Adults..... 179

Appendix D: Analysis of Model Fit with and Without Outliers for Study 2..... 180

Appendix E: Frequency of Participant Spiritual Factor Scores for Study 3 181

Appendix F: Exploratory Moderation Analyses..... 182

Appendix G: Frequency and Percentage of Participant Responses of Adverse Life Events 183

CURRICULUM VITAE..... 184

LIST OF TABLES

Table 1. Summary of demographic and methodological details of the selected studies (N = 34) 34

Table 2. Initial 50-item set with theoretical foundation..... 77

Table 3. Rotated factor loadings for the 33-item set..... 79

Table 4. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2a 80

Table 5. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2b 88

Table 6. Alpha reliabilities, descriptive statistics and bivariate correlations: Study 2b RSOA factors and facets and external variables 89

Table 7. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2c 97

Table 8. Gender invariance fit indices. 98

Table 9. Means, standard deviations, alpha reliabilities and bivariate correlations for all study variables: Study 3..... 128

Table 10. Direct, total, and indirect effects and bootstrapped confidence intervals of perceived stress on resilience and quality of life. 130

Table 11. Direct, total, and indirect effects and bootstrapped confidence intervals of adverse life events on interpersonal resilience and quality of life..... 132

Table 12. Study 2b Model fit comparisons for facet-level CFA with and without outlier 180

Table 13. Study 2c Model fit comparisons for facet-level CFA with and without outlier 180

Table 14. Exploratory Moderation Analyses with Quality of Life as Outcome. 182

Table 15. Frequency of Geriatric Adverse Life Events Scale items. 183

LIST OF FIGURES

Figure 1. PRISMA flowchart for identifying, screening, and assessing eligibility of studies..... 33

Figure 2. Model of Resilience in Older Adulthood 43

Figure 3. Standardized results of the path analysis demonstrating the perceived stress-resilience-quality of life model..... 131

Figure 4. Standardized results of the path analysis demonstrating the adverse life events-interpersonal resilience-quality of life model 133

Figure 5. The frequency of participant scores on the Spiritual Factor..... 181

LIST OF APPENDICES

Appendix A: Research Ethics Approval Forms 172

Appendix B: Modified Cognitive Screening Items 178

Appendix C: The Resilience Scale for Older Adults 179

Appendix D: Analysis of Model Fit with and Without Outliers for Study 2 180

Appendix E: Frequency of Participant Spiritual Factor Scores for Study 3 181

Appendix F: Exploratory Moderation Analyses 182

Appendix G: Frequency and Percentage of Participant Responses of Adverse Life Events 183

CHAPTER 1: Introduction and Literature Review

1.1 Introduction

The world's population is aging rapidly. The worldwide proportion of individuals aged 60 and over is expected to double, and the proportion of adults over the age of 80 is expected to triple by the year 2050 (United Nations, 2015). Similarly, in Canada, it is expected that one in four people will be aged 65 or older by the year 2030 (Statistics Canada, 2014). The rapidly aging population is not a new concern. Gerontologists in the United States have been commenting on this impending population shift for decades (Havighurst & Albrecht, 1953; Cumming & Henry, 1961). This substantial shift in demographics can be attributed to the aging "baby boomer" generation coupled with the increasing number of people living well into older adulthood due to the considerable medical advances we've witnessed in the last century.

Despite substantial progressions in health care, older adulthood is associated with numerous, and often concurrent challenges that require adaptation (Staudinger, Marsiske & Baltes, 1995), including loss of family and friends, adjustment to retirement, increased likelihood of experiencing cognitive disorders (Jorm & Jolley, 1998) and greater prevalence of chronic illness (Wolff, Starfield & Anderson, 2002). More recently, new social, emotional, and health challenges presented by the global pandemic are of increasing concern to older adults who are disproportionately negatively affected by this virus across many life domains (Armitage & Nellums, 2020; Jordan, Adab & Cheng, 2020; Niu et al., 2020; Plagg, Engl, Piccoliori & Eisendle, 2020; Qiu et al., 2020; Shahid et al., 2020). This double-edged sword of greater longevity combined with increasing adversity suggests that resilience may be a particularly important factor for adapting to challenges in later life.

Resilience as a concept originated several decades ago in the developmental literature with the focus on children who faced substantial adversity yet still managed to thrive (Rutter, 1985; Masten & Garmezy, 1985). However, the study of resilience in older adults has only recently emerged as an important concept in the study of aging (Harris, 2008; Martin, Lee & Gilligan, 2019; Wild, Wiles & Allen, 2013) and as such, resilience measurement tools designed specifically for this population are lacking. To address this gap, the studies presented here provide the development, validation, and examination of the Resilience Scale for Older Adults (RSOA), a new measure of resilience protective factors in older adulthood.

1.2. Defining Resilience

Despite several decades of resilience research, there is still debate in the literature surrounding the definition of resilience (e.g., Luthar, Cicchetti & Becker, 2000; Aburn, Gott & Hoare, 2016). However, there is increasing consensus among researchers that resilience is a dynamic process that consists of positive adaptation in the face of adversity (e.g., Gillespie, Chaboyer & Wallis, 2007; Luthar & Cicchetti, 2000; Niitsu et al., 2017; Stainton et al., 2019; Windle, 2011) and may be experienced differently across the lifespan (Windle, 2011). Similarly, the American Psychological Association defines resilience as "the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress" (American Psychological Association, 2020). Within the resilience process there are three key features: adversity or risk, which is the necessary first component, protective and vulnerability factors which either improve or hinder an individual's adaptation to adversity, and positive adaptation or adjustment which is the outcome of resilience (Luthar & Cicchetti, 2000).

Often times the terms resilience and resiliency are used interchangeably. However, *resiliency* is often conceptualized as a profile of individual characteristics or personal attributes

and is differentiated from the construct of *resilience,* which is a developmental process of personal and situational factors influencing positive adaptation after experiencing a negative event (Luthar et al., 2000). By conceptualizing resilience as a dynamic process as opposed to a stable trait, it implies that resilience may change and develop, and that all individuals are capable of resilience despite their backgrounds, experiences or environments (MacLeod, Musich, Hawkins, Alsgaard & Wicker, 2016). This has important implications for promoting resilience intervention programs which may be particularly useful for older adults who often face a number of different challenges as they age (e.g., Staudinger et al., 1995).

1.3. The Resilience Process

The resilience process begins with the experience of risk or adversity. How adversity is operationalized in the literature varies widely and is usually determined by individual research aims (van Kessel, 2013). Traditionally, adversity has been defined as "the negative life circumstances that are known to be statistically associated with adjustment difficulties" (Luthar & Cicchetti, 2000, p. 858). In older adulthood, common adversities include death of spouse and friends, loss of social standing, declines in physical functioning, and financial uncertainty (Smith & Hayslip, 2012). Instances of adversity can be chronic or acute (Vanderbilt-Adriance & Shaw, 2008), and while major life changing events and daily challenges are both considered adversities (Davis, Luecken and Lemery-Chalfant, 2009), the majority of research with older adults tends to conceptualize adversity as ongoing negative life stressors (i.e., the process of aging and dying, and experiencing poor health) as opposed to acute major events (van Kessel, 2013). Furthermore, it is suggested that the effect of cumulative risk or adversity may be more significant than any individual risk factor (Wright & Masten, 2005), which is an important consideration for older

adults who tend to experience a number of challenges and adversities concurrently (Staudinger et al., 1995).

The outcome of the resilience process is positive adjustment or adaptation, however what constitutes positive adaptation varies considerably, and must be considered within the context of the risk experienced (Luthar & Cushing, 1999). Windle (2011) defines the outcome of resilience as "the maintenance of normal functioning (mental or physical health), or better than expected development or functioning, given exposure to the adversity under question" (p. 158). For example, in instances where individuals are exposed to a traumatic event (e.g., natural disaster, terrorism), an appropriate resilient outcome would be lack of psychological disorder, compared to better than expected functioning (Smith & Hayslip, 2012). This distinction is important for older adults in particular, as maintaining close to normal functioning in the face of adversity may be the most realistic and achievable outcome for individuals of very advanced age (Hayman, Kerse & Consedine, 2017).

Protective and vulnerability factors are the mechanisms that determine how well an individual adapts when faced with adversity. Protective factors are those that "modify the effects of risk in a positive direction" (Luthar & Cicchetti, 2000, p. 859), while vulnerability factors are those that "exacerbate the negative effects of the risk condition" (Luthar & Cicchetti, 2000, p. 859). Protective and vulnerability factors can exist at the individual, family or community level (e.g., Masten, Best & Garmezy, 1990) and can vary across contexts and the lifespan (Luthar et al., 2000; Ungar, 2008; Windle, 2011). Emotional reactivity, or how adversely an individual is impacted by negative emotions, is one individual-level vulnerability factor that has been studied across the lifespan (e.g., Prince-Embury, 2014; Prince-Embury, Saklofske & Nordstokke, 2017; Stawski, Sliwinski, Almeida & Smyth, 2008). However some research indicates that in response

to stressors, older adults are less emotionally reactive than younger adults (Birditt, Fingerman, & Almeida, 2005; Neupert, Almeida, & Charles, 2007; Uchino, Berg, Smith, Pearce, & Skinner, 2006) which could suggest emotional reactivity may be a less salient risk factor with increasing age. Conversely, lack of quality interpersonal relationships or feelings of relatedness is a significant family or community level vulnerability factor that is also applicable across the lifespan (Masten & Wright, 2009; Prince-Embury, 2014; Ong, Bergeman & Boker, 2009; Ungar, 2010), although it may manifest differently in children (i.e., poor attachment relationships) compared to older adults (i.e., lack of instrumental support).

Reviews of protective factors in older adults suggest that the majority of factors can be classified as individual/internal or environmental/external (Bolton, Praetorius & Smith-Osborne, 2016; van Kessel, 2013; Wilson, Walker & Saklofske, 2020; Smith & Hayslip, 2012). Examples of individual factors include having a positive perspective, sense of meaning, and independence (Bolton et al., 2016; Wilson et al., 2020), spirituality (e.g., Kinsel, 2005; Wilson et al., 2020), self-efficacy (e.g., Emlet, Tozay & Raveis, 2011; Wilson et al., 2020) and a future orientation (e.g., Janssen, Van Regenmortel & Abma, 2011). External factors include interpersonal connections (e.g., Bolton et al., 2016; Wiles, Wild, Kerse & Allen, 2012; Wilson et al., 2020), and societal and community supports such as access to care (Janssen et al., 2011). A more in-depth description of relevant resilience protective factors is provided in chapter 2.

Overall, similarly to the primary area of focus in the child resilience literature (Richardson, 2002), resilience research among older adults has largely focused on the study of protective factors that facilitate positive adaptation in the face of adversity, and less attention has been directed towards the study of vulnerability factors that exacerbate risk (Luthar et al., 2000). This pattern may be attributed to the increasing movement towards utilizing strength-based

approaches in the study of aging (Perkins & Whittington, 2014), in addition to the rapidly expanding positive psychology movement which places greater emphasis on personal strengths and positive outcomes (e.g., Ryff & Singer, 2000; Seligman & Csikszentmihalyi, 2000). The present work aims to continue with this optimistic line of inquiry by developing a model and measure of resilience protective factors in older adulthood.

1.4. Differentiating Resilience from Similar Concepts

Within the positive psychology literature there are a number of constructs that are used to describe processes and mechanisms surrounding individual strengths. Many of these terms are similar or related to resilience, however a growing literature suggests they are independent constructs. For instance, grit, which is concerned with perseverance towards long-term goals despite failure or adversity (Duckworth, Peterson, Matthews, & Kelly, 2007) is similar to determination and perseverance which are important contributing factors to resilience, however grit is focused more towards specific goals and does not require adverse situations, whereas resilience is not goal-specific, and requires some experience of adversity (Duckworth et al., 2007; Georgoulas-Sherry & Kelly, 2019; Maddi, Matthews, Kelly, Villarreal & White, 2012). Similarly, the concepts of hardiness (i.e., feelings of commitment, control, and challenge; Kobasa, 1979) and coping (i.e., efforts to manage taxing demands; Lazarus and Folkman, 1984) are two constructs that relate to resilience as they may serve as protective factors in the resilience process. Moreover, research has indicated that both hardiness and coping styles moderate the relationship between stress from negative life events and psychological health (Beasley, Thompson & Davidson, 2003). However, Georgoulas-Sherry and Kelly (2019) examined the factor structures of grit, hardiness, and resilience and found each construct consisted of independent and unique factor structures providing support for the independence of resilience.

On the other hand, some constructs that are similar to resilience are more overarching, such as sense of coherence, defined as a "global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one's internal and external environments are predictable and that there is a high probability that things will work out as well as can reasonably be expected." (Antonovsky, 1979, p. 123). This construct refers to an overall orientation or mindset that challenges in life are meaningful and manageable while resilience is more focused on the mechanisms that facilitate adaptation to adversity (Lundman et al., 2010). Another salutogenic concept that appears similar to resilience is posttraumatic growth which refers to perceived personal benefits and a positive outlook following trauma (Tedeschi & Calhoun, 1996). Posttraumatic growth requires positive changes in self-perceptions, relationships, and outlooks on life as a result of coping with trauma (Tedeschi & Calhoun, 1996) whereas resilience does not require a grand personal transformation; simply returning to normal functioning is often a common and adequate outcome in the resilience process (Luthar & Cushing, 1999; Windle, 2011). Overall, while there are similarities among these concepts, resilience has been identified as an independent construct in the literature and merits further investigation (Georgoulas-Sherry & Kelly, 2019).

1.5. Relevance of Resilience in Older Adulthood

With the increasing shift away from focusing on treating problems and pathology toward a greater focus on strengths-based models (Perkins & Whittington, 2014) the resilience concept has much to offer the psychological and gerontological literature and is increasingly viewed as an important concept among aging researchers (e.g., Harris, 2008; Martin et al., 2019; Wild et al., 2013). While other concepts such as "successful aging" and "healthy aging" sound optimistic, they are still largely focused on avoiding problems (Scheidt, Humphreys & Yorgason,

1999; Strawbridge, Wallhagen & Cohen, 2002; Rubinstein & de Medeiros, 2014) which for many older adults is unavoidable and unrealistic (Atchley, 1972; Harris, 2008; Minkler & Fadem, 2002). In contrast, resilience research is less focused on evading difficulties and decline, but instead focuses on the experience of adversity and how older adults adapt when faced with challenges (Felton & Hall, 2001; Wild et al., 2013). Thus, for older adults, focusing on resilience in the face of adversity, as opposed to avoiding adversity, may be a more inclusive, and realistic option in regard to aging (Gattuso, 2003; Harris, 2008).

In addition to providing a strengths-based approach to addressing adversity in aging, resilience in older adulthood is associated with a number of positive outcomes. Numerous studies have found that resilience predicts greater overall mental health in older adult samples (Nygren et al., 2005; Smith & Hollinger-Smith, 2015; Windle, Woods & Markland, 2010; Mehta et al., 2008), and is also associated with better physical health (Lamond et al., 2008; Wells, 2009). Increased resilience among older adults significantly predicts lower levels of depression and depressive symptoms (Schure, Odden & Goins, 2013; Wells, Avers & Brooks, 2012), as well as increases in positive emotions (Ong, Bergeman, Bisconti & Wallace, 2006). Greater resilience is also associated with a number of other desirable outcomes in older adulthood such as life satisfaction (Wagnild, 2003; Leppert, Gunzelmann, Schumacher, Strauss, & Brahler, 2005), quality of life (Battalio et al., 2017) and well-being (Lamond et al., 2008).

While there are many important outcomes associated with resilience, in order for resilience research to have implications for policy and for older people themselves, it needs to be conceptualized in a way that is meaningful to older adults (Bowling and Dieppe, 2005). One means of achieving this is by asking older adults what resilience means to them (Wild et al., 2013). Findings from the successful aging literature provide support for the importance of older

adults' perspectives when studying concepts that are relevant to aging. For instance, a number of studies comparing participants self-ratings of successful aging to researcher-defined objective ratings indicated that a substantially greater percentage of older adults considered themselves to be aging successfully, despite many not meeting the researcher-defined criteria for successful aging (Cosco, Prina, Perales, Stephan & Brayne, 2014; Strawbridge et al., 2002; Von Faber et al., 2001). In terms of resilience, findings from qualitative studies indicate that while many resilience factors relevant to older adults overlap with researcher definitions, other resilience indicators (e.g., physical health, activities of daily living, mobility) that are often proposed by researchers (Hicks & Conner, 2014; MacLeod et al., 2016) are less consistently mentioned by older adults as being relevant resilience factors (Bolton et al., 2016; Wilson et al., 2020). Thus, to ensure resilience research is relevant and applicable for older adults, it is important to consider older adults' conceptualizations of the construct.

1.6. Measuring Resilience in Older Adulthood

A number of measures have been developed to assess resilience in adults (Cosco, Kaushal, Richards, Kuh & Stafford, 2016; Pangallo, Zibarras, Lewis & Flaxman, 2015; Smith-Osborne & Bolton, 2013; Windle, Bennet & Noyes, 2011; Prince-Embury, Saklofske & Vesely, 2015), however the majority of these measures were developed with young to middle-aged adult samples. Cosco and colleagues (2016) conducted a review of adult resilience measurement scales that have been validated with older adult samples. Their findings indicated that the Resilience Scale (Wagnild & Young, 1993), the Connor-Davidson Resilience Scale (Connor & Davidson, 2003) and the Brief Resilient Coping Scale (Sinclair & Wallston, 2004) all demonstrated suitable reliability and validity, however the factor structures when analysed with older adults differed

from those in the original samples, suggesting that resilience may manifest differently across age groups.

To date, only three published scales have been developed specifically with older adult samples and each suffers from limitations. The Resilience Scale (RS; Wagnild & Young, 1993) while currently recommended as the most suitable existing measure for use with older adults (Cosco et al., 2016), only assesses dispositional resilience, and lacks key resilience factors that are critical to resilience in older adults (e.g., relationships, social support). The Multidimensional Individual and Interpersonal Resilience Measure (MIIRM; Martin, Distelberg, Palmer & Jeste, 2015) was developed by identifying protective factors from a large secondary dataset, and as such was limited to the researcher-defined factors present in the archived dataset. Lastly, the Hardy-Gill Resilience Scale (Hardy, Concato & Gill, 2004) asks participants how well they adapted after experiencing a negative event but does not assess what factors contribute to their resilience. A more in-depth description of the various resilience measures and models is provided in chapters 2 and 3. Overall, while a number of existing measures may be acceptable for use with older adults, they are limited in scope. Thus, the resilience literature would benefit from a comprehensive measure that was developed specifically for an older adult population, and theoretically grounded in factors relevant to older adults.

1.7. Overview of Current Studies

Growing older is associated with numerous challenges. Some of these challenges are unique from those faced by younger adults, and therefore may be influenced by different protective factors. To date, the literature lacks a suitable measure to assess resilience protective factors in an older adult population. The main objective of this dissertation research is to develop the Resilience Scale for Older Adults (RSOA), a comprehensive measure of resilience protective

factors that is specifically designed for use in an older adult population. To ensure the measure assesses the protective factors relevant to this unique population, findings from a qualitative metasynthesis (QMS) are presented in Study 1. The QMS provides a theoretical model of resilience in older adulthood formed from the existing older adult qualitative resilience literature. Guided by this theoretical model, Study 2a provides the initial development of the RSOA using exploratory factor analysis. Studies 2b and 2c utilize confirmatory factor analysis to validate the factor structure of the RSOA in two new samples, provide initial validity and reliability information, and examine gender invariance. Lastly, Study 3 explores the applied utility of the RSOA by examining resilience protective factors as mediators in the relationship between stress and adverse life events and quality of life.

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CHAPTER 2: Study 1: Developing a Model of Resilience in Older Adulthood: A Qualitative Metasynthesis[1]

2.1. Introduction

The world's population is aging rapidly (United Nations, 2015). This demographic shift can be attributed to the increasing number of people living well into their later years, primarily due to the outstanding medical and health advances we have witnessed since the turn of the century. Despite these progressions, the older adult population still experiences many challenges including greater incidence of chronic illness (Wolff, Starfield & Anderson, 2002), increased potential of developing cognitive disorders (Jorm & Jolley, 1998), and increased likelihood of spousal bereavement. This double-edged sword of increased longevity, but greater adversity, suggests that psychological resilience may be a particularly important factor for individuals later in life.

Resilience, broadly defined as a dynamic process resulting in positive adaptation within the context of adversity (Luthar, Cicchetti & Becker, 2000) is becoming increasingly important in the study of aging (Harris, 2008; Wild, Wiles & Allen, 2013). While there is no consistently agreed upon definition of resilience among researchers (e.g., Fletcher & Sarkar, 2013; Southwick, Bonanno, Masten, Panter-Brick & Yehuda, 2014), it is increasingly being viewed as a process that begins with adversity, consists of a number of defining attributes, and results in positive adaptation (e.g., Gillespie, Chaboyer & Wallis, 2007; Windle, 2011; Niitsu et al., 2017).

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Although there is now general consensus that resilience is a dynamic process (e.g., Stainton et al., 2019), in the past, researchers have been divided on which components of this process should constitute the primary feature of resilience. Some choose to operationalize resilience as positive adaptation, or the outcome component of the resilience process (e.g., Bonanno, 2004) while others focus on the defining attributes or protective factors that lead to successful adaptation (e.g., Rutter, 1985; Hjemdal, Friborg, Stiles, Rosenvinge & Martinussen, 2006). However, an important feature of the resilience process is that the defining attributes or protective factors are not static and can manifest differently across varying domains and contexts and across the lifespan (e.g., Luthar et al., 2000; Ungar 2008). For instance, within the context of a life course approach, Windle (2011) identified individual resources, life experiences, and environmental factors as the defining attributes of resilience, which may be experienced differently across the life span. Given the dynamic nature of protective factors across time and circumstances, the present study examines which protective factors have been implicated as important for individuals in later life.

The psychological concept of resilience originated in the developmental literature examining how children who faced adversity still managed to thrive (Masten & Garmezy, 1985; Rutter, 1985); however, given the many challenges associated with aging, it is also important to understand resilience later in the lifespan. There are currently several models of resilience in the literature with most developed or intended for use with children or young adults (Windle, Bennett & Noyes, 2011). This study aims to amalgamate qualitative resilience research conducted with older adults to develop a model of resilience protective factors that is relevant and appropriate for older adulthood.

2.1.1. Existing Adult Resilience Models

A number of resilience models resulting in various scales have been developed to describe resilience or resiliency in adults (Prince-Embury, Saklofske & Vesely, 2015), although the majority were not specifically developed for an older adult population (i.e., over the age of 60). One frequently used five-factor model that comprises the Connor-Davidson Resilience Scale (Connor & Davidson, 2003) was developed to describe stress and coping ability in adult clinical samples. This model consists of the following factors: 1) Personal Competence, Tenacity, and High Standards; 2) Tolerance of Negative Emotions, Strengthening Effects of Stress, and Trusting One's Instincts; 3) Secure Relationships and Positive Acceptance of Change; 4) Control, and; 5) Spiritual Influences. However, previous research examining the use of this model and measure in older adult samples have revealed inconsistencies in the number of factors that are produced in an older sample. While one study indicated the factors were consistent across the lifespan (Liu, Fairweather-Schmidt, Burns & Roberts, 2015), other studies have found inconsistent factor structures (Lamond et al., 2008; Goins, Gregg & Fiske, 2013), suggesting that resilience may manifest differently at different ages (Cosco, Kaushal, Richards, Kuh & Stafford, 2016).

Another commonly used resilience model reflected in the Resilience Scale (Wagnild & Young, 1993) was originally developed through qualitative interviews with older women (mean age = 78.1 years) and consists of five themes including: 1) Equanimity; 2) Perseverance; 3) Self-reliance; 4) Meaningfulness, and; 5) Existential Aloneness. Despite being the most relevant model of resilience for an older population (Cosco et al., 2016; Resnick & Inguito, 2011), this model focuses primarily on dispositional resilience and lacks other key external factors of resilience, such as social support.

A less commonly used model is one that comprises The Resilience Scale for Adults (Friborg, Hjemdal, Rosenvinge & Martinussen, 2003; Friborg, Barlaug, Martinussen, Rosenvinge & Hjemdal, 2005) and was developed primarily with younger adults aged 20-50. This five-factor model consists of: 1) Personal Competence; 2) Social Competence; 3) Personal Structure; 4) Family Cohesion, and; 5) Social Support. However, to date, this model has yet to be validated with an older adult sample.

Lastly, two models of resilience initially developed with children and adolescents have recently been adapted to be applicable to adults. The Three-Factor Model of Personal Resiliency (Prince-Embury, 2006, 2014) is theoretically rooted in systems that are fundamental to development and identifies three factors that are consistently indicated as important aspects of personal resiliency. These three factors are: 1) Sense of Mastery (protective factor); 2) Sense of Relatedness (protective factor), and; 3) Emotional Reactivity (vulnerability factor) (Prince-Embury, Saklofske & Nordstokke, 2017). However, preliminary research examining the Three-Factor Model of Personal Resiliency (Prince-Embury et al., 2017) in an older adult sample suggests that while the factor structure is similar, there is considerable overlap between the protective factors, suggesting that resiliency may reflect differently in older adults (Wilson & Saklofske, 2018). Additionally, the resilience model described by Liebenberg, Ungar and Vijver (2012) which consists of 1) Individual; 2) Relational and; 3) Contextual factors was initially developed with children and youth but has recently been adapted to assess resilience in an adult sample (Liebenberg & Moore, 2018). While very preliminary findings indicate it is a potentially suitable model for use with adults (Liebenberg & Moore, 2018) it is limited by its theoretical underpinnings in the child and youth literature.

Given the lack of resilience models specific to later life, the majority of resilience research in older adulthood has been conducted using these aforementioned models that were developed for children or middle-aged adults (Windle et al., 2011). However, this is problematic because different processes may underlie resilience across the lifespan. For instance, Gooding, Hurst, Johnson and Tarrier (2011) found that older adults with poor physical and mental health reported high resilience, whereas younger adults with poor physical and mental health did not. Further, validations of resilience scales in older populations have revealed differences in the factor structure between the older and the younger samples within which the scales were initially validated (Girtler et al., 2010; Lamond et al., 2008; Resnick & Inguito, 2011; von Eisenhart et al., 2013). These differences in the factor structures and findings across age groups suggest that resilience factors may present differently across the lifespan, thus supporting the need for age-specific models of resilience.

2.1.2. Resilience from Older Adults' Perspectives

More recent research is exploring what it means to be resilient from older adults' perspectives. A number of qualitative studies have examined what it means to be resilient in a variety of samples and contexts. Studies frequently report on samples of community-dwelling older adults (Felten, 2000; Kwong, Du & Xu, 2015; Lou & Ng, 2012; Wagnild & Young, 1990; Wiles, Wild, Kerse & Allen, 2012); however, a number of diverse samples have also been examined including older gay men and lesbians (Higgins, Sharek & Glacken, 2016; Hrostowski, 2013), older adults living with HIV/AIDS (Emlet, Tozay & Raveis, 2011), hospice patients (Nakashima & Canda, 2005), older cancer patients (Pentz, 2005), incarcerated older men (de Guzman, Imperial, Javier & Kawasaki, 2017), and older hurricane survivors (Hrostowski & Rehner, 2012; Thomas, 2012).

Although previous studies have independently examined resilience from the perspective of older adults, only one study to date has attempted to integrate these findings into a cohesive collection of themes. Bolton, Praetorius and Smith-Osborne's (2016) qualitative meta-synthesis of 12 studies revealed nine overarching protective factors. These protective factors included: 1) Altruism; 2) External Connections; 3) Grit; 4) Independence; 5) Meaningfulness; 6) Positive Perspective on Life; 7) Previous Experience with Hardship; 8) Self-Acceptance, and; 9) Self-Care. Bolton and colleague's (2016) metasynthesis provided valuable initial research for understanding protective factors among older adults; however, the number of qualitative studies examining resilience in an older adult sample has increased substantially in recent years. The present study aims to expand on this earlier metasynthesis by including the substantial number of contemporary studies that have emerged. Further, the current study aims to expand on previous research by developing a theoretical model of resilience protective factors that extends beyond the descriptive findings in the literature and can be applied specifically to an older adult population.

2.1.3. Study Objectives and Rationale

Given researchers' increasing interest in resilience among older adults over the last several decades, there is sufficient qualitative research from older adults' perspectives to develop a formal model of resilience in older adulthood using Qualitative Metasynthesis (QMS) (Glaser & Strauss, 1967). This method increases the likelihood that the theory being developed is relevant to and appropriate for the population of interest and complements the recommendation by Bowling and Dieppe (2005) that in order for resilience research to have implications for policy and for older people themselves, it needs to be conceptualized in a way that is meaningful to and for older adults. Therefore, the objectives of this study are twofold. First, this study aims

to expand on previous research by reviewing and synthesizing the qualitative findings of resilience protective factors from older adults' perspectives. Second, this study aims to use the QMS findings to develop a model that may provide researchers and practitioners with a general over-arching theory of resilience protective factors in older adulthood.

2.2. Method

QMS is a valuable method of secondary data collection that involves collecting, summarizing, and interpreting qualitative data from a number of studies examining a particular phenomenon (Jensen & Allen, 1996). The main goal of QMS is to inform theory-building and development (Schreiber, Crooks & Stern, 1997). QMS is a useful method of theory development, as it draws from multiple studies that have identified themes grounded in data from similar samples of individuals. By combining and interpreting qualitative data from several studies, common themes that exist across studies emerge, resulting in enhanced validity and generalizability of these concepts (Estabrooks, Field & Morse, 1994).

2.2.1. Synthesis Methodology

This QMS utilized a Grounded Formal Theory (GFT) approach to synthesize the findings (Kearney, 1998). The GFT approach was developed specifically for the synthesis of qualitative data by interpreting previously developed substantive grounded theories. By comparing existing context-specific theoretical models, GFT aims to develop a more general, overarching theory for a human phenomenon that is applicable across varying contexts. This is accomplished using the same methods of the original Grounded Theory approach which include theoretical sampling, constant comparison, and developing codes and categories from the data instead of having predetermined hypotheses (Charmaz, 1983; Glaser & Strauss, 1967; Strauss & Corbin, 1994).

2.2.2. Data Sources

Data collection began with broad theoretical sampling of qualitative studies concentrating on resilience among older adults. To ensure the data sources would be wide-ranging enough to capture emerging theory, sampling was not limited to predetermined groups (Kearney, 1998). The following keywords were searched: *resilience, resilient, resiliency, older adults, older adulthood, elderly, elder, seniors, qualitative, mixed-methods, interview, focus groups, perspectives.* Computer-aided searches were conducted with the following datasets: PsycINFO, PubMed, SCOPUS, CINAHL, and ProQuest Dissertations and Theses. The references of relevant articles were also reviewed to ensure all relevant literature was included. This search strategy was developed in conjunction with a Research and Instructional Librarian.

2.2.3. Inclusion/Exclusion Criteria

The inclusion criteria consisted of: 1) Studies utilizing qualitative data collection approaches (including mixed methods); 2) Samples defined as, or synonymous with "older adults" (e.g., seniors, elders, elderly, aged); 3) Studies written and published in the English language; 4) Study methodology that included examining participants' perceptions of resilience; 5) Studies published prior to April 2019. Studies were excluded if they did not focus on psychological resilience, and if the sample included younger or middle-aged adults. In an attempt to include studies with wide-ranging age groups and to ensure theoretical sampling was achieved, no specific age range was applied, however, studies must have operationally defined their sample as "older adults". Additionally, given that the study of resilience in an older adult population has only relatively recently become a popular area of research, it was anticipated that the total number of studies would not be so large that a limit on the year of publication would be required. Therefore, no limit was applied to year of publication to ensure all relevant studies

were examined. Studies that focused solely on resilience-adjacent terms (e.g., successful aging, well-being, healthy aging) were not included.

2.2.4. Data Analysis

Studies were screened by two independent reviewers. Study title and abstract were screened first, followed by full-text review. Any discrepancies between reviewers were discussed in-depth until consensus was reached. As recommended by the *Enhancing Transparency in Reporting the Synthesis of Qualitative Research* (ENTREQ) guidelines for conducting and reporting the findings of QMS (Tong, Flemming, McInnes, Oliver & Craig, 2012), a flowchart guided by the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA; Moher, Liberati, Tetzlaff & Altman, 2009) is provided (see Figure 1). A total of 34 articles meeting the inclusion and exclusion criteria were deemed suitable for analysis. The methodological quality of each study was independently assessed by two reviewers. Studies were evaluated using the Critical Appraisal Skills Program (CASP) qualitative checklist. The CASP is a widely used method of evaluating the quality of qualitative studies (Hannes & Macaitis, 2012). Each of the 34 studies met the criteria outlined in the CASP and therefore were deemed to be of suitable quality.

All of the content in the “Results” section of each article was extracted and compiled in a single Microsoft Word document. The qualitative data extracted from the studies were analyzed independently by two reviewers using Grounded Theory techniques described by Glaser (1978) and Strauss (1987). An initial data source was selected (i.e., the oldest article) and line-by-line open coding was performed at the descriptive level. Initial descriptive coding then extended to theoretical coding, resulting in categories. Next, subsequent data sources were coded using constant comparison analysis by returning to previously coded articles and comparing codes and

categories resulting in the development of themes. Throughout the coding process, memoing was performed to record theoretical reflections and relationships between the data.

Once the themes were identified, data synthesis began with the process of translation, which maintains the integrity of the original studies, while simultaneously amalgamating similar themes (Noblit & Hare, 1988). Translation includes comparing central concepts in one study to central concepts in the other studies. Quotes from the original studies are provided herein as one means of maintaining the integrity of the original study (Jensen & Allen, 1996).

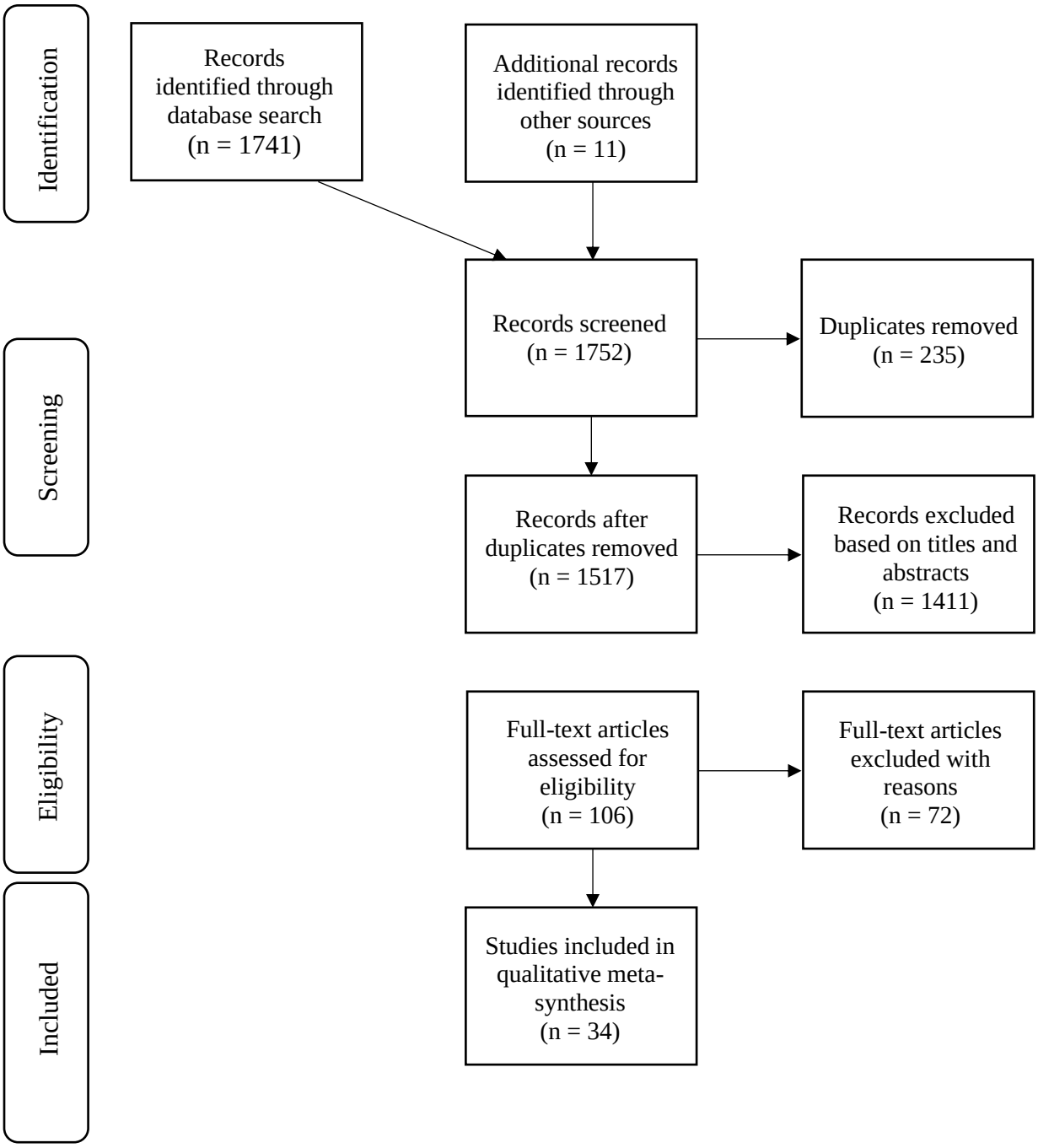

Figure 1. PRISMA flowchart for identifying, screening, and assessing eligibility of studies

To ensure the trustworthiness of the synthesis, triangulation was performed. According to Patton (2002) the four types of triangulation are: sources, methods, tradition, and analysts. These first three modes of triangulation are inherent in the nature of a QMS, as multiple sources are examined using a combination of methods (e.g., interviews, focus groups), and using a variety of qualitative traditions (e.g., narrative, phenomenology). Analyst triangulation was ensured by having two objective investigators participate in the data analysis process.

2.3. Results

The author(s), setting, population, participant demographic information, and methodology for each study is summarized in Table 1.

Table 1. Summary of demographic and methodological details of the selected studies (N = 34)

Authors	**Methodology**	**Setting**	**Population**	**N**	**Gender**	**Age**
Adams (1997)*	Case Study	United States	Community-dwelling adults	10	7 female; 3 male	85+
Bailey (2017)*	Grounded Theory	Scotland	Adults with Dementia	7	4 females; 3 males	69-82
Bohannan-Calloway (2016)*	Thematic Analysis	United States	Lesbian, gay, bisexual, transgender adults	14	1 female; 6 male; 7 transgender	57-77
Buggins (2016)*	Narrative	England	Adults living with Dementia	8	3 females; 5 males	68-82
Chapman (2015)*	Phenomenology	United States	Older survivors of childhood abuse	13	12 females; 1 male	69-97
Cheung & Kam (2012)	Grounded Theory	China	Community-dwelling adults	15	10 females; 5 males	62-85
Crummy (2002)*	Phenomenology	United States	Community-dwelling widowers	19	male	71-100
de Guzman, Imperial, Javier & Kawasaki (2017)	Grounded Theory	The Philippines	Incarcerated older adults	25	male	60-80
Felten (2000)	Grounded Theory	United States	Community-dwelling	7	female	85+

Grandbois & Sanders (2009)	Thematic Analysis	United States	Native American Elders	8	3 females; 5 males	57-83
Harders (2002)*	Phenomenology	United States	Rural farmers	7	6 female; 1 male	65-85
Harris (2008)	Case Study	United States	Adults with dementia	2	1 female; 1 male	61 & 71
Hassani, Izadi-Avanji, Rakhshan & Majd (2017)	Phenomenology	Iran	Hospitalized adults with chronic illness	22	12 females; 10 males	65-82
Higgins, Sharek & Glacken (2016)	Thematic Analysis	Ireland	Lesbian, gay, bisexual, transgender adults	36	11 females; 22 males; 2 transgender; 1 other	55-80
Hrostowski & Rehner (2012)	Phenomenology	United States	Older survivors of Hurricane Katrina	10	6 females; 4 males	67-83
Janssen, Van Regenmortel & Abma (2011)	Thematic Analysis	The Netherlands	Adults living in long-term care facilities	29	18 females; 11 males	59-90
Johnson (2005)*	Thematic Analysis	United States	African-American women	15	female	85-104
Kinsel (2005)	Thematic Analysis	United States	Community-dwelling women	17	female	70-80
Kok, van Nes, Deeg, Widdershoven & Huisman (2018)	Grounded Theory	The Netherlands	Community-dwelling adults with low socioeconomic status	11	7 females; 4 males	78-93
Li, Xu & Chi, (2018)	Thematic Analysis	United States	Chinese immigrants to United States	24	13 females; 11 males	65-92
Lou & Ng (2012)	Thematic Analysis	China	Community-dwelling adults living alone	13	8 females; 5 males	62-88
Manning & Bouchard (2019)	Grounded Theory	United States	Community-dwelling adults	64	34 females; 30 males	53-94
Melici (2016)*	Phenomenology	United States	Community-dwelling adults	5	female	81-92
Neary (1997)*	Grounded Theory	United States	Chronically ill community-dwelling women	18	female	72-98
Nelson-Becker (2006)	Grounded Theory	United Stated	Hospice-care adults	30	62% female; 38% male	63-96
Ottmann & Maragoudaki (2015)	Narrative	Australia	Community-dwelling adults	32	19 females; 13 males	60-100

Pathike, O'Brien & Hunter (2017)	Ethnography	Thailand	Rural Thai adults	35	20 female; 15 male	60-80+
Pieters (2016)	Grounded Theory	United States	Breast cancer survivors	18	female	70-94
Price, Kinghorn, Patrick & Cardell (2012)	Case Study	United States	Older man who had suffered a stroke	1	1 male	70's
Reinschmidt, Attakai, Kahn, Whitewater & Teufel-Shone (2016)	Narrative	United States	American Indian Elders	13	female	55+
Rogerson (2009)*	Grounded Theory	Canada	Community-dwelling women	32	female	55-97
Thomas (2012)	Grounded Theory	United States	Older African American survivors of Hurricane Katrina	10	8 females; 2 males	55-76
Wagnild & Young (1990)	Grounded Theory	United States	Community-dwelling women	24	female	67-92
Wiles, Wild, Kerse & Allen (2012)	Case Study	New Zealand	Adults living in two "deprived" communities	121	77 females; 44 males	56-92

Note. * indicates a doctoral dissertation

2.3.1. Synthesis Output and Themes

Theoretical coding revealed 8 themes common across the studies: 1) Perseverance and Determination; 2) Self-Efficacy and Independence; 3) Purpose and Meaning; 4) Positive Perspective; 5) Social Support; 6) Faith and Prayer; 7) Previous Experience; and 8) Proactivity. Each of these themes serves as a resilience protective factor relevant to older adults.

2.3.1.1. Perseverance and determination. Perseverance and determination is the overarching theme chosen to describe the drive to move forward despite facing significant challenge or adversity. This was demonstrated in a variety of contexts including perseverance in completing challenging tasks, being determined to do what needed to be done despite

experiencing grief and having the will to live or carry on. For instance, one older person who had a stroke said,

> "*You don't have much choice. Determination gets you through. I've got plenty of that. Just keep your nose to the grindstone*" (Wagnild & Young, 1993, p. 253).

Other individuals who had experienced significant illness indicated that their strength and survival was largely due to their mindset rather than to coincidence or fate. For instance, one woman who experienced physical health problems said,

> "*I just wasn't going to let it defeat me. I had the will to continue on anyway*" (Felten, 2000, p. 110).

This internal sense of tenacity demonstrated by individuals across a variety of studies and contexts was key to their successful adaptation in the face of adversity.

2.3.1.2. Self-efficacy and independence. The theme of self-efficacy and independence describes the belief held by resilient individuals that they are capable of exerting control over their mindsets, behaviours, and environments. This is seen in the form of having confidence in their ability to accomplish tasks, as well as being able to successfully adapt and activate resources to achieve desired goals. One man who had recently experienced a challenging life event indicated that,

> "*The ones that are resilient are the ones that realize their capabilities and they will work hard to those capabilities and beyond them if they can, but if they can't move beyond it, they will ask for help*" (Ottman & Maragoudaki, 2015, p. 2081).

For many participants, maintaining independence was the preferred choice; however, it was not always feasible. When independence was threatened, resilient individuals were able to seek out resources that would allow them to retain some of their autonomy. One individual diagnosed

with dementia described his use of technological supports that allowed him to continue living at home:

> "*I have a real problem with remembering appointments. So I bought this small computer… this reminds me that I have an appointment. I set it so the alarm rings to remind me. When it goes off, I check it and it tells me where I need to be…This is the hand you were dealt with, so you learn tricks to help you cope with your problems*" (Harris, 2008, p. 55).

Therefore, the belief in oneself and one's ability to accomplish goals either unassisted, or by adapting and mobilizing supports, was reflected among resilient older adults.

2.3.1.3. Purpose and meaning. The theme of purpose and meaning describes one contributing factor that drives older adults to carry on in the face of adversity. Having a sense of purpose, as well as having things to look forward to in the future, is important motivation that protects older adults during difficult times. One man who survived cancer indicated,

> "*It's important to be purposeful. No question, everybody should have distant plans and goals and ends in life. Purposes that they attach themselves to; seek to realize as best they can in their lives and in whatever way they can have extensions beyond their lives to society*" (Adams, 1997, p. 123).

Similarly, feeling valued and having a sense of meaning in their lives drives older adults to focus on the future and overcome challenges that they may face in the present. When asked to give advice on how to be resilient, one older adult replied,

> "*I think I'd explore with the person what's meaningful for them…It's tricky really, but I think you've just got to start where a person is and then see what might enrich their lives,*

> *to give them meaning…Living in the now, making the most of life*" (Ottmann & Maragoudaki, 2015, p. 2086).

Having a sense of purpose and attributing meaning to one's life protects older adults in the face of adversity by providing them with something future oriented to strive towards.

2.3.1.4. Positive perspective. Having a positive perspective towards life was a prominent theme across the studies. Resilient older adults described themselves as being optimistic, always trying to make the best out of bad situations, looking on the bright side, and generally trying to find the good in life. As one older breast cancer survivor indicated,

> "*It's life…If you don't take what they give you and make lemonade, then you're gonna have some sour mess to deal with. I'd rather make lemonade*" (Pieters, 2016, p. 24).

Having a general positive attitude served as a buffer against adversity, enabling older adults to reframe the situation and look for something more positive. This was sometimes achieved by focusing attention away from the negative situation, and instead focusing on more positive outcomes. As one man with a history of medical problems said,

> "*Ah, once again my positive attitude gets me through lots of things. People say, 'Well, how did you cope with so-and-so?' And I say, 'Well, you've got to, you can't do nothing about it. All you can do is say, 'Now, how can I get on with my life?' And that's my attitude to everything that's happened*" (Wiles et al., 2012, p. 418).

Having a positive perspective is an important protective factor as it prevents older adults from dwelling on the negative, particularly in situations that are beyond their control.

2.3.1.5. Social support. The theme of social support was crucial for experiencing resilience in older adulthood. Support is obtained from a variety of sources including family (e.g., spouses and children), friends, neighbours, church communities, and health professionals.

Social support networks also provided older individuals with the opportunity to emotionally support others, which was mutually beneficial. Having strong social support was not only emotionally beneficial, but also instrumentally important for older adults. As one man with mild dementia said,

> "*My daughter said she would come in and see me after lunch, which is what she often does, pops in, and I'm alright if I know somebody is coming. If I know that I've got somebody to come in at the middle of the day or that, I'm alright. I'm alright on my own then*" (Bailey, 2017, p. 85).

This quote highlights the interconnectedness of social support, self-efficacy, and independence. Having strong social support allows older individuals to persist in achieving their goals and maintaining independence when it may be too difficult to do it alone. Feeling a sense of belonging and community was also a key social feature of resilience within this population. One woman living in a retirement home described her feelings of belonging as,

> "*I belong here. I have plenty of friends and love that my children do not have to worry about me. I sing and dance during Jewish services and feel the joy that comes from being a part of something greater than me*" (Melici, 2016, p. 40).

While social support is a key feature of resilience across the lifespan, given its close ties with self-efficacy and independence, it appears to be particularly critical during later stages of life.

2.3.1.6. Faith and prayer. While infrequently mentioned in child resilience literature, the theme of faith and prayer was unmistakable in studies of older adults. These spiritual factors consisted of having faith, trusting in God or a higher power when faced with adversity, and praying as a means of coping. One woman described how her continued faith in God allowed her to see the bigger picture, providing a source of comfort when faced with adversity,

> "*Although at first, I was mad at God. I really was mad at him for doing this to me . . . I never really lost . . . my faith, but I really didn't understand why . . . now I think I do understand. God really does have a bigger plan than we have a clue about, I think*" (Kinsel, 2005, p. 35).

For older adults, praying was a means of voicing their faith. The following quote exemplifies the power of prayer as a protective factor not only when experiencing hardship, but during good times as well:

> "*I repeat the 23rd Psalm every night. I feel relaxed and at peace. I go to sleep praying for other people. Every morning I ask the Lord to help me accept what is my lot of the day and to keep my spirits as high as possible*" (Nelson-Becker, 2006, p. 98).

Having a strong faith allows older individuals to remain hopeful in situations that are beyond their control.

2.3.1.7. Previous experience. Another consistent theme across studies was the relevance of previous experience to resilience in the present. Resilient older adults viewed prior experiences with hardship or adversity as opportunities to learn and grow. The vast number of experiences that older adults have endured throughout their lives have provided them with the knowledge and tools to deal with future challenges. As one woman with cardiac problems described,

> "*My mother had asthma. I was in charge of her medicine and the house as well. Her disease and the hardships of those days have made me strong enough to overcome the hardships now*" (Hassani, Izadi-Avanji, Rakhshan & Majd, 2017, p. 63).

By having experienced adversity in the past, individuals felt better equipped to deal with future challenges. For instance, when faced with the loss of power and water, one older hurricane survivor indicated,

> "*We remember what it was like before we had all these things. To us, those lost things were luxury items. To younger people they were necessities*" (Hrostowski & Rehner, 2012, p. 345).

Having lived a long life allowed these individuals to reflect on their previous experiences, learn from them, and be better able to adapt in the face of future adversity.

2.3.1.8. Proactivity. Closely tied to their previous experiences was the theme of proactivity. The wisdom that develops from previous experience leads resilient individuals to anticipate future challenges and behave proactively so they can mitigate future adversity. One man with early stage Alzheimer's Disease said,

> "*Now, I can do one of two things. I can admit I have a problem, or I can moan about it, and cry about it, but it won't go away, it's not gonna make it any better. Therefore, I always consider myself proactive, I say how can you minimize it. So, I lay out strategies and do things that try to make me as efficient as I can be under the circumstances*" (Harris, 2008, p. 51).

Similarly, resilient older individuals preferred to approach challenges directly as opposed to passively dealing with consequences. As one woman observed,

> "*People who sit and wait until somethin' happens to them to do something about it, just kind of has always floored me*" (Kinsel, 2005, p. 32).

Having an anticipatory mind-set and behaving proactively prepared older individuals for future hardship by offsetting some of the potential negative effects of adversity.

2.3.2. Model Development

The above-mentioned themes uncovered in the present study can be further organized into four factors that represent different sources or domains of protective factors for older individuals: These four sources are: 1) *Intrapersonal Protective Factors;* 2) *Interpersonal Protective Factors;* 3) *Spiritual Protective Factors;* and 4) *Experiential Protective Factors* (see Figure 2).

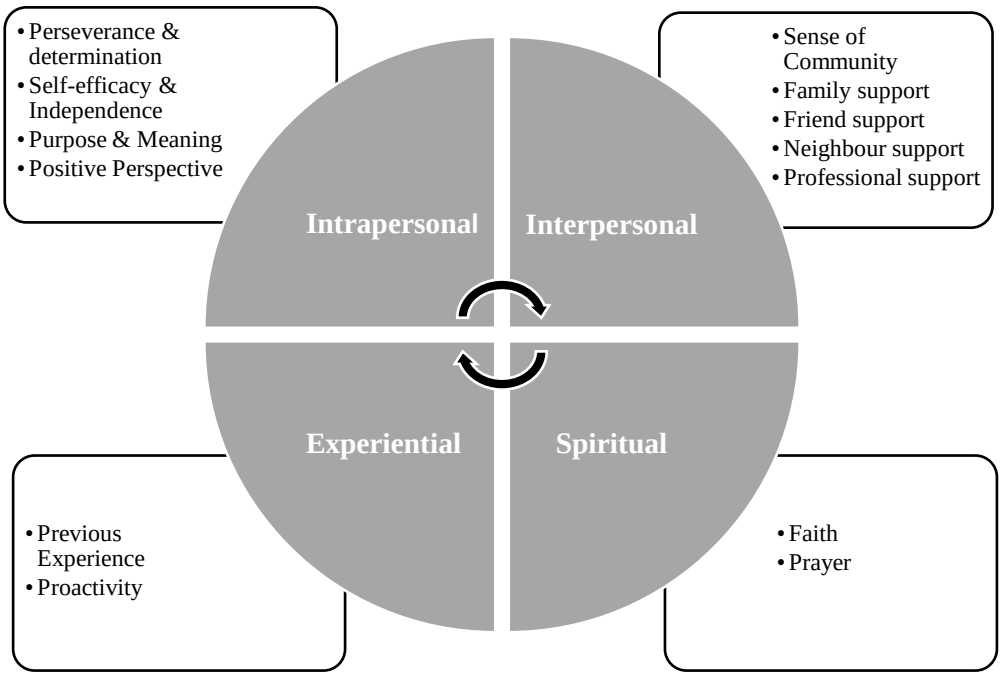

Figure 2. Model of Resilience in Older Adulthood

The *Intrapersonal Protective Factors* are similar in that they all occur within the individuals' mind, or within the self. These include features such as perseverance and determination, self-efficacy, having a sense of purpose and meaning, and having a positive attitude. This factor reflects the resilient personality that many older adults described as part of their successful adaptation. Given that the contributors to this factor are trait-like (e.g., self-

efficacy, positive attitude), this group of factors may be seen as consisting of the static, or stable, features of resilience. Another fairly stable factor includes the *Spiritual Protective Factors*, which consist of having faith and participating in prayer. Many older individuals have maintained their faith throughout their lives and view it as a consistent source of support when faced with adversity.

Conversely, the *Interpersonal Protective Factors* consist of the external supports that contribute to older adults' resilience. This includes feeling a sense of community and belonging, and receiving support from others including family, friends, neighbours, and health professionals. In contrast to the *Intrapersonal Protective Factors*, which are fairly stable within the individual, the *Interpersonal Protective Factors* are dynamic and may be altered. Quantity of support may be increased or decreased as required and when necessary. Lastly, the *Experiential Protective Factors*, which include previous experiences and being proactive, are another dynamic factor. Exposure to adversity allows resilient older adults to learn from the experience, resulting in increased wisdom and proactive behaviours to counteract adverse outcomes in the future. Together these factors represent four major domains that older individuals can draw upon to improve the likelihood of positive adaptation when faced with adversity.

The interdependence of these factors is a defining feature of this model that is specific to an older population. For instance, many studies indicated that self-efficacy and independence were key features of resilience; however, oftentimes this was dependent on, or relational to, the external supports that allowed older adults to achieve their goals. For example, Kinsel (2005) reflected that, "Their physical conditions made it difficult for some women to get out of the house or manage many of their favourite pastimes. They were, however, able to mobilize others to aid them in accomplishing desired goals and direct their activities". Further to this, Adams

(1997) remarked that, “The participants described the primary importance of self-determinism while at the same time maintaining interdependence within their social support systems.” For instance, older adults are confident they are able to achieve their desired goals (e.g., living alone) often because they have social supports in place that can assist them in doing so (e.g., visits from family members).

Interdependence was also seen between aspects of the *Intrapersonal Protective Factors* and *Experiential Protective Factors*. For instance, resilient older individuals had dealt successfully with adversity in the past, and this successful adaptation and wisdom contributed to their perseverance, their ability to achieve goals in the present or future, and their increased sense of meaning. For example, Wagnild and Young (1993) indicated that, “An important aspect of adjustment to loss for these women was the ability to derive meaning from their experiences and renew meaning in life. Major events that at first were deemed quite negative were transformed by some women into opportunities for personal growth and satisfaction”. Similarly, Adams (1997) observed the connection between internal factors and those developed from experience, “The underlying theme of the participants' responses was that innate and developmental aspects of resilience were inseparable”. Therefore, while these factors are unique, a level of interdependence exists between them and when these factors are drawn upon in unison, the chances of successful adaptation are optimized.

2.4. Discussion

The findings of this QMS revealed 8 themes that can be organized into the following 4-factor model: 1) Intrapersonal Protective Factors; 2) Interpersonal Protective Factors; 3) Spiritual Protective Factors; and 4) Experiential Protective Factors. Together these four overarching factors describe a model of resilience in older adulthood that has been developed from samples

described in published research and consists of diverse ages, ethnicities, genders, and health statuses making it applicable to a variety of older adult populations. Further, this model demonstrates consistency within a broader cultural context, reflected in individual accounts of resilience, and the interactive relationship between the static and dynamic protective factors. Although this model may not describe resilience factors unique to idiographic samples of older individuals, it denotes the primary nomothetic protective factors that contribute to resilience across a wide variety of individuals in later life. Lastly, the present model aligns well with conceptualizations of resilience as a process that includes both internal or personal factors as well as environmental factors and life experiences that are drawn upon when faced with adversity (Luthar, et al., 2000; Windle, 2011). In doing so, this model expands upon previous research to amalgamate resilience protective factors into a cohesive model of resilience in older adulthood.

The findings of this QMS are based on a combined sample size of 715 older adults from 12 countries and from a variety of diverse populations. However, across all of these samples, there were a number of themes that appeared consistently. Many of the overarching themes uncovered in the present study reflect similar findings of quantitative studies examining resilience in older adults. For instance, characteristics such as positive emotionality (e.g., Gooding et al., 2011) and self-efficacy (e.g., Carstensen & Freund, 1994), have all been reflected in older individuals high in resilience. Sense of purpose (Nygren et al., 2005) and spirituality (e.g., Costanzo, Ryff & Singer, 2009; Pierini & Stuifbergen, 2010) are also important factors in the quantitative literature. Lastly, factors such as social support (e.g., Lamond et al., 2008; Netuveli, Wiggins, Montgomery, Hildon, & Blane, 2008) and previous life experiences (e.g., Hardy, Concato & Gill, 2004) are repeatedly recognized as being critical to resilience in older

populations. The significant overlap between the resilience factors in the present model and those reflected in the quantitative literature support the validity of the findings in the current study.

The present study revealed that there are a number of older adult resilience factors that are also common to models of resilience in children and young adults. For example, two of the three factors of Prince-Embury's (2006, 2014) Three-Factor Model of Personal Resiliency were similar to components of resilience in older adults. Having strong self-efficacy, as well as social support were prominent in many of the articles examined and reflect aspects of the related factors of Sense of Mastery and Sense of Relatedness from Prince-Embury's (2006, 2014) model of resiliency. This supports the notion that mastery and relatedness are two features of resilience that stem from developmental systems, but also remain critical across the lifespan (Masten & Wright, 2009; Prince-Embury, 2006).

Further, this model shares some similar features with models developed with young to middle-aged adults. Relationships or social support and personal competence or skills are indicated as being important factors within the Connor & Davidson's (2003) resilience model, the model conceptualized within the Resilience Scale for Adults (Friborg et al., 2003), and the theoretical model found in the Resilience Research Center Adult Resilience Measure (Liebenberg & Moore, 2018). However, unlike in younger adults, social support appears to be much more interconnected with personal protective factors in an older population. Similarly, although certain contextual factors have been implicated as relevant independent factors in selected young adult resilience models (e.g., Liebenberg & Moore, 2018), some of these contextual components (i.e., community) appeared to align closely with other relational components of resilience in older adult populations, as opposed to being a stand-alone factor.

There were also a number of factors implicated as being relevant to achieving resilience in older individuals that do not appear to be as essential in younger age groups. Spirituality (e.g., Costanzo et al., 2009), meaning (e.g., Heisel & Flett, 2008; Nygren et al., 2005) and previous experiences (e.g., Hrostowski & Rehner, 2012) are examples of three factors that are critical to resilience at a later age, but that are not commonly indicated as necessary for resilience in children or young adults. This aligns with Frankl's (1979) work that implicates having a sense of meaning as a key contributing factor to resilience in adulthood by serving as a protective factor in the face of adversity. Additionally, the finding that sense of meaning is important to resilience in later life also aligns well with psychosocial developmental changes older adults experience. For instance, Erickson's theory of psychosocial development identifies the final stage as integrity versus despair which occurs during older age and is characterized by reflecting on one's life and accomplishments and whether their life was meaningful (Erickson, 1963). Thus, sense of meaning may be particularly relevant for older adults faced with these unique developmental struggles.

Previous experience with hardship is another theme that was prominent among older adults, and less frequently mentioned in the young adult resilience literature. This is likely due to the larger quantity of experiences older adults have faced in their lives, and consequently increased opportunity to grow and learn from past adversity. McAdam's (2006) work exploring the concepts of generativity and redemption in middle and later life align with the notion that previous experiences with adversity may serve as sources of strength. Generativity is conceptualized as concern with providing for future generations and their well-being (Erikson, 1963; McAdams & de St. Aubin, 1992), and those who are highly generative tend to describe their lives with a sense of redemption (i.e., past adversity leads to positive outcomes and growth)

(McAdams, Diamond, de St. Aubin, & Mansfield, 1997). Recalling the positive outcomes associated with past adversity in their lives, may help individuals persevere in the face of difficult challenges (McAdams, & Guo, 2015). Thus, previous experiences and the ability to view them from a growth perspective may be particularly protective for older adults faced with adversity.

While there were many parallels in themes across the studies examined, there were a few instances in which factors were specific to certain populations of older adults and were not widely applicable. For instance, studies examining resilience in Native American Elders indicated that a "legacy of survival" passed down from previous generations (Grandbois & Sanders, 2009) and the experience of "historical trauma" (Reinschmidt, Attakai, Kahn, Whitewater & Teufel-Shone, 2016) that stemmed from the distinctive history of this population were factors that contributed to their resilience. Additionally, older carers of individuals with disabilities denoted economic capital and access to services as crucial to their resilience (Ottmann & Maragoudaki, 2015), while this was less frequently mentioned among other older adult populations.

However, even particular subgroups such as older individuals living with chronic diseases (Hassani et al., 2017) described context-specific factors that at first glance appeared only relevant to their situation (e.g., following a treatment program), but were actually similar to general themes found across the studies (e.g., being proactive). Similarly, one study of incarcerated older men found that "looking forward to new beginnings" was a key protective factor that contributed to their resilience (de Guzman et al., 2017), which echoes the themes of having a positive attitude and a sense of purpose and meaning. Despite there being unique factors that protect against adversity in some populations of older adults and not others, the majority of

the studies reflected similar protective factors that were applicable to a variety of older adult populations.

The major themes revealed in the present study reflect many of the themes Bolton and colleagues (2016) described in their seminal metasynthesis. Our themes of perseverance and determination, self-efficacy and independence, purpose and meaning, positive perspectives, and social support align fairly closely with Bolton and colleague's themes of "grit", "independence", "meaningfulness", "positive perspectives on life", and "external connections". While Bolton and colleague's theme of "meaningfulness" included factors such as spirituality and faith, the present study separated the themes faith and prayer from purpose and meaning as we found that the themes were not exclusively, nor consistently, related. Lastly, the themes of "self-acceptance", "self-care" and "altruism" proposed by Bolton and colleagues were not as prominent across the greater number of articles examined in the present study to warrant individual categories, but related features are absorbed under our themes of self-efficacy and independence, being proactive, and social support. As can be seen, there is considerable overlap between the present study and Bolton and colleagues' earlier investigation. This overlap is encouraging for the study of protective factors among older adults, as the most prominent factors appear to remain largely consistent, even with the addition of 21 more contemporary studies.

Overall, the present study revealed that while there are common resilience factors across the lifespan, there are also factors and features unique to resilience in an older population, thus lending support to previous findings that have found differences in the factor structures of resilience scales when measured in young and older samples (Girtler et al., 2010; Lamond et al., 2008; Resnick & Inguito, 201l; von Eisenhart et al., 2013; Wilson & Saklofske, 2018). Therefore, while there are a number of similarities in resilience factors across the lifespan, there

are also sufficient differences to warrant development of a resilience model specific to an older population that should be further reflected in the development of assessment measures.

2.4.1 Limitations and Future Directions

The goal of this study was to develop a model of resilience based on qualitative literature exploring resilience in older adults. While every attempt was made to perform an exhaustive search of the literature, it is possible that there were studies excluded unintentionally, and therefore features of resilience that may not have been examined. Additionally, the samples studied were quite varied in terms of size and demographics. Therefore, features of resilience unique to a particular sample, and not broadly represented across the studies, may not be sufficiently represented in this model. Some features of resilience that were presented in the studies were limited to only one unique sample of individuals and were not seen as a common theme across studies. Further, the studies reflected in this metasynthesis do not encompass all types of adversity experienced by older adults. This model does not purport to describe resilience in its entirety or across every sample of older individuals, but instead aims to broadly describe the most common features of resilience that are applicable to a wide variety of samples.

The development of this model of resilience in older adulthood is the first step in a series of research studies designed to improve our theoretical understanding and improve measurement and assessment of resilience in an older adult population. The objective of future research is to develop a measurement instrument informed by this model to appropriately assess resilience in later life. Having a theoretically appropriate instrument for measuring resilience in this population will allow clinicians to assess which protective factors are strong, and which can be improved to enhance individual resilience. The findings of this study have implications for our understanding of what it means to be resilient in older adulthood, and can assist in informing

researchers, clinicians, and support workers who interact with older individuals. This model may guide the development of interventions and programs that are broadly applicable to an older adult population but may also serve as a foundation upon which additional subgroup-specific content may be applied. By improving our understanding of what contributes to resilience in this population, we can improve assessment and intervention programs designed to enhance resilience among a population that is inherently faced with increased challenges and adversity.

2.5. References

Note. References marked with * were included in the analyses.

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CHAPTER 3: Study 2: Assessing Resilience in Older Adulthood: Development and Validation of the Resilience Scale for Older Adults[2]

3.1 Introduction

Aging is associated with unique challenges across a variety of life domains. In later years, these include physical and cognitive challenges such as an increased likelihood of developing a chronic illness (Wolff, Starfield & Anderson, 2002), greater incidence of cognitive disorders (Jorm & Jolley, 1998), as well as social and emotional challenges including transitioning to retirement and spousal, family, and friend bereavement. With the worldwide population aging rapidly (United Nations, 2015), the proportion of individuals preparing to face these challenges is increasing. This combination of increased longevity and greater adversity suggests that psychological resilience may play a particularly important role in later life.

Early studies of resilience originated in the developmental psychology literature with a focus on children who had experienced adverse circumstances, yet still managed to thrive (Masten & Garmezy, 1985; Rutter, 1985). However, given the many challenges associated with aging, the study of resilience is increasingly being recognized as important in later life (Harris, 2008; Wild, Wiles & Allen, 2013). Despite decades of quality resilience research, the literature to date lacks a consistently agreed-upon definition of the construct (e.g., Fletcher & Sarkar, 2013). Furthermore, the term *resiliency*, which refers to a profile of individual characteristics and traits (Luthar, Cicchetti, & Becker, 2000), is often used interchangeably with the term *resilience*, which is typically viewed as a dynamic process. Despite discrepancies in definitions and

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operationalization, the increasing consensus among researchers is that resilience is a process that begins with adversity, consists of a number of defining attributes, and results in positive adaptation (e.g., Gillespie, Chaboyer & Wallis, 2007; Windle, 2011; Niitsu et al., 2017). Therefore, resilience in the present study is operationalized as a dynamic process that results in positive adaptation when faced with adversity (Luthar et al., 2000), and consists of individual, environmental, and experiential defining attributes (Windle, 2011).

Despite a myriad of challenges associated with aging, older adults generally demonstrate resilient features at greater than or equal levels to younger adults. However, previous research has suggested that resilience may manifest differently across the lifespan (e.g., Gooding, Hurst, Johnson, & Tarrier, 2011). Although there are several measures designed to assess resilience (e.g., Smith-Osborne & Bolton, 2013; Prince-Embury, Saklofske, & Vesely, 2015), the majority were developed or intended for use with children or young adults (Windle, Bennett & Noyes, 2011). Given the qualitatively distinct challenges faced in older adulthood and differences in how resilience presents across the lifespan (e.g., Gooding et al., 2011; Cosco, Kaushal, Richards, Kuh & Stafford, 2016), it is necessary to develop an assessment tool that is specifically designed to measure resilience during later life. Thus, this study draws upon a theoretical model of resilience protective factors in older adulthood (Wilson, Walker, & Saklofske, 2020) with the aim of developing a resilience scale for older adults.

3.1.1. Measuring Resilience in Older Adults

There are many well-validated measures designed to assess resilience across the lifespan (Prince-Embury, Saklofske, & Vesely, 2015; Smith-Osborne & Bolton, 2013). However, few have been developed specifically for use in older adult samples. A recent review by Cosco and colleagues (2016) identified only three existing measures that have been validated for use in an

older adult population: the Connor Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003), the Brief Resilient Coping Scale (BRCS; Sinclair & Wallston, 2004), and the Resilience Scale (RS; Wagnild & Young, 1993). The review indicated that the CD-RISC was suitable for use with older adults, demonstrating good reliability as well as convergent and discriminant validity, although the factor structure was inconsistent with the initial scale development (Lamond et al., 2008). The BRCS demonstrated good reliability, but only one study has examined this scale in an older sample. Furthermore, the psychometric properties examined were limited (Tomás, Melendez, Sancho & Mayordomo, 2012). The authors concluded that further supporting evidence was required to ensure the BRCS is a valid measure for use with older adults.

More recently, Cosco and colleagues (2016) asserted that the RS (Wagnild & Young, 1993) was the most appropriate existing measure to assess resilience in an older adult population. This scale has been used in several studies of older adults and has demonstrated good reliability and convergent/discriminant validity (Girtler et al., 2010; von Eisenhart et al., 2013; Resnick & Inguito, 2011). However, like the CD-RISC, inconsistencies were found in the factor structure across studies, which may suggest that resilience is expressed differently across age groups (Cosco et al., 2016). The RS has a number of additional strengths and weaknesses for use with older adults. The items were developed using qualitative data from older women (Wagnild & Young, 1990), but the scale development and initial psychometric evaluation was conducted using a small sample of undergraduate students (Wagnild & Young, 1993). Thus, although the RS items may be the most theoretically appropriate for an older population, the scale itself was not initially psychometrically developed using this age group. Additionally, the items were developed using data collected from an entirely female sample, which limits the generalizability

of the scale, particularly because none of the validation studies assessed gender invariance (Cosco et al., 2016).

Although the RS has been recommended, with limitations, as the most appropriate existing measure of resilience for use with older samples (Cosco et al., 2016; Resnick & Inguito, 2011), there are further limitations to consider that warrant the development of a new resilience scale for older adults. Resnick and Inguito's (2011) validation of the RS in two samples of older community-dwelling and retirement-living participants revealed that nearly one-third of the items had unacceptable factor loadings. Furthermore, the RS only assesses one aspect of resilience (i.e., dispositional) and is therefore not a comprehensive assessment of protective factors. A review of resilience in older adults confirmed that the factors identified in the RS are important and relevant to an older population, but a number of additional factors and themes were also identified (e.g., spirituality, life experience, generativity, positive relationships; van Kessel, 2013). It was suggested that the limited scope of the RS may be due to the infancy of resilience research at the time of its development; interest in studying resilience in an older population did not begin to build momentum until a decade later (van Kessel, 2013).

Similar to the findings of van Kessel's (2013) mixed-method review, related research has identified additional important resilience factors relevant to older adults that should be considered. Using concept analysis, Hicks and Conner (2014) identified several external or environmental resilience protective factors in older adults including social support, activity, and life experience. Although social support in particular is a fundamental component of resilience across the life span (Masten & Wright, 2009), it may be especially important for older adults' resilience. For instance, research has found that mortality rates significantly decrease among older adults who regularly keep in touch with family and friends and those who take part in

social activities (Steinbach, 1992). Furthermore, participating in social activities and maintaining contact with family and friends is associated with improved mental health for older women who live alone (Michael, Berkman, Colditz & Kawachi, 2001). Therefore, in order to comprehensively assess resilience in older adults, the measure should reflect a number of relevant internal and external factors that extend beyond current resilience scales.

In addition to the aforementioned resilience measures that are frequently used and well-validated, there is a more recently developed resilience scale that aims to assess multiple facets of resilience among older adults. The Multidimensional Individual and Interpersonal Resilience Measure (MIIRM; Martin, Distelberg, Palmer, & Jeste, 2015) assesses a variety of factors related to both individual and family resilience that are relevant to older adults. However, this measure is limited as the model was developed by selecting researcher-conceptualized protective factors from a secondary dataset. Therefore, the model was limited to the variables that were included in the archived dataset, and to date, this scale has yet to be validated or widely used in research studies with the elderly population. Additionally, the Hardy-Gill Resilience Scale (Hardy, Concato & Gill, 2004) was developed with a sample of older adults, although it is intended to assess resilience as an outcome (i.e., asking participants how they felt after a stressful event) as opposed to assessing resilience protective factors.

Finally, the Resilience Protective Factors Inventory was developed as part of Bolton's (2013) doctoral dissertation research. This scale was developed using a qualitative metasynthesis methodology and consisted of nine factors considered to be theoretically relevant to resilience in older adults. However, the scale was "split" into two measures when initial model fit was not achieved, resulting in The Behavior and Experience Protective Factors Inventory and the Internal

Resilience Protective Factors Inventory. These inventories have not yet been published or further validated.

3.1.2. The Resilience Scale for Older Adults

To address the need for a theoretically appropriate measure of resilience specifically tailored to an older adult population, we developed the Resilience Scale for Older Adults (RSOA). The RSOA was developed using a model of resilience protective factors grounded in the qualitative literature examining resilience from older adults' perspectives (Wilson et al., 2020). This model comprises four overarching factors and eight underlying facets; however, to enhance precision in assessment, the RSOA consists of four factors and 11 underlying facets. Specifically, Factor 1, *Intrapersonal Protective Factors* encompasses individual characteristics that protect older adults in the face of adversity, and includes the following facets: Perseverance and Determination, Self-Efficacy and Independence, Purpose and Meaning, and Positive Perspective. Factor 2, *Interpersonal Protective Factors* comprises the external or environmental protective factors important for older adults, including the following: Sense of Community, Family Support, and Friend/Neighbour Support. Factor 3, *Spiritual Protective Factors* describes the protective nature of religious facets such as Faith and Prayer. Lastly, Factor 4, *Experiential Protective Factors* includes the impact of previous adverse experiences (Previous Adversity) and the resulting proactive behaviour (Proactivity) that protects older adults in the face of adversity.

Throughout scale construction we adhered to DeVellis' (2003) framework for scale development and validation, which consists of the following steps: 1) Determine what you want to measure; 2) Generate an item pool; 3) Determine the format for measurement; 4) Have the initial item pool reviewed by experts; 5) Consider inclusion of validation items; 6) Administer items to an appropriate sample; 7) Evaluate the items; 8) Optimize scale length. In addition, we

incorporated Jackson's (1984) recommendations for scale construction which includes: 1) ensuring factors are theoretically sound and well-defined; 2) generating a large item pool; 3) specifying a delineated factor structure prior to data collection and; 4) evaluating the convergent and discriminant validity of the scale.

To assess the convergent validity of the scale, variables that are anticipated to be related to resilience based on previous research have been included in the present study. Life satisfaction (e.g., Smith & Hollinger-Smith, 2015), happiness (e.g., Gomez, Vincent & Toussaint, 2013), other measures of resilience (e.g., Karairmak, 2010), depression (e.g., Wagnild & Young, 1993), anxiety (e.g., Humphreys, 2003), stress (e.g., Gomez et al., 2013), and quality of life (e.g., Manne et al., 2015) are all constructs that are consistently related to resilience and should theoretically be associated with increased or decreased levels of resilience.

3.1.3. Objectives

The present study describes the initial development and validation of the RSOA. Study 2a examined the psychometric properties of the preliminary 50 items and reduced this initial item pool to a more succinct set of 33 items. Study 2b examined the scale's four-factor structure and provided initial convergent and concurrent validity information for the final 33-item scale. Lastly, Study 2c confirmed the four-factor structure, provided additional convergent validity information, and examined gender invariance.

3.2. Study 2a: Item Reduction and Evaluation

In line with recommendations for self-report scale development (DeVellis, 2003; Jackson, 1984), we initially generated a large item pool consisting of 83 items. The 83 initial items were developed in consultation with a clinician with extensive experience constructing a validated resilience measure. Several items were generated to reflect each of the themes described in the model of resilience in older adulthood (Wilson, et al., 2020). Items from validated resilience measures in the literature were also reviewed for comparison purposes. Items were reviewed by a panel of experts (i.e., psychology doctoral students and clinicians) who were well-versed in the study of resilience and test construction. The panel of reviewers were provided with the 83 items and the definitions of each factor and facet and asked to comment on item appropriateness and fit for each facet/factor, as well as content validity of the preliminary measure. Items that were deemed unsuitable (e.g., unclear, redundant, inapt) were eliminated, which resulted in the initial 50 item pool. In addition to item reduction, we evaluated the initial scale's relationship with life satisfaction to establish preliminary convergent validity evidence. We predicted a positive relationship between the RSOA and life satisfaction.

3.3 Method

3.3.1. Participants and Procedure

Ethical approval was received from Western University's Non-Medical Research Ethics Board (see Appendix A). Participants were recruited through Amazon's Mechanical Turk (MTurk) crowdsourcing platform. Studies have demonstrated that MTurk participants are more attentive than university subject pool participants (Hauser & Schwarz, 2016) and a number of recent studies have utilized the MTurk participant pool to collect similar survey data from older adults (e.g., Bernhold, Gasiorek & Giles, 2020; Webb, Cui, Titus, Fiske & Nadorff, 2018).

Furthermore, one systematic review suggested that online surveys are a feasible method of collecting data with an older population (Remillard, Mazor, Cutrona, Gurwitz & Tjia, 2014). Participants were required to have demonstrated a MTurk HIT approval rate above 95% and complete a CAPTCHA image on the Qualtrics survey-hosting platform. To identify potentially inattentive participants, the survey contained four instructional attention checks. Additionally, participants completed initial cognitive screening items adapted from the orientation section of the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996) and were required to answer three out of four items correctly (see Appendix B). Through the MTurk platform, participants were invited to complete an online survey consisting of demographic questions, initial RSOA items, and a measure of life satisfaction. They were paid a small fee ($1.00 USD) for their participation.

Of the 437 individuals who completed the survey, 89 were excluded for being less than 60 years of age, 2 were excluded for incorrectly answering attention checks, and 1 was excluded for not meeting minimum requirements for the cognitive screening items. Included participants consisted of 345 individuals (34.5% female, 18.8% male, 46.7% unreported gender) residing in Canada and the United States. Participants' ages ranged from 60 to 81 years (M_{age} = 65.32, SD_{age} = 4.54). A large proportion (46.7%) of participants were married or in a domestic partnership, 31% were divorced or separated, 13.3% were single or never married, and 9% were widowed. Almost all of the participants were living in the community (93.6%), and the majority identified as being Caucasian or of European decent (94.1%). The participants were fairly well-educated with 75.3% having completed some level of post-secondary education, and approximately half were currently retired (49.6%).

3.3.2. Measures

Participants completed the preliminary 50-item RSOA. The initial items were developed based on the four-factor model of resilience in older adulthood, which is grounded in qualitative literature and specific to older adults (Wilson et al., 2020). The four overarching factors and their corresponding facets are: *Intrapersonal* (Perseverance and Determination, Self-Efficacy and Independence, Purpose and Meaning, and Positive Perspective); *Interpersonal* (Sense of Community, Family Support, and Friend/Neighbour Support); *Spiritual* (Faith and Prayer); *Experiential* (Previous Adversity, Proactivity). The initial model's Social Support facet was split into three to more precisely assess a variety of sources of social support in this population. Additionally, the original facet of Faith and Prayer was split into two, to reflect the differences between having thoughts and feelings of faith and expressing that faith through an act of prayer. Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

As a measure of preliminary convergent validity, life satisfaction was assessed using the 5-item Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) which assesses global cognitive judgments of one's life satisfaction rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Previous research supports the validity and reliability of the SWLS in samples of older adults with internal consistency reliabilities ranging from .79-.85, and strong negative correlations with depression (e.g., Blais, Vallerand, Pelletier & Briere, 1989; Pavot, Diener, Colvin & Sandvik, 1991).

3.3.3. Data Analytic Strategy

To examine the psychometric properties of the initial 50-item pool, multiple exploratory factor analyses (EFAs) were conducted using principal axis factoring with oblique rotation

(Promax). Parallel analysis was further conducted to determine the number of factors to be retained (Horn, 1965). Factor loadings greater than .40 were considered large (Leech, Barrett, & Morgan, 2015) and this cut-off was utilized when considering item removal.

3.4. Results

3.4.1. Exploratory Factor Analyses

Less than 1% of values were missing, thus listwise deletion was used (Kline, 2011). First, an EFA was conducted on the initial 50-item pool. The Kaiser-Meyer-Olkin (KMO) index of .94 indicates the factor analysis would yield reliable results. Bartlett's test of sphericity (Bartlett, 1954) was significant ($x^2(1275) = 16142.07$, $p < .001$), supporting that correlations between variables are significantly different from zero. Criteria used to determine the number of factors to retain were based on an a priori four-factor theoretical model, the scree plot, and parallel analysis. Consistent with the a priori theoretical model, examination of the scree plot suggested a four-factor solution, and parallel analysis recommended four factors be retained. Factor 1 (Intrapersonal) accounted for 36.10% of the variance, Factor 2 (Interpersonal) accounted for 11.24% of the variance, Factor 3 (Spiritual) accounted for 7.79% of the variance, and Factor 4 (Experiential) accounted for 4.82% of the variance among items.

Next, items were evaluated both theoretically and empirically to reduce the scale to the most succinct number of items possible while still maintaining the underlying conceptual facets in the theoretical model. The majority of the 50 items had factor loadings greater than .40. However, the goal was to develop a measure that was parsimonious and of a moderate length to increase usability. A total of seven items were eliminated from the Intrapersonal factor due to lower factor loadings relative to the other items. Five items were discarded from the Interpersonal factor, and four items were excluded from the Spiritual factor for weaker loadings.

Lastly, only one item was removed from the Experiential factor due to a weaker factor loading and poor theoretical fit relative to the other items in the factor, resulting in a 33-item scale. The initial 50 items and their theoretical foundations are reported in Table 2.

After reducing the items, separate EFAs were performed on each of the 11 facets to assess the items' unidimensionality. All items loaded greater than .50 on their respective facets with loadings ranging from .54 to .98. We then performed an EFA using all 33 RSOA items constrained to a four-factor solution. The KMO index (.92) was acceptable and Bartlett's test of sphericity was significant ($x^2(528) = 10458.22$, $p < .001$). Factor 1 (Intrapersonal) accounted for 36.30% of the variance, Factor 2 (Interpersonal) accounted for 13.94% of the variance, Factor 3 (Spiritual) accounted for 10.40% of the variance, and Factor 4 (Experiential) accounted for 5.19% of the variance among items. All items loaded suitably (>.40) on their corresponding factors (see Table 3). Means, standard deviations, internal consistency reliabilities, and correlations for all facets and factors for the final 33-item scale can be found in Table 4. Correlations between the factors were positive and ranged from .23 to .61. Satisfaction with Life was significantly moderately-to-strongly positively correlated with Intrapersonal ($r = .65$), Interpersonal ($r = .62$), Spiritual ($r = .21$), and Experiential ($r = .26$) resilience factors.

Table 2. Initial 50-item set with theoretical foundation

Items	
1. If at first I do not succeed, I will keep trying.	(Perseverance & Determination)
2. When faced with challenges I am persistent.	(Perseverance & Determination)
3. I am determined to achieve my goals.	(Perseverance & Determination)
4. I will not give up on something just because it is difficult.	(Perseverance & Determination)
5. When I put my mind to a task, I can effectively complete it.	(Self-efficacy & Independence)
6. I am capable of achieving my goals.	(Self-efficacy & Independence)
7. When I cannot do a task as well as before, I try different ways to accomplish it.	(Self-efficacy & Independence)
8. I can accomplish things on my own.	(Self-efficacy & Independence)
9. I am happy with who I am as a person.	(Positive Perspective)

10. I am optimistic about the future.	(Positive Perspective)
11. I believe things will usually work out in the end.	(Positive Perspective)
12. I try to make the most out of any situation.	(Positive Perspective)
13. I have a positive attitude towards most things.	(Positive Perspective)
14. I understand what makes my life meaningful.	(Purpose & Meaning)
15. My life has a clear purpose.	(Purpose & Meaning)
16. I look forward to the future.	(Purpose & Meaning)
17. I have things to look forward to in my life.	(Purpose & Meaning)
18. I try to live life to the fullest.	(Purpose & Meaning)
19. I try to live each day as if it were my last.	(Purpose & Meaning)
20. If I need help, there are community resources I can rely on.	(Sense of Community)
21. I feel like I belong to something.	(Sense of Community)
22. I am not alone.	(Sense of Community)
23. People would miss me if I went away.	(Sense of Community)
24. Others count on me.	(Sense of Community)
25. I have family members I can rely on.	(Family Support)
26. I can ask my family for help if something bad happens.	(Family Support)
27. I feel important to my family.	(Family Support)
28. My friends are there for me when I need them.	(Friend/Neighbour Support)
29. My friends are important sources of support for me.	(Friend/Neighbour Support)
30. My neighbours will help me when I need it.	(Friend/Neighbour Support)
31. I have a good relationship with my neighbours.	(Friend/Neighbour Support)
32. I have access to doctors when I need them.	(Professional Support)
33. I feel supported by health professionals when I need care.	(Professional Support)
34. I try to have faith during difficult times.	(Faith)
35. I believe everything happens for a reason.	(Faith)
36. I agree with the statement, “count your blessings”.	(Faith)
37. I consider myself a spiritual person.	(Faith)
38. When life gets hard, I place my trust in my god.	(Faith)
39. I believe God is watching over me.	(Faith)
40. I believe God will not give me more than I can handle.	(Faith)
41. I pray to help me through hard times.	(Prayer)
42. Praying to God helps me cope when something bad happens.	(Prayer)
43. I pray regularly.	(Prayer)
44. I have learned a lot from my past experiences.	(Previous Adversity)
45. I have faced adversity in my life.	(Previous Adversity)
46. The challenges in my life have taught me valuable lessons.	(Previous Adversity)
47. There are people with bigger problems than me.	(Previous Adversity)
48. It is important to take care of yourself.	(Proactivity)
49. I try to prevent bad things from happening.	(Proactivity)
50. I try to be proactive when faced with challenges.	(Proactivity)

Table 3. Rotated factor loadings for the 33-item set

Items	Factor 1 (Intra)	Factor 2 (Inter)	Factor 3 (Spirit)	Factor 4 (Exper)
1. When faced with challenges I am persistent.	.78			
2. I am determined to achieve my goals.	.77			
3. I will not give up on something just because it is difficult.	.82			
4. When I put my mind to a task, I can effectively complete it.	.82			
5. I am capable of achieving my goals.	.86			
6. I can accomplish things on my own.	.62			
7. I believe things will usually work out in the end.	.63			
8. I try to make the most out of any situation.	.61			
9. I have a positive attitude towards most things.	.73			
10. I understand what makes my life meaningful.	.53			
11. I try to live life to the fullest.	.71			
12. I try to live each day as if it were my last.	.51			
13. I feel like I belong to something.		.54		
14. I am not alone.		.71		
15. People would miss me if I went away.		.85		
16. I have family members I can rely on.		.93		
17. I can ask my family for help if something bad happens.		.90		
18. I feel important to my family.		.91		
19. My friends are there for me when I need them.		.76		
20. My friends are important sources of support for me.		.69		
21. My neighbours will help me when I need it.		.46		
22. I pray to help me through hard times.			.97	
23. Praying to God helps me cope when something bad happens.			.99	
24. I pray regularly.			.93	
25. When life gets hard, I place my trust in my god.			.99	
26. I believe God is watching over me.			.95	
27. I believe God will not give me more than I can handle.			.88	
28. I have learned a lot from my past experiences.				.55
29. I have faced adversity in my life.				.70
30. The challenges in my life have taught me valuable lessons.				.61
31. It is important to take care of yourself.				.40
32. I try to prevent bad things from happening.				.42
33. I try to be proactive when faced with challenges.				.42

Note. Intra = Intrapersonal, Inter = Interpersonal, Spirit = Spiritual, Exper = Experiential

Table 4. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2a

	α	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Total Resilience	.94	3.93	.60	1															
2. Intrapersonal	.92	4.10	.58	.74	1														
3. Perseverance & Determination	.88	4.22	.67	.57	.86	1													
4. Self-Efficacy & Independence	.84	4.27	.58	.56	.85	.76	1												
5. Positive Perspective	.83	4.11	.69	.69	.88	.62	.66	1											
6. Purpose & Meaning	.78	3.78	.77	.70	.85	.58	.57	.71	1										
7. Interpersonal	.93	3.89	.81	.67	.54	.37	.39	.53	.54	1									
8. Sense of Community	.83	4.00	.80	.67	.55	.40	.40	.53	.55	.90	1								
9. Family Support	.94	4.01	1.02	.54	.42	.29	.31	.42	.41	.90	.76	1							
10. Friend/Neighbour Support	.85	3.66	.91	.59	.47	.30	.33	.47	.49	.85	.66	.60	1						
11. Spiritual	.98	3.29	1.44	.81	.34	.23	.21	.33	.38	.23	.25	.13*	.24	1					
12. Prayer	.97	3.32	1.48	.78	.33	.23	.20	.31	.36	.20	.23	.10^{ns}	.21	.98	1				
13. Faith	.97	3.25	1.46	.80	.35	.23	.22	.34	.39	.25	.27	.16*	.26	.98	.93	1			
14. Experiential	.81	4.44	.43	.59	.61	.56	.54	.53	.47	.36	.40	.30	.26	.23	.23	.23	1		
15. Previous Adversity	.79	4.48	.53	.51	.53	.52	.46	.46	.40	.30	.33	.27	.21	.20	.19	.20	.89	1	
16. Proactivity	.72	4.40	.46	.51	.53	.45	.48	.47	.42	.33	.37	.26	.24	.20	.21	.19	.85	.51	1

Note. Factors are bolded; all correlation coefficients are significant at $p < .001$ unless otherwise indicated; *$p < .05$; ns = non-significant

3.5. Discussion

The aim of Study 2a was to evaluate and reduce the initial pool of 50 items to create a succinct measure of resilience protective factors in older adults. Exploratory factor analyses supported the unidimensionality of each of the 11 facets, and results suggested the RSOA comprises 4 overarching factors, supporting the newly developed four-factor model of resilience in older adulthood (Wilson et al., 2020). Internal consistency reliability for each of the facets and factors ranged from adequate to excellent, providing initial reliability evidence for the RSOA. Each of the four factors were moderately to strongly positively correlated with each other, with the exception of the Spiritual factor which was weakly positively correlated with the Interpersonal and Experiential factors.

As a preliminary test of convergent validity, the factors were correlated with life satisfaction. The total resilience score and the Intrapersonal and Interpersonal factors were strongly positively correlated with life satisfaction, and the Spiritual and Experiential factors were moderately positively correlated with life satisfaction. Therefore, as anticipated, the resilience factors reflected in the RSOA are associated with increased feelings of satisfaction with life, which is consistent with previous research conducted with older adults (e.g., Beutel, Glaesmer, Wiltink, Marian & Brähler, 2010; Rossi, Bisconti & Bergeman, 2007; Smith & Hollinger-Smith, 2015). Overall, Study 2a provided initial support for the RSOA as an 11-facet, four-factor measure aligning with theoretical foundations of resilience protective factors in older adults.

3.6. Study 2b: Initial Scale Validation and Validity Exploration

The aim of Study 2b was to confirm the factor structure and validate the revised 33-item RSOA (see Appendix C) in a new sample of older adults. Additionally, scores on happiness, life satisfaction, depression, anxiety, stress, and a previously validated resilience measure (i.e., Resilience Scale; Wagnild & Young, 1993) were correlated with scores on the RSOA to provide initial convergent and concurrent validity evidence. We predicted the RSOA would correlate positively with happiness, life satisfaction, and the Resilience Scale, and correlate negatively with depression, anxiety, and stress.

3.7. Method

3.7.1. Participants and Procedure

Ethical approval was received from Western University's Non-Medical Research Ethics Board (see Appendix A). Participants were recruited through community organizations and through snowball sampling. Various community organizations across Canada that serve the older adult population distributed the study information to their email listservs and shared the study on their websites and in their newsletters. Individuals were invited to share the study with others who they believed may be interested. Interested participants were invited to complete an online survey consisting of demographic questions, the refined RSOA, and other measures of psychological well-being. In addition, participants completed initial cognitive screening items adapted from the orientation section of the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996) (see Appendix B) and were required to answer three out of four items correctly. As compensation for their participation, participants were entered into a draw for one of five $20 gift cards.

Participants consisted of 216 community-dwelling adults living in Canada ranging in age from 60 to 95 years (M_{age} = 71.55, *SD* = 7.78). The participants were 65.7% female, 33.8% male, and one participant did not report their gender. The majority (63.9%) of participants were married or in a domestic partnership, 14.3% were divorced or separated, 3.7% were single or never married, and 17.6% were widowed. Nearly all of the participants were living in their own home (96.3%), and only 3.7% were living in a retirement home/independent living community or with a relative. The majority identified as being Caucasian or of European decent (95%), and were well-educated, with 75.9% having completed some level of post-secondary education. The majority were currently retired (83.8%).

3.7.2. Materials

3.7.2.1. Resilience. Participants completed the revised RSOA. The revised 33-item scale consists of four overarching factors and 11 facets. Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In addition, as a measure of concurrent validity, participants completed the Resilience Scale (RS; Wagnild & Young, 1993), a 25-item Likert scale that measures psychological resilience. It was originally developed using a sample of older women and is recommended as a valid measure for use with older adults (Cosco et al., 2016; Resnick & Inguito, 2011). The scale comprises two factors: Personal Competence and Acceptance of Self and Life. Cronbach's alpha reliabilities range from .76-.94 when used in an older population (Wagnild, 2003).

3.7.2.2. Life satisfaction. As in Study 2a, the 5-item Satisfaction with Life Scale (SWLS; Diener, et al., 1985) was used to evaluate global cognitive judgments of one's life satisfaction rated on a 7-point Likert scale ranging from 1 *(strongly disagree)* to 7 *(strongly agree)*.

3.7.2.3. Happiness. The Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999) is a 4-item measure of overall global happiness measured on a scale of 1 *(not at all/less happy)* to 7 *(a great deal/more happy).* The SHS demonstrates excellent reliability in an older adult sample with coefficient alphas of .90 (Angner, Ray, Saag & Allison, 2009) and ranging from .79-.94 (Lyubomirsky & Lepper, 1999). The SHS is positively correlated with measures of life satisfaction and other happiness measures when examined with older adults (Lyubomirsky & Lepper, 1999).

3.7.2.4. Depression, anxiety and stress. The Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) includes 21 items that participants respond to on a 4-point Likert scale ranging from 0 *(did not apply to me)* to 3 *(applied to me very much most of the time)* based on feelings over the past week. Previous research has demonstrated good reliability evidence for the DASS-21 in older adult samples with factor alpha coefficients ranging from .68-.90 (Wood, Nicholas, Blyth, Asghari & Gibson, 2010; Gloster et al., 2008). The DASS-21 also demonstrates excellent convergent validity with negative correlations between the DASS-21 and measures of social functioning and general health (Wood et al., 2010) as well as positive correlations between DASS-21 and worry and negative affect (e.g., Gloster et al., 2008).

3.7.3. Data Analytic Strategy

Bivariate correlation analyses were conducted to examine the convergent and concurrent validity of the RSOA. Multiple confirmatory factor analyses were conducted to examine the dimensionality of the RSOA at the item and facet level (Mplus Version 7.4; Muthén & Muthén, 1998–2012). Mean-and-variance adjusted weighted least squares (WLSMV) estimator was used for the item-level analyses as maximum likelihood estimation is not recommended for ordinal, Likert items (Kline, 2011). For the facet level analyses, maximum likelihood robust (MLR)

estimator was used to correct standard errors for potential non-normality in the data. To examine model fit, root-mean-square error of approximation (RMSEA), comparative fit index (CFI), the Tucker–Lewis index (TLI), and standardized root-mean-square residual (SRMR) were used. RMSEA values close to .06 indicate good fit, values between .07 and .08 indicate acceptable fit, values between .08 and .10 are indicative of marginal fit, and values greater than .10 indicate poor fit. CFI and TLI values of .95 or larger represent excellent model fit, and values between .90 and .95 represent acceptable fit. SRMR values less than .08 indicate acceptable fit (Hu & Bentler, 1999).

3.8. Results

3.8.1. Data Screening

Standard data screening procedures were implemented using IBM SPSS Statistics (24). Less than 1% of values were missing on each variable, thus the Mplus default full-information maximum likelihood method was used (Kline, 2011). To assess multivariate normality, skewness and kurtosis were evaluated for all major study variables using the skew index (SI) and the kurtosis index (KI). Variables with SI > 3.0 are considered skewed (Curran, West, & Finch, 1997) and variables with KI > 10.0 suggest there are instances of kurtosis (Kline, 2011). None of the sample variables surpassed these recommended value cut-offs, with the exception of anxiety which was positively kurtotic. Mahalanobis distance (D^2) was used to detect multivariate outliers. D^2 is distributed as a chi-square distribution and any instances with a value greater than the critical value (i.e., $p < .001$) suggests that the participant is an outlier (Kline, 2011). One multivariate outlier was detected in the sample. The outlier was not due to error and removal of the outlier did not substantially affect model fit (see Appendix D); thus, the outlier was not removed from the sample. Tolerance and the Variance Inflation Factor (VIF) were calculated to

evaluate multicollinearity. Extreme multicollinearity is likely if Tolerance values are < .10 and if VIF is > 10.0 (Kline, 2011) and there were no instances of multicollinearity detected in the data for this study.

3.8.2. Descriptive Statistics and Convergent Validity

Descriptive statistics, internal consistency reliabilities, and bivariate correlations for the RSOA factors and facets can be found in Table 5. Cronbach alpha reliabilities for the RSOA factors ranged from acceptable to excellent, ranging from .78 (Experiential) to .97 (Spiritual). Facet internal consistencies mostly ranged from acceptable to excellent (.71-.97) with the exception of the Positive Perspective (.66) and Proactivity (.67) facets.

Each of the RSOA factors were moderately-to-strongly positively correlated with one another, with the exception of the Spiritual factor which was only weakly positively correlated with Intrapersonal and Interpersonal factors, and not significantly correlated with the Experiential factor. Further, the Spiritual factor and facets were weakly or non-significantly correlated with the other facets. The Intrapersonal, Interpersonal and Experiential factors were moderately-to-strongly positively correlated with life satisfaction, the Resilience Scale (Wagnild & Young, 1993) scores, and subjective happiness. However, the Spiritual factor was only significantly positively correlated with subjective happiness (see Table 6). Depression, anxiety and stress were all weakly negatively correlated with the Interpersonal and Intrapersonal factors, but not significantly correlated with the Spiritual or Experiential factors.

3.8.3. Item-Level Confirmatory Factor Analyses

To assess the unidimensionality of each RSOA facet, 11 separate CFA models were conducted at the item level. Overall, items loaded strongly onto their respective facets with standardized loadings ranging from .418 (Friends and Neighbours) to .995 (Prayer). One

standardized item loading on the Prayer facet had a value of 1.001 with a negative residual variance, indicating presence of a Heywood Case (Dillon, Kumar, & Mulani, 1987). A Heywood Case occurs when an indicator has a negative variance estimate (Harman, 1971). This was likely due to the strong correlation of .997 between items 1 and 2 on the Prayer facet. However, in the set of analyses described in the following section, indicators represented aggregates of all items within a facet, which eliminated the issue of the Heywood Case.

3.8.4. Facet-Level Confirmatory Factor Analyses

We used CFA to evaluate the factor structure of the full RSOA at the facet level. Overall, the fit of the model was acceptable: $\chi^2(38) = 89.780$, $p < .001$, RMSEA = .079 [90% confidence interval = .058-.101], CFI = .935, TLI = .906, SRMR = .057. Each of the facets loaded strongly onto their corresponding factors, with standardized loadings ranging from .581 (Family Support on Interpersonal) to .880 (Sense of Community on Interpersonal). However, Faith had a standardized loading of 1.105 on the Spiritual factor with a negative residual variance. This is because latent variables with only two indicators (i.e., Prayer and Faith) are not identified. One solution is to constrain these two factor loadings to equality (Kenny, Kashy, & Bolger, 1998). This procedure conceptually decomposes a correlation between the two indicators as their loadings on a common factor. Therefore, we ran a second model constraining the Spiritual and Experiential loadings to equality. This model also fit the data well: $\chi^2(40) = 88.589$, $p < .001$, RMSEA = .075 [90% confidence interval = .054-.096], CFI = .939, TLI = .916, SRMR = .061. Again, the facet indicators loaded strongly onto their corresponding factors, with standardized loadings ranging from .580 (Family Support on Interpersonal) to .984 (Faith on Spiritual).

Table 5. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2b

	α	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Total Resilience	.90	3.88	.45	1															
2. Intrapersonal	.87	4.13	.44	.61	1														
3. Perseverance & Determination	.80	4.16	.58	.50	.80	1													
4. Self-Efficacy & Independence	.76	4.26	.52	.33	.76	.57	1												
5. Positive Perspective	.66	4.18	.50	.48	.78	.44	.48	1											
6. Purpose & Meaning	.76	3.94	.63	.58	.79	.47	.38	.57	1										
7. Interpersonal	.86	4.09	.56	.65	.52	.32	.32	.45	.53	1									
8. Sense of Community	.71	4.06	.64	.61	.58	.35	.33	.51	.60	.85	1								
9. Family Support	.93	4.28	.77	.43	.28	.16*	.20	.24	.27	.82	.53	1							
10. Friend/Neighbour Support	.74	3.92	.63	.56	.44	.30	.25	.37	.45	.78	.57	.40	1						
11. Spiritual	.97	2.93	1.24	.78	.14*	.19	-.08^{ns}	.09^{ns}	.20	.17*	.18	.05^{ns}	.19	1					
12. Prayer	.97	2.96	1.32	.74	.10^{ns}	.16*	-.10^{ns}	.07^{ns}	.18	.13*	.15*	.03^{ns}	.17*	.97	1				
13. Faith	.93	2.89	1.22	.78	.17*	.22	-.05^{ns}	.11^{ns}	.21	.19	.20	.07^{ns}	.21	.97	.89	1			
14. Experiential	.78	4.38	.40	.51	.50	.35	.43	.41	.38	.44	.37	.34	.37	.04^{ns}	.03^{ns}	.06^{ns}	1		
15. Previous Adversity	.73	4.39	.48	.48	.43	.34	.36	.32	.34	.41	.34	.30	.36	.07^{ns}	.05^{ns}	.09^{ns}	.88	1	
16. Proactivity	.67	4.37	.44	.41	.43	.27	.40	.40	.32	.36	.30	.28	.29	.01^{ns}	-.01^{ns}	.01^{ns}	.86	.52	1

Note. Factors are bolded; all correlation coefficients are significant at $p < .001$ unless otherwise indicated; *$p < .05$; ns = non-significant

Table 6. Alpha reliabilities, descriptive statistics and bivariate correlations: Study 2b RSOA factors and facets and external variables

	α	M (SD)	**Total**	**Intra**	PD	SEI	PP	PM	**Inter**	SC	FS	FNS	**Spirit**	P	F	**Exp**	PA	PRO
Resilience Scale	.93	5.86 (.68)	.50	.64	.47	.40	.53	.58	.49	.48	.32	.42	.12^{ns}	.07^{ns}	.16*	.50	.42	.46
Life Satisfaction	.85	5.24 (1.09)	.35	.41	.23	.27	.35	.43	.48	.50	.33	.35	.07^{ns}	.04^{ns}	.10^{ns}	.27	.18*	.30
Happiness	.86	5.42 (1.11)	.48	.51	.30	.23	.53	.52	.49	.48	.33	.40	.22	.17*	.25	.25	.21	.22
Depression	.86	.37 (.45)	-.22	-.34	-.28	-.09^{ns}	-.25	-.42	-.31	-.38	-.17*	-.23	-.03^{ns}	.02^{ns}	-.09^{ns}	-.09^{ns}	-.06^{ns}	-.10^{ns}
Anxiety	.71	.24 (.35)	-.17*	-.16*	-.06^{ns}	-.05^{ns}	-.21	-.20	-.26	-.33	-.12^{ns}	-.22	-.04^{ns}	-.01^{ns}	-.08^{ns}	-.09^{ns}	-.07^{ns}	-.08^{ns}
Stress	.87	.45 (.49)	-.11^{ns}	-.17*	-.06^{ns}	.01^{ns}	-.21	-.27	-.27	-.33	-.16*	-.19	.04^{ns}	.08^{ns}	-.01^{ns}	-.04^{ns}	.01^{ns}	-.08^{ns}

Note. Intra = Intrapersonal; PD = Perseverance & Determination; SEI = Self-efficacy & Independence; PP = Positive Perspective; PM = Purpose & Meaning; Inter = Interpersonal; SC = Sense of Community; FS = Family Support; FNS = Friend/Neighbour Support; Spirit = Spiritual; P = Prayer; F = Faith; Exp = Experiential; PA = Previous Adversity; PRO = Proactivity; Resilience Scale, Life Satisfaction and Happiness are rated on a scale of 1-7; Depression, Anxiety and Stress are rated on a scale of 0-3; All correlation coefficients are significant at $p < .001$ unless otherwise indicated; *$p < .05$; ns = non-significant

3.9. Discussion

The aim of Study 2b was to confirm the four-factor, 11-facet structure of the RSOA, as well as to evaluate its internal consistency and examine initial convergent and concurrent validity information. At the item level, the unidimensionality of each of the 11 facets was assessed separately using CFA and findings indicated that each facet was homogenous. Furthermore, at the facet level, results supported the multidimensional four-factor structure with 11 underlying facets. Internal consistency reliability values ranged from adequate to excellent for each factor and most facets, with the exception of the Positive Perspective and Proactivity facets, which had borderline internal consistencies.

To assess convergent and concurrent validity, RSOA factors and facets were correlated with measures of life satisfaction, subjective happiness, depression, anxiety, stress and a previously validated resilience measure. Consistent with previous research (e.g., Beutel et al., 2010; Gomez et al., 2013), scoring higher on the Intrapersonal, Interpersonal, and Experiential subscales was associated with greater satisfaction with life, greater happiness, and greater resilience as measured by the Resilience Scale (Wagnild & Young, 1993). Furthermore, consistent with previous studies, higher scores on the Spiritual subscale were associated with higher happiness scores (e.g., Rowold, 2011). However, the Spiritual factor was not significantly associated with the other convergent validity variables. Although spirituality is consistently positively related to resilience in the literature (e.g., Vahia et al., 2011), the theoretical underpinnings of the Resilience Scale (Wagnild & Young, 1993) do not include spiritual components, and perhaps do not align well with the specific facets of Prayer and Faith conceptualized in the RSOA. Furthermore, it is plausible that although spirituality serves as a protective factor during difficult times, it may not be indicative of overall global life satisfaction.

Lastly, lower depression, anxiety, and stress scores were weakly associated with higher Interpersonal and Intrapersonal scores, but not associated with Spiritual or Experiential scores. Previous research has indicated that only certain aspects of spirituality (i.e., daily spiritual experiences and congregation) are related to depression and anxiety in older adults, whereas values, beliefs, and private religious practices are not (Bush et al., 2012). The Faith and Prayer facets of the RSOA more closely align with components of spirituality that are unrelated to depression and anxiety in previous work, which may explain the lack of association in the present study. Finally, it may be that the evaluation of previous life adversity and proactive behaviours found in the Experiential factor is unrelated to the short-term evaluation of state depression, anxiety and stress over the course of one week as assessed by the DASS-21 (Lovibond & Lovibond, 1995). Overall, Study 2b provides further support for the four-factor, 11-facet structure of the RSOA and promising initial convergent and concurrent validity evidence.

3.10. Study 2c: Additional Scale Validation and Gender Invariance Analysis

Study 2c further validated the RSOA by examining and confirming the factor structure in a third sample of older adults. Additional convergent validity information was provided by correlating RSOA scores with perceived stress and quality of life. We predicted that the RSOA would be negatively correlated with perceived stress and positively correlated with quality of life.

3.11. Method

3.11.1. Participants and Procedure

Ethical approval was received from Western University's Non-Medical Research Ethics Board (see Appendix A). Participants were recruited through Amazon's MTurk crowdsourcing platform. Participants were required to have demonstrated a MTurk HIT approval rate above 95% and complete a CAPTCHA image on the Qualtrics survey-hosting platform. To identify potentially inattentive responding, the survey contained four instructional attention checks. Participants also completed initial cognitive screening items adapted from the orientation section of the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996) (see Appendix B). Through the MTurk platform, participants were invited to complete an online survey consisting of demographic questions, the RSOA, and measures of quality of life and perceived stress. They were paid a small fee ($1.00 USD) for their participation.

Of the 369 individuals who completed the survey, 1 was excluded for being less than 55 years of age and 3 were excluded for incorrectly answering attention checks. Included participants consisted of 365 MTurk participants (69.32% female, 30.41% male, 1 unspecified) from Canada and the United States. They ranged in age from 55 to 82 years (M_{age} = 64.01, SD_{age} = 5.31). Participants aged 55 and older were included in order to acquire an adequately large

sample of males to allow for gender invariance analyses. The majority (52.3%) of participants were married or in a domestic partnership, 27.7% were divorced or separated, 13.2% were single or never married, and 6.8% were widowed. Almost all of the participants were living in the community (98.6%), and the majority identified as being Caucasian or of European decent (89.86%). The participants were well-educated with 78.3% having completed some level of post-secondary education, and approximately 39.7% were currently retired.

3.11.2. Materials

3.11.2.1 Resilience. Participants completed the RSOA. The 33-item scale consists of four overarching factors: Intrapersonal, Interpersonal, Spiritual, and Experiential. Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

3.11.2.2. Quality of life. Quality of life was assessed using the Older People's Quality of Life Questionnaire-Brief Version (OPQLQ-Brief; Bowling, Hankins, Windle, Bilotta & Grant, 2013). Participants responded to 13 items assessing quality of life across life domains including health, social participation, and psychological and emotional well-being. The items were developed based on qualitative research examining older adults' views of what is an acceptable quality of life (Bowling, 2009; Bowling & Stenner, 2011). Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Previous research has indicated that the OPQOL-brief has good validity and reliability and is suitable for use in an older adult population (Bowling et al., 2013; Kaambwa et al., 2015).

3.11.2.3. Perceived Stress. Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983) which assesses participants' perceived levels of global stress over the past month. Participants responded to items on a 5-

point Likert scale ranging from 1 (*never*) to 5 (*very often*). The PSS has shown to be suitable for use with an older adult sample with a Cronbach's alpha reliability value of .83 and excellent convergent/discriminant validity (Ezzati et al., 2014, Hamarat et al., 2010; Kwag, Martin, Russell, Franke & Kohut, 2011).

3.11.3. Data Analytic Strategy

Bivariate correlations between the RSOA, quality of life, and perceived stress were conducted to further examine the convergent validity of the RSOA. Confirmatory factor analysis was conducted to examine the dimensionality of the RSOA at the facet level in a new sample (Mplus Version 7.4; Muthén & Muthén, 1998–2012). The maximum likelihood robust (MLR) estimator was used to correct standard errors for potential non-normality in the data. To examine model fit, root-mean-square error of approximation (RMSEA), comparative fit index (CFI), the Tucker–Lewis index (TLI), and standardized root-mean-square residual (SRMR) were used employing the same statistical criteria applied in Study 2b.

To evaluate gender invariance of the RSOA, a series of nested models were tested and compared. First, the configural model was assessed to confirm that the number of factors was equivalent across groups. Next, the metric model was evaluated, which indicates whether the factor loadings are the same across groups. Finally, scalar invariance was tested, which indicates whether the intercepts are invariant across groups. If scalar invariance is satisfied, latent means can be reliably compared across groups (Cheung & Rensvold, 2002). All invariance tests utilized maximum likelihood estimator and nested models were compared using $\chi 2$, CFI, and RMSEA difference tests. CFI difference values less than or equal to .01, and RMSEA difference values less than or equal to .01 indicate non-significant differences in the models (Cheung & Rensvold, 2002; Chen, 2007).

3.12. Results

3.12.1. Data Screening

The same data screening procedures described in Study 2b were implemented using IBM SPSS Statistics (24). Less than 1% of values were missing on each variable, thus the Mplus default full-information maximum likelihood method was used (Kline, 2011). None of the sample variables surpassed the recommended cut-off values for skewness or kurtosis and there were no instances of multicollinearity. Similarly to Study 2b, one multivariate outlier was detected in the sample. The outlier was not due to error and removal of the outlier did not substantially affect model fit (see Appendix D) thus, the outlier was not removed from the sample.

3.12.2. Descriptive Statistics and Convergent Validity

Descriptive statistics, internal consistency reliabilities, and bivariate correlations for the RSOA factors and facets are included in Table 7. Skewness and kurtosis values were in the acceptable range for all study variables (Kline, 2011). Cronbach's alpha reliabilities for the RSOA factors ranged from good-to-excellent ranging from .82 (Experiential) to .98 (Spiritual). Facet internal consistencies also ranged from acceptable to excellent (.72-.98). Preliminary analyses indicated participants aged 55-59 years did not differ significantly from those aged 60 and older on RSOA factors or other demographic variables with the exception of marital status, and therefore, these individuals were included in the final sample.

Each of the RSOA factors were moderately-to-strongly positively correlated with one another, with the exception of the Spiritual factor which was weakly positively correlated with Intrapersonal, Interpersonal, and Experiential factors. Quality of life was moderately-to-strongly positively correlated with total resilience and the Intrapersonal, Interpersonal and Experiential

factors, and weakly positively correlated with the Spiritual factor. Perceived stress was weakly-to-moderately negatively correlated with total resilience and the Interpersonal, Intrapersonal and Experiential factors, but not significantly correlated with the Spiritual factor.

3.12.3. Facet-Level Confirmatory Factor Analyses

We used CFA to once again evaluate the factor structure of the RSOA at the facet level. Overall, the fit of the model was acceptable: $\chi^2(38) = 122.443$, $p < .001$, RMSEA = .078 [90% confidence interval = .063 - .094], CFI = .954, TLI = .934, SRMR = .049. Each of the facets loaded strongly onto their corresponding factors, with standardized loadings ranging from .70 (Friend and Neighbour Support on Interpersonal) to .93 (Prayer on Spiritual). However, similar to Study 2b, Faith had a standardized loading of 1.014 on the Spiritual factor with a negative residual variance. As in Study 2b, we ran a second model constraining the Spiritual and Experiential loadings to equality to account for the latent variables only possessing two indicators. This model also fit the data well: $\chi^2(40) = 125.048$, $p < .001$, RMSEA = .076 [90% CI = .061 - .092], CFI = .954, TLI = .936, SRMR = .051. Again, facet indicators loaded strongly onto their corresponding factors, with standardized loadings ranging from .70 (Friend and Neighbour Support on Interpersonal) to .99 (Faith on Spiritual).

Table 7. Alpha reliabilities, descriptive statistics and bivariate correlations for the RSOA factors and facets: Study 2c

	α	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Total Resilience	.93	3.97	.57	1																	
2. Quality of Life	.89	4.19	.55	.70	1																
3. Perceived Stress	.92	2.14	.73	-.35	-.55	1															
4. Intrapersonal	.90	4.12	.54	.79	.70	-.45	1														
5. Perseverance & Determination	.83	4.18	.62	.59	.51	-.30	.85	1													
6. Self-Efficacy & Independence	.81	4.28	.56	.58	.57	-.38	.81	.69	1												
7. Positive Perspective	.77	4.20	.63	.72	.64	-.48	.86	.64	.63	1											
8. Purpose & Meaning	.76	3.82	.76	.74	.61	-.35	.82	.55	.47	.62	1										
9. Interpersonal	.91	3.90	.78	.78	.72	-.38	.60	.41	.41	.57	.58	1									
10. Sense of Community	.81	3.99	.83	.75	.66	-.36	.63	.45	.44	.57	.62	.88	1								
11. Family Support	.95	4.08	1.03	.60	.60	-.31	.43	.29	.29	.45	.40	.86	.65	1							
12. Friend/Neighbour Support	.82	3.64	.89	.67	.59	-.31	.50	.34	.35	.46	.49	.82	.63	.50	1						
13. Spiritual	.98	3.28	1.49	.73	.26	-.06^{ns}	.29	.16	.15	.27	.37	.31	.31	.18	.31	1					
14. Prayer	.98	3.30	1.53	.71	.24	-.04^{ns}	.28	.16	.14	.25	.35	.29	.29	.16	.30	.99	1				
15. Faith	.97	3.25	1.49	.73	.27	-.09^{ns}	.31	.16	.16	.29	.37	.32	.31	.20	.32	.99	.95	1			
16. Experiential	.82	4.45	.45	.64	.52	-.15	.63	.49	.55	.56	.50	.40	.42	.31	.32	.28	.27	.29	1		
17. Previous Adversity	.72	4.45	.50	.59	.40	-.09	.53	.42	.44	.49	.43	.36	.38	.28	.28	.31	.28	.32	.89	1	
18. Proactivity	.77	4.45	.50	.55	.52	-.18	.58	.46	.53	.51	.46	.35	.36	.26	.30	.20	.20	.19	.89	.58	1

Note. Factors are bolded; all correlation coefficients are significant at $p < .001$ unless otherwise indicated; ns = non-significant

3.12.4. Gender Invariance

To allow for meaningful comparisons across gender, the RSOA factor structure should demonstrate invariance between men and women (Reise, Waller, & Comrey, 2000). Therefore, a series of nested models were tested to examine gender invariance of the RSOA (see Table 8). Overall configural model fit was acceptable: $\chi 2(80) = 196.43$, $p < .001$, RMSEA = .089 [90% CI = .074 = .105], CFI = .954, TLI = .936, SRMR = .064. Chi square, CFI, and RMSEA difference tests showed no significant differences in fit between the metric and configural model: $\Delta\chi 2(7) = 4.15$, $p > .05$, ΔCFI = .001, ΔRMSEA = .004. Thus, factor loadings did not significantly differ across men and women. When comparing differences between metric and scalar models, the chi square difference test showed that the scalar model fit significantly worse than the metric model, $\Delta\chi 2(7) = 22.61$, $p < .01$. However, the CFI and RMSEA difference tests revealed that the scalar model was not significantly different from the metric model, ΔCFI = .006, ΔRMSEA = .002. Thus, we could reliably compare latent means. Women and men were not significantly different on Intrapersonal ($\Delta m = .16$, p = .158) or Interpersonal ($\Delta m = .09$, p = .468) factors, whereas women had higher latent means than men on the Spiritual ($\Delta m = .61$, p = < .001) and Experiential factors ($\Delta m = .49$, p < .001).

Table 8. Gender invariance fit indices.

Model	χ^2 (df)	CFI	TLI	RMSEA	RMSEA 90% C.I.	SRMR
1. No constraints	196.431**(80)	.954	.936	.089	.074 - .105	.064
2. Metric invariance	200.581**(87)	.955	.943	.085	.069 - .100	.069
3. Scalar invariance	223.192.**(94)	.949	.940	.087	.072 - .102	.074

Note. **p<.001.

3.13. Discussion

The aim of Study 2c was to further validate the factor structure of the RSOA with a new sample, provide further reliability and convergent validity evidence, and examine gender invariance of the RSOA. Once again, results supported the overarching four-factor structure, and 11 underlying facets of the RSOA. Internal consistency reliability ranged from good-to-excellent for each of the four factors and ranged from adequate-to-excellent for the facets. Lower perceived stress scores were associated with higher scores on the Intrapersonal, Interpersonal, and Experiential factors. However, similarly to Study 2b, perceived stress was not associated with the Spiritual factor. In previous research, spirituality has been implicated as an important moderating variable for coping with stress and adversity (e.g., Keefe et al., 2001; Whitehead & Bergeman, 2012), however it may not play a direct role in reducing specific feelings of stress.

Additionally, the relationship between quality of life and the RSOA was explored as an additional indicator of convergent validity. Results indicated that higher scores on all RSOA factors and its total score were associated with greater quality of life, which is consistent with previous studies that have examined resilience in relation to quality of life in older adults (e.g., Fang et al., 2015; Gerino, Rollè, Sechi & Brustia, 2017). Lastly, to allow for meaningful comparisons across men and women, gender invariance was examined. Results suggest the factor structure is the same across genders, which allows us to accurately compare latent mean scores across groups. Latent mean comparisons indicated that women demonstrated higher average scores on the Spiritual and Experiential factors compared to men. Overall, Study 2c confirmed the structure of the RSOA, provided support for invariance across gender, and offered additional convergent validity findings.

3.14. General Discussion

Previous research has indicated that resilience is a process that is malleable and may present differently across the lifespan (e.g., Cosco et al., 2016; Gooding et al., 2011; Windle, 2011). Despite this, a psychometrically sound resilience measure with appropriate theoretical and empirical grounding for use with an older population has not previously been developed. Given the unique challenges associated with aging, it is necessary to design a measure of resilience developed specifically for an older adult population to ensure assessment is accurate and appropriate. This study aimed to develop and provide initial validity evidence for a multidimensional measure of resilience protective factors in older adulthood that is grounded in qualitative research (Wilson et al., 2020). The three studies presented provided support for the 11-facet, four-factor (Intrapersonal, Interpersonal, Spiritual, Experiential) structure of the RSOA. Moreover, the findings provided support for internal consistency reliability and initial convergent and concurrent validity.

In addition to examining reliability and validity, it is important to examine gender invariance so that this measure may be used to make meaningful comparisons between men and women. Findings from Study 2c indicate that the RSOA functions similarly across both men and women, and that there are mean differences on the Spiritual and Experiential factors. This is consistent with a large body of previous research that indicates women consistently score higher than men on spirituality (e.g., Bailly et al., 2018; Brown, Chen, Gehlert & Piedmont, 2013; Singh & Bisht, 2019; see Francis & Penny, 2013 for a review and discussion). In regard to the Experiential factor, research is mixed in terms of potential gender differences in proactivity and future planning (e.g., Prenda & Lachman, 2001), however, one study found that women were more likely to report having experienced five or more adverse life events compared to men

(Seery, Holman & Silver, 2010). This information may be useful for clinicians when assessing resilience in this population.

One unanticipated consistent finding across the three studies was the weak or non-existent relationship between the Spiritual factor and its corresponding facets with other components of the RSOA. One possible explanation is that many individuals may not identify as generally spiritual people but may draw on religion and faith during difficult times when they feel their personal resources are inadequate (Faigin & Pargament, 2011; Pargament, 1997). Therefore, spiritualty may serve as a dormant protective factor that is not at the forefront daily. Instead, spirituality may become particularly relevant when faced with major adversity. In other words, the Intrapersonal, Interpersonal, and Experiential protective factors may have greater efficacy and impact when dealing with day-to-day challenges, whereas the Spiritual factor may become increasingly relevant during particularly difficult events when human capabilities feel insufficient (Faigin & Pargament, 2011; Pargament, 1997). Similarly, spirituality may serve as a useful, but not necessary component of resilience in older adults. That is, individuals who are highly spiritual draw on their faith as a source of strength, but those who are not spiritual may not necessarily experience resilience to a lesser degree. Future research is needed to determine when spirituality plays a more critical role as a resilience protective factor, and if differences exist between spiritual and non-spiritual individuals in terms of positive adaptation.

This measure is intended for use by researchers, clinicians, and support workers who work closely with older adults. Having a theoretically appropriate instrument will allow researchers to improve their understanding of resilience in older adults by ensuring the measurement tool is suitable for this population. Additionally, the measure may be useful for clinicians and support workers to assess varying domains of protective factors that contribute to

an individual's resilience. These assessments will help elucidate which elements may be improved in order to increase positive adaptation in the face of adversity. Lastly, this measure may be a valuable addition to prevention and intervention programs designed to enhance resilience in an older population by providing an appropriate tool for tracking progress over the course of the program.

3.14.1. Limitations and Future Directions

The findings of the present study should be considered in light of its limitations. First, this measure is intended to provide a multidimensional assessment of protective factors and does not purport to assess specific risk and vulnerability factors that may play a role in the resilience process. Including additional screening questions (e.g., health status, financial status) during assessments may provide a more comprehensive evaluation of all factors contributing to an individual's resilience. Second, the measures in the present study were completed exclusively online. Although previous research indicates online surveys are a useful measure of data collection for older adults (Remillard, et al., 2014), this method shares similar limitations (e.g., lack of generalizability, convenience sample) with online methods used with other populations. Furthermore, there may be mean differences in resilience between those who are able to complete surveys online and those who are not. Future research should aim to administer the RSOA to groups of older adults who may not have access to a computer so that meaningful comparisons can be made.

The mean age for each sample was on the younger end of the "older adult" spectrum ($M_{\text{age range}}$ = 64.01 - 71.55 years) and therefore, the results may not generalize to samples of the oldest-old. Future research is required to explore invariance between the older adult age groups. Participants in the present study consisted of predominantly well-educated Caucasians from

Canada and the United States. While the RSOA is based on a model developed from research conducted with several diverse samples across a number of countries (Wilson et al., 2020), it remains unknown whether the RSOA generalizes to non-Western samples with varying educational and cultural backgrounds. Lastly, the present studies are cross-sectional in nature, and longitudinal studies are needed to examine the predictive utility of the RSOA.

In summary, the present studies provide initial evidence for a new measure of resilience in older adulthood that is based on a theoretical model grounded in relevant qualitative literature. Findings from three studies support the 11-facet, four-factor structure of the RSOA, and provide encouraging results regarding internal consistency reliability, convergent and concurrent validity, and gender invariance. Although further validation is needed, the RSOA appears to be a promising new multidimensional measure for examining resilience protective factors in an older adult population.

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CHAPTER 4: Study 3: Older Adults' Quality of Life and Experiences of Adversity: The Mediating Role of Resilience Protective Factors[3]

4.1. Introduction

Aging is associated with numerous physical, psychological, social, and cognitive challenges. These challenges may include, but are not limited to, experiencing the loss of loved ones and friends, relocating from one's home, increased likelihood of experiencing a chronic illness (Wolff, Starfield & Anderson, 2002), and age-related cognitive diseases (Jorm & Jolley, 1998). More recently, the global pandemic has resulted in increased adversity for older adults including health-related concerns, social isolation, and increased psychological distress (Armitage & Nellums, 2020; Jordan, Adab & Cheng, 2020; Niu et al., 2020; Plagg, Engl, Piccoliori & Eisendle, 2020; Qiu et al., 2020; Shahid et al., 2020). As the global population ages rapidly (United Nations, 2015), it is becoming increasingly important to understand the impact these challenges have on the well-being of older adults.

One important metric used to evaluate how well an individual is adjusting to these challenges is self-reported evaluations of Quality of Life (QOL). The World Health Organization (WHO) defines QOL as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (p. 1405, WHOQOL Group, 1995). Low QOL in an older population is associated with depression and anxiety (Haugan, et al., 2020), nursing home placement (Bilotta

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et al., 2011) and frailty (Kojima, Iliffe, Jivraj & Walters, 2016). Thus, exploring factors that contribute to increased QOL is an important research focus in the study of aging.

One concept that has been implicated as a relevant contributing factor to QOL is resilience (Netuveli & Blane, 2008). Resilience is the process of overcoming and thriving in the face of adversity (Luthar, Cicchetti & Becker, 2000), and is increasingly viewed as a meaningful concept within the study of aging (Harris, 2008; Martin, Lee & Gilligan, 2019; Wild, Wiles, & Allen, 2013). Given the important outcomes associated with QOL, and the growing older adult population, the aim of the current study is to examine the impact resilience has on the relationship between adversity and QOL in older adults.

4.1.1. The Resilience Process

Although, the resilience literature still lacks a consistent definition (e.g., Luthar et al., 2000), it is increasingly viewed as a dynamic process that begins with adversity, includes a number of contributing assets or protective factors, and results in positive adaptation or adjustment (e.g., Gillespie, Chaboyer & Wallis, 2007; Windle, 2011; Niitsu et al., 2017), and may be experienced differently across the lifespan (Windle, 2011). This conceptualization of resilience as a process differs from the trait-like concept of *resiliency* which refers to a profile of positive individual characteristics (e.g., Block and Block, 1980). One criticism of conceptualizing resilience as a stable trait is that it implies some people have it, while others may not (Masten, 1994). Alternatively, the view of resilience as a dynamic process insinuates that all individuals are capable of demonstrating resilience despite their backgrounds, experiences or environments, and that resilience may be developed (MacLeod, Musich, Hawkins, Alsgaard & Wicker, 2016). This has important implications for older adults by suggesting that interventions may be used to promote resilience in later life (MacLeod et al., 2016; Resnick, 2018). The

following sections will examine the components of the resilience process (i.e., adversity, protective factors, and positive adaptation) in the context of older adulthood.

4.1.1.1. Adversity. Following from contemporary views of resilience, adversity is the necessary first component of the resilience process. It can be defined as "negative life circumstances that are known to be statistically associated with adjustment difficulties" (Luthar & Cicchetti, 2000, p. 858). Adversities can be considered chronic or acute (Vanderbilt-Adriance & Shaw, 2008) and they may consist of major life changing events or everyday challenges (Davis, Luecken and Lemery-Chalfant, 2009). However, similar to the variability in definitions of resilience, the operational definitions of adversity vary widely and are largely dependent on the researcher's aims (van Kessel, 2013). A review of the resilience concept in older adults indicates that most studies conceptualize adversity as ongoing negative life stressors (i.e., the process of aging and dying, and experiencing poor health) compared to specific events (i.e., death of a loved one, disaster) (van Kessel, 2013).

When older adults were asked to indicate which life events they consider most stressful, personal injury/illness, family or friend injury/illness, death of family or friend, and nonmedical events (e.g., change in residence, victimization) were the most frequently mentioned. Of these events, all were rated highly stressful, however death of family or friend was rated the most stressful (Hardy, Concato & Gill, 2002). These findings highlight the importance of considering what events are considered stressful for older adults in addition to relying solely on researcher-based definitions. Furthermore, it is possible that resilience may manifest differently during periods of severe acute stress compared to experiences of frequent but mild stress (Davydov, Stewart, Ritchie & Chaudieu, 2010). Thus, the present study aims to examine both general

adversity in the context of perceived stress, as well as specific adversity by assessing the experience of adverse life events.

4.1.1.2. Positive Adaptation. Definitions of positive adaptation vary considerably across the resilience literature depending on the population being studied and the type of risk or adversity faced. However, Luthar & Cushing (1999) maintained that the definition of positive adaptation must be considered within the context of the adversity experienced. For instance, after experiencing a serious life-changing adverse event, lack of psychological distress would be an adequate indicator of positive adaption, compared to better than normal functioning. A concept analysis conducted by Windle (2011) defined the consequences or the endpoints of the resilience process as "the maintenance of normal functioning (mental or physical health), or better than expected development or functioning, given exposure to the adversity under question" (p. 158). Further, it is suggested that maintaining normal functioning as opposed to experiencing growth after adversity may be a more realistic outcome in very advanced age (Hayman, Kerse & Consedine, 2017). These conceptualizations align with the sentiments by Luthar & Cushing (1999) that the definition of positive adaptation needs to be relative to the adversity experienced.

In regard to older adults, Hicks and Conner (2014) conducted a concept analysis of resilient aging and determined that the consequence of resilient aging is QOL. QOL as the outcome of resilience may be a more realistic metric of adaptation in older adults compared to better than normal functioning, or flourishing (c.f., Hildon, Smith, Netuveli & Smith, 2008) which is not necessarily a feasible or required outcome of resilience (Windle, 2011). QOL has been defined in many ways (Halvorsrud & Kalfoss, 2007) but is generally seen as both a subjective and objective interpretation of one's position in life within a variety of life domains including physical, social and psychological domains (Netuveli & Blane, 2008). Further, given

the rapidly and steadily aging population, QOL has been implicated as an important avenue of investigation on a global policy level (WHOQOL Group, 1995). Given that QOL is implicated as a key outcome of resilient aging (Hicks & Conner, 2014), and is an important focal area for improving the lives of individuals worldwide, the present study assesses QOL as the outcome in the relationship between adversity and resilient protective factors.

4.1.1.3. Resilience protective factors in older adulthood. The extent to which an individual experiences positive adaptation in the face of adversity is partly dependent on the presence of a number of protective factors which have been extensively studied in the literature. Protective factors are factors that "modify the effects of risk in a positive direction" (Luthar & Cicchetti, 2000, p. 859). A number of qualitative reviews conducted over the last decade have summarized the factors that contribute to resilience in older adults. Specifically, van Kessel, (2013) revealed two main categories that influence resilience in older adults: internal factors and environmental factors. Internal factors consist of self-efficacy (e.g., Emlet, Tozay & Raveis, 2011), spirituality (e.g., Kinsel, 2005), future orientation (e.g., Janssen, Van Regenmortel & Abma, 2011), life experiences (e.g., Felten & Hall, 2001), meaningfulness (e.g., Wagnild & Young, 1990), caring for others (e.g., Janssen et al., 2011), and acceptance (e.g., Dorfman, Méndez & Osterhaus, 2009). External factors include social support (e.g., Wiles, Wild, Kerse & Allen, 2012), and societal support such as policy and access to care (Janssen et al., 2011). A more recent metasynthesis of qualitative studies implicated nine similar overarching resilience protective factors that are relevant to older adults: external connections, meaningfulness, previous experience with hardship, grit, self-care, self-acceptance, positive perspective on life, independence, and altruism (Bolton, Praetorius & Smith-Osborne, 2016).

Overall, the findings from qualitative research largely mirror the findings of quantitative studies that have also described a number of individual and social characteristics that are associated with resilience (e.g., MacLeod et al., 2016). However, several quantitative studies, have implicated additional features such as physical health, activities of daily living, and mobility as relevant resilience protective factors (Hicks & Conner, 2014; MacLeod et al., 2016). While these factors are associated with resilience, they are less consistently mentioned by older adults as relevant protective factors (Bolton et al., 2016; Wilson, Walker & Saklofske, 2020). Therefore, it is important that the criteria used to study resilience is relevant to older adults, and one effective way of accomplishing this is through qualitative research with this population.

One newly developed model of resilience in older adulthood aims to describe the protective factors that are relevant to older adults and is grounded in qualitative research with an older population (Wilson et al., 2020). This model organizes protective factors into four overarching categories: Intrapersonal factors, Interpersonal factors, Experiential factors and Spiritual factors. The Intrapersonal factor includes perseverance and determination, self-efficacy and independence, purpose and meaning, and positive perspective. The Interpersonal factor encompasses sense of community, support from family, friends and neighbours. The Experiential factor comprises previous experiences and being proactive, and lastly, the Spiritual factor represents prayer and having faith (Wilson et al., 2020). This model serves as the theoretical basis for the newly developed Resilience Scale for Older Adults (RSOA; Wilson, Plouffe & Saklofske, under review) which is intended to assess resilience protective factors in an older population. While initial research findings have demonstrated good reliability and validity of the RSOA, the applicability of this new model has yet to be examined in the context of adversity and positive adaption. Thus, one aim of the present study is to explore the utility of this new model of

resilience protective factors in older adults by examining how these factors affect the relationship between adversity and QOL in older adulthood.

4.1.2. Adversity, Resilience, and Quality of Life

In an attempt to empirically examine the theoretical resilience process, a number of recent studies have examined the role of resilience in the relationship between adversity and QOL in older adults. The majority of studies have operationally defined adversity in terms of more persistent and enduring forms of stress and adversity. For instance, resilience significantly predicted QOL in older adults with physical disabilities (Battalio, Silverman, Ehde, Amtmann, Edwards & Jensen, 2017), and older individuals considered frail who scored high on resilience were more likely to experience better outcomes (i.e., functional improvement) following orthopedic surgery (Rebagliati et al., 2016).

Further, resilience has been implicated as a mediating factor in relation to various types of adversity and QOL. For example, resilience mediates the relationship between both fatigue and pain and QOL (Terrill et al., 2016), as well as the relationship between loneliness and QOL in older adults (Gerino, Rollè, Sechi & Brustia, 2017). Lastly, and similar to the aim of the present study, previous research suggests that resilience can buffer the negative impact of life stress on QOL in older adults living with HIV/AIDS (Fang et al., 2015). Another frequently cited outcome of resilience in older adults that is often used synonymously with QOL is life satisfaction (e.g., Hicks & Conner, 2014). In a study with recently widowed older women, resilience was found to mediate the relationship between perceived stress and life satisfaction (Rossi, Bisonti & Bergeman, 2007). Additionally, older adults with poor health were more likely to report greater satisfaction with life if they scored high on resilience (Windle, Woods & Markland, 2010).

Overall, these findings suggest that resilience serves as a protective mechanism for older adults who face adversity in a number of ways, ranging from specific negative life events (e.g., death of spouse) to persistent but perhaps less severe stressors (e.g., loneliness). Further, consistent with theoretical definitions of the resilience process, previous empirical studies suggest that protective factors are a fundamental mediating mechanism in the relationship between adversity and positive adaptation in the form of QOL (e.g., Gerino et al., 2017). Although the influence of resilience in the face of enduring adversity has been investigated (e.g., Terrill et al., 2016), there is a paucity of research examining the cumulative impact of specific negative life events on positive adaptation in older adults. Given that older adulthood is a time where sudden negative events are increasingly likely, (e.g., death of spouse or close friends, forced to leave home, etc.), it is important to study the influence of resilience in the context of both chronic and acute adversity. Additionally, given that resilience is a dynamic process and that protective factors are not fixed and may fluctuate (Luthar et al., 2000; Ungar, 2008; Windle, 2011), it is plausible that adversity can influence resilience, which in turn affects quality of life. Further, although resilience has sometimes been implicated as a moderator in relation to adversity and adaptation (e.g., Windle et al., 2010), given that previous studies have found resilience significantly mediates the relationship between various adversities and QOL specifically, we hypothesized a mediational model.

4.1.3. The Present Study

Given that resilience is increasingly viewed as a process that begins with adversity, consists of a number of protective factors, and results in positive adaptation (e.g., Gillespie et al., 2007; Windle, 2011; Niitsu et al., 2017), the aim of this study is to illustrate this process by exploring resilience protective factors as a mediator in the relationship between adversity and

QOL. As previous research has indicated that resilience plays a key role in improving QOL for older individuals facing a variety of adverse circumstances (e.g., Fang et al., 2015; Terrill et al., 2016), it is hypothesized that this new model of resilience protective factors will mediate the relationship between both general and specific adversity and QOL. General adversity will be assessed by participants' general perceived stress over the past month, and specific adversity will be assessed by examining cumulative major adverse life events experienced over the last year. As a secondary aim, this study intends to explore the applicability and utility of the new model and measure of resilience in older adulthood (Wilson et al., 2020; Wilson et al., under review) for use in applied studies with an older adult population.

4.2. Method

4.2.1. Participants and Procedure

Ethical approval was received from Western University's Non-Medical Research Ethics Board (see Appendix A). Participants were recruited online through a number of community organizations across Canada that serve the older adult population, through snowball sampling, and through postings on social media platforms (i.e., Facebook). The community organizations distributed the study information to their email listservs and if applicable, shared the study on their websites and in their online newsletters. Individuals were invited to share the study with others who they believed may be interested. Interested participants were invited to complete an online survey through Qualtrics survey platform consisting of demographic questions, and measures of resilience, adverse life events, and QOL. In addition, participants completed initial cognitive screening items adapted from the orientation section of the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996) (see Appendix B). Participants were entered into a draw for one of five $20 gift cards as compensation for their participation.

Participants consisted of 162 community-dwelling adults. Two participants were excluded for not meeting the inclusion criteria of being 60 years of age or older resulting in a total of 160 participants ranging in age from 60 to 95 years (M_{age} = 71.39, *SD* = 7.51). The participants were 67.9% female, 32.1% male, and 1 participant did not report their gender. Nearly all of the participants were living independently in a house, apartment or condo (97%), and only 3% were living in a retirement home/independent living community or with a relative. The majority (67.5%) of participants were married or in a domestic partnership, 16.9% were widowed, 13.2% were divorced or separated, and 2.5% were single or never married. The majority identified as being Caucasian or of European decent (93.13%), and were well-educated, with 83.13% having completed some level of post-secondary education. The majority were currently retired (85.6%).

4.2.2. Materials

4.2.2.1. Resilience. Resilience was assessed using the 33-item Resilience Scale for Older Adults (RSOA; Wilson et al., under review). The RSOA was developed from a theoretical model of resilience protective factors in older adulthood that is grounded in qualitative data (Wilson et al., 2020). The RSOA consists of four overarching factors and 11-facets: *Intrapersonal* (Perseverance and Determination, Self-Efficacy and Independence, Purpose and Meaning, and Positive Perspective); *Interpersonal* (Sense of Community, Family Support, and Friend/Neighbour Support); *Spiritual* (Faith and Prayer); *Experiential* (Previous Adversity, Proactivity). Factors can be averaged to create a total resilience score. Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Initial research with the RSOA has demonstrated good reliability and validity (Wilson et al., under review).

4.2.2.2. Perceived Stress. Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983) which assesses participants' perceived levels of global stress over the past month. Participants responded to items on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). In older adult samples the PSS demonstrates good internal consistency and excellent convergent/discriminant validity (Ezzati, Jiang, Katz, Sliwinski, Zimmerman & Lipton, 2014; Hamarat, Thompson, Zabrucky, Steele, Matheny & Aysan, 2001; Kwag, Martin, Russell, Franke & Kohut, 2011).

4.2.2.3. Adverse Life Events. Adverse life events were assessed using the Geriatric Adverse Life Events Scale (GALES; Devanand, Kim, Paykina & Sackeim, 2002). Participants were asked to respond "yes" or "no" to whether or not they have experienced any of 26 adverse or negative life events in the past year. The adverse events are drawn from six life domains: financial/work difficulties; physical illness/accident; interpersonal conflict; interpersonal loss; disruption in living situation; and other life events. Sample events include "death of spouse", "forced to leave or lost home", and "new major physical illness". Number of "yes" responses are summed to create a total adversity score. Greater scores are indicative of greater experiences of adverse events. Previous research has indicated the GALES has good convergent and discriminant validity (Devanand et al., 2002; Mhaolain et al., 2012; Dautovich, Dzierzewski & Gum, 2014).

4.2.2.4. Quality of life. QOL was assessed using the Older People's Quality of Life Questionnaire-Brief Version (OPQLQ-Brief; Bowling, Hankins, Windle, Bilotta & Grant, 2013). The items stem from qualitative research examining older adults' views of what constitutes acceptable QOL (Bowling, 2009; Bowling & Stenner, 2011). Participants responded to 13 items assessing QOL across various life domains such as health, psychological and emotional well-

being, and social participation. Participants responded to items on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Previous research has indicated that the OPQOL-brief has good validity and reliability and is suitable for use in an older adult population (Bowling et al., 2013; Kaambwa et al., 2015).

4.2.3. Data Analytic Strategy

A two-step SEM approach (Kline, 2011) was used to examine the relationship between perceived stress, adverse life events, resilience, and QOL consisting of an initial analysis of the measurement model followed by an analysis of the full SEM mediation model. This two-step method was chosen as the RSOA is a newly developed scale and as such, it is important to evaluate how well the latent variable (i.e., resilience) is defined by the indicator variables (i.e., Intrapersonal, Interpersonal, Spiritual, and Experiential factors). To examine model fit, root-mean-square error of approximation (RMSEA), comparative fit index (CFI), and the Tucker–Lewis index (TLI) were calculated. RMSEA values close to .06 indicate good fit, values between .07 and .08 indicate acceptable fit, values between .08 and .10 are indicative of marginal fit, and values greater than .10 indicate poor fit. CFI and TLI values of .95 or larger represent excellent model fit, and values between .90 and .95 represent acceptable fit (Hu & Bentler, 1999).

Monte Carlo power analyses using estimated effect sizes indicated that a sample size of N = 150 would provide a power of .98 for the mediation between perceived stress and QOL. However, a minimum sample size of N = 750 would be required for a power of .78 for the mediation between adverse life events and QOL. Therefore, the decision was made to examine the mediating relationships separately given the lack of power for the second mediation analysis. Two mediation analyses were conducted using Mplus Version 8 (Muthén & Muthén, 1998-2017) using a maximum likelihood estimation and figures were created using AMOS 24 for IBM

Statistics SPSS (IBM Corp., 2013). The significance of direct and indirect effects was evaluated using bias-corrected bootstrapping with 10,000 resamples. If the 95% bias-corrected bootstrapped confidence interval does not contain zero for the indirect effect it indicates mediation is present (Preacher & Hayes, 2008; Wood, 2005). Effect sizes were computed using $R^2_{mediated}$ (Fairchild, MacKinnon, Taborga & Taylor, 2009) which quantifies the proportion of variance in the dependent variable that is common to both the independent and mediator variables, and is appropriate for use with smaller samples (Fairchild & McDaniel, 2017). Effect sizes were evaluated using Cohen's (1988) values of .14 = small effect, .39 = medium effect, .59 large effect.

4.3. Results

4.3.1. Data Screening

Standard data screening procedures were implemented using IBM SPSS Statistics (24). Less than 1% of values were missing on each variable, thus the Mplus default full-information maximum likelihood method was used (Kline, 2011). To assess multivariate normality, skewness and kurtosis were evaluated for all major study variables using the skew index (SI) and the kurtosis index (KI). Variables with SI > 3.0 are considered skewed (Curran, West, & Finch, 1997) and variables with KI > 10.0 suggest there are instances of kurtosis (Kline, 2011). None of the sample variables surpassed these recommended value cut-offs, indicating no instances of abnormal or extreme skewness or kurtosis. Mahalanobis distance (D^2) was used to detect multivariate outliers. D^2 is distributed as a chi-square distribution and any instances with a value greater than the critical value (i.e., $p < .001$) suggests that the participant is an outlier (Kline, 2011). No multivariate outliers were detected in this sample. Tolerance and the Variance Inflation Factor (VIF) were calculated to evaluate multicollinearity. Extreme multicollinearity is

likely if Tolerance values are < .10 and if VIF is > 10.0 (Kline, 2011) and there were no instances of multicollinearity detected in the data for this study.

4.3.2. Descriptive Statistics and Correlations

Means, standard deviations, Cronbach alpha reliabilities, and correlations for all study variables can be found in Table 9. All of the resilience factors were moderately positively correlated with each other with the exception of the Spiritual factor which was not significantly correlated with any of the study variables except for the total resilience score. All resilience factors (except Spiritual) were moderately negatively correlated with perceived stress, and moderately positively correlated with QOL. QOL was moderately negatively correlated with perceived stress and weakly negatively correlated with adverse life events. Adverse life events was weakly positively correlated with perceived stress and weakly negatively correlated with the Interpersonal resilience factor, but not significantly correlated with all other resilience factors.

Table 9. Means, standard deviations, alpha reliabilities and bivariate correlations for all study variables: Study 3.

	M	SD	α	1	2	3	4	5	6	7	8
1. Total Resilience	3.83	.46	.88	-							
2. Intrapersonal	4.10	.43	.84	.50*	-						
3. Interpersonal	4.11	.53	.83	.55*	.52*	-					
4. Spiritual	2.71	1.41	.98	.80*	-.00	.06	-				
5. Experiential	4.40	.42	.76	.54*	.58*	.44*	.08	-			
6. Perceived Stress	2.18	.59	.88	-.28*	-.45*	-.46*	.06	-.43*	-		
7. Adverse Life Events	2.56	2.11	-	-.03	-.09	-.25*	.08	-.01	.28*	-	
8. Quality of Life	4.43	.40	.88	.41*	.64*	.64*	-.03	.52*	-.51*	-.27*	-

Note. All variable scores range from 1 to 5 except Adverse Life Events which ranges from 0-26; * Indicates p < .01.

4.3.3. Measurement Model

Evaluation of the initial measurement model of resilience as a latent factor with four indicator variables (Intrapersonal Interpersonal, Spiritual, and Experiential) revealed excellent fit $\chi^2(2) = 1.80$, $p = .407$, RMSEA = .00 [90% confidence interval = .000 - .152], CFI = 1.00, TLI = 1.00. Each factor loaded strongly onto the resilience latent factor (Intrapersonal = .81; Interpersonal = .62; Experiential = .70) with the exception of the Spiritual factor (.03). Due to the extremely small loading of the Spiritual indicator variable, the decision was made to remove this variable from the model. This finding is consistent with the lack of significant correlation between the Spiritual factor and all other indicators. No other measurement modifications were required. The final model was just identified (i.e., same number of parameters as observations) with zero degrees of freedom (CFI = 1.00, TLI = 1.00, RMSEA = 0.00). Factor loadings for the indicator variables were as follows: Intrapersonal = .82, Interpersonal = .62, Experiential = .70. The resilience construct was well-defined after the removal of the Spiritual factor.

4.3.4. Mediation Model of Perceived Stress, Resilience, and Quality of Life

The SEM mediation model for the relationship between perceived stress, resilience, and QOL is presented in Figure 3. The model had excellent fit with $\chi^2(4) = 6.00$, $p = 0.20$, RMSEA = .06 [90% confidence interval = .000 - .142], CFI = .99, TLI = .98. Perceived stress was directly associated with resilience (-.61) but not significantly associated with QOL (.01) once resilience was added to the model. Resilience had a strong positive direct effect on QOL (.83). A significant indirect link between perceived stress and QOL was found (-.51; $R^2_{mediated} = .39$) indicating that resilience protective factors significantly mediated this relationship, and that perceived stress negatively predicts QOL by indirectly reducing protective factors (see Table 10).

Table 10. Direct, total, and indirect effects and bootstrapped confidence intervals of perceived stress on resilience and quality of life.

	Perceived Stress			
			Bootstrapped 95% bias-corrected CI	
	Unstandardized	Standardized	Unstandardized	Standardized
Resilience				
Direct Effect	-.338	-.609*	-.44 to -.24	-.71 to -.48
QOL				
Direct Effect	.005	.007	-.11 to .12	-.16 to .19
Total Effect	-.337	-.498*	-.44 to -.24	-.61 to -.36
Indirect Effect	-.342	-.505*	-.47 to -.24	-.68 to -.37

Note. QOL = quality of life; * = $p < .001$

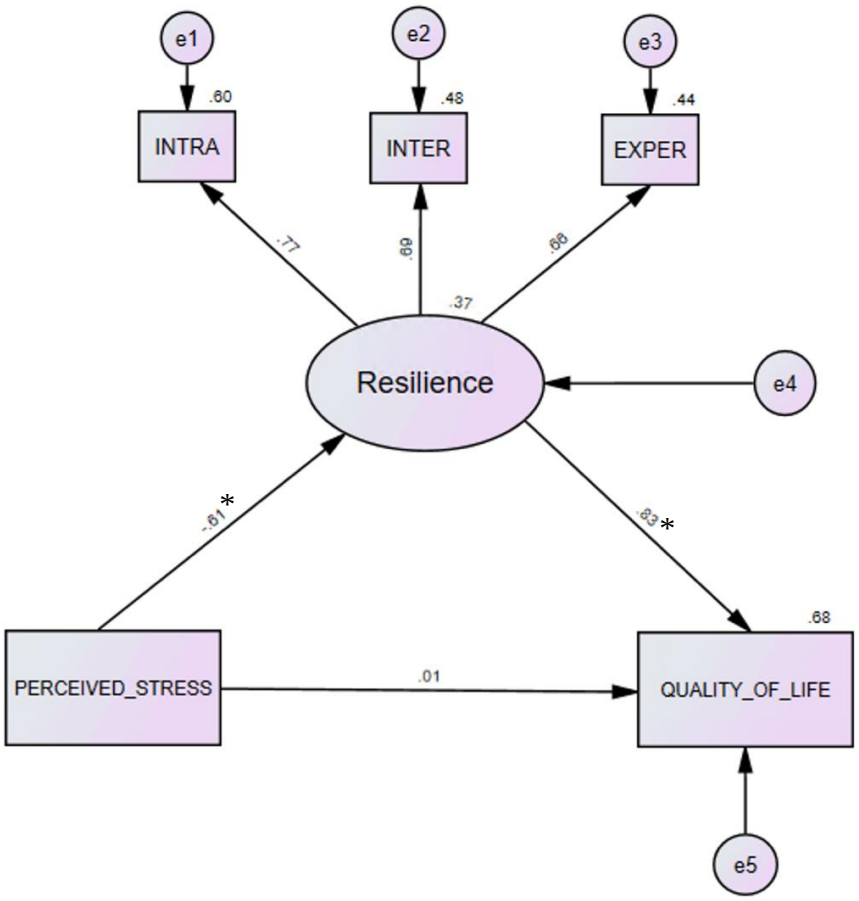

Figure 3. Standardized results of the path analysis demonstrating the perceived stress-resilience-quality of life model. *Note.* Intra = Intrapersonal, Inter = Interpersonal, Exper = Experiential; 37, and .68 are the squared multiple correlations; e = error; * indicates $p < .001$.

4.3.5. Mediation Analysis of Adverse Life Events, Resilience, and Quality of Life

Baron and Kenny (1986) indicated that in order for mediation analyses to be explored, the independent variable and mediator variable need to be significantly correlated. Adverse life events was not significantly correlated with the total resilience score, or any of the resilience factors except the Interpersonal factor. Given the non-significant correlations between adverse life events and most of the resilience factors, the decision was made to conduct a path analysis examining the mediating role of the Interpersonal factor between adverse life events and QOL. The path analysis for the relationship between adverse life events, Interpersonal resilience factor,

and QOL is presented in Figure 4. The model was just identified with zero degrees of freedom (CFI = 1.00, TLI = 1.00, RMSEA = 0.00). Adverse life events was directly negatively associated with the Interpersonal resilience factor (-.25), but not significantly associated with QOL (-.13). The Interpersonal resilience factor had a significant positive direct effect on QOL (.57). A significant indirect link between adverse life events and QOL was found (-.14; $R^2_{mediated}$ = .06) indicating that the Interpersonal resilience factor significantly mediated this relationship, and that adverse life events negatively predicts QOL by indirectly reducing interpersonal support (see Table 11).

Table 11. Direct, total, and indirect effects and bootstrapped confidence intervals of adverse life events on interpersonal resilience and quality of life.

	Adverse Life Events			
			Bootstrapped 95% bias-corrected CI	
	Unstandardized	Standardized	Unstandardized	Standardized
Interpersonal				
Direct Effect	-.062	-.253*	-.10 to -.02	-.40 to -.10
QOL				
Direct Effect	-.023	-.125	-.05 to -.02	-.25 to .01
Total Effect	-.050	-.268*	-.08 to -.02	-.41 to -.12
Indirect Effect	-.027	-.143*	-.05 to -.01	-.24 to -.06

Note. QOL = quality of life; * = p < .01

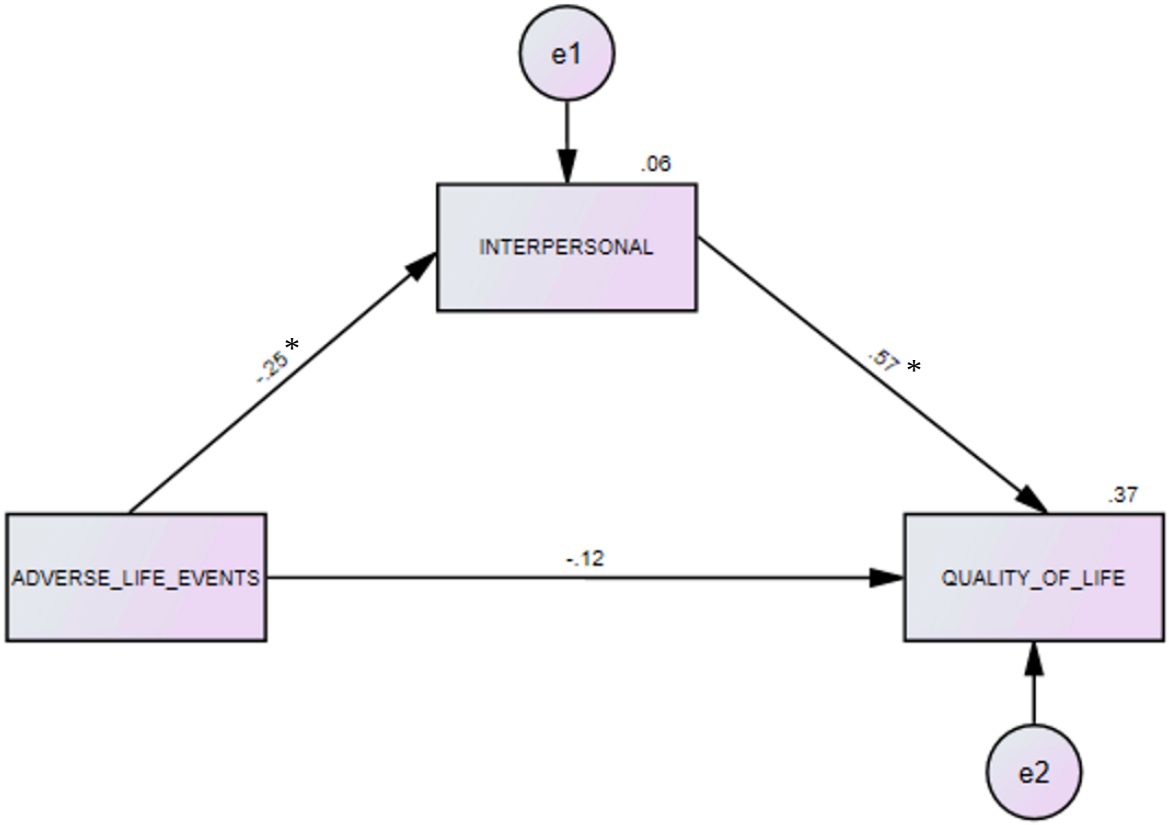

Figure 4. Standardized results of the path analysis demonstrating the adverse life events- interpersonal resilience-quality of life model. *Note.* .06 and .37 are the squared multiple correlations; e = error; * Indicates $p < .01$.

4.4. Discussion

The present study aimed to examine resilience protective factors as measured by the RSOA as mediators in the relationship between general adversity (i.e., perceived stress) as well as specific adversity (i.e., cumulative adverse life events in the past year) and QOL in older adults. Prior to examining these relationships, it was necessary to first examine a measurement model of the RSOA, as it is a newly developed scale and it is necessary to ensure the indicators accurately reflect the resilience construct. The findings from the measurement model indicated that the Spiritual protective factor was a poor indicator of resilience in this sample. This is

consistent with previous findings that indicated the Spiritual factor was not significantly correlated with other resilience protective factors in the RSOA model (Wilson et al., under review). In the present study, the Spiritual factor scores were distributed in a U-shaped pattern, with a large number of individuals either indicating very high or very low scores on the Spiritual factor (see Appendix E). This polarizing nature of the Spiritual factor in the present study and previous samples may provide a possible explanation for the lack of relationship between spirituality and the other resilience protective factors. Additionally, as speculated previously, perhaps spirituality provides added protective benefits in those who identify as spiritual but having strong spirituality may not be a necessary component of resilience in older adults (Wilson et al., under review).

Another consideration to be noted is the relationship between spirituality and age. The consensus in the literature is that spirituality tends to increase with age (e.g., Moberg, 2005). Older individuals tend to rely increasingly on their religious and spiritual beliefs when faced with aging and illness (Reed, 1987; Faigin & Pargament, 2011). Although the mean age of the sample in the present study was 71.39, approximately 40% of the participants were under the age of 70 which is considered to be the young-old age group (i.e., 60-69) (Garfein & Herzog, 1995). Exploratory analyses revealed that age was positively albeit not significantly correlated with the Spiritual factor in the present study (r = .12, p = .140). Therefore, levels of spirituality, and consequently, the relationship between spirituality and resilience may change as individuals move into the old-old and oldest-old age groups and experience increasing levels of age-related adversity (Manning, 2012). Further research with older adults of more diverse age ranges is needed to explore this relationship. Lastly, despite the importance of spirituality to resilience in older adults as indicated in previous qualitative research (e.g., Faigin & Pargament, 2011;

Manning, 2012; Wilson et al., 2020) it does not appear to be associated with other factors such as interpersonal and individual factors and therefore may be best conceptualized as an ancillary rather than core resilience protective factor. Overall, given the lack of association between the Spiritual factor and the other resilience protective factors, future research should consider removing the Spiritual factor of the RSOA from the main scale and instead include it as a supplemental scale.

In regard to the mediation analyses, as hypothesized, the resilience protective factors in the RSOA (with the exception of the Spiritual factor), substantially mediated the relationship between perceived stress and QOL. Although resilience protective factors increase QOL, perceived stress has a negative impact on QOL by reducing resilience. Therefore, resilience protective factors play a key role in the relationship between stress and QOL, and greater attention should be focused on enhancing protective factors to mitigate this reduction when faced with stress. These findings are similar to those by Fang and colleagues (2015) who found similar resilience protective factors to significantly mediate the relationship between life stress and QOL in older adults living with HIV/AIDS. Further, the findings mirror previous research that has examined similar relationships between various general adversities (e.g., loneliness, pain) and QOL in older adults (Gerino et al., 2017; Terrill et al., 2016). Additionally, these findings suggest that resilience plays an important role in adapting to general, everyday adversity and challenges and not just acute severe events which may be particularly relevant for older adults who experience increasing day-to-day challenges. These findings have implications for resilience prevention or intervention programs by providing specific focal areas that may be enhanced to improve QOL in older adults experiencing everyday stressors.

When examining the relationship between adverse life events, resilience, and QOL, only one of the resilience protective factors (Interpersonal) was significantly correlated with adverse life events and therefore was the only factor able to be explored in the mediation analysis. This is consistent with previous research that has found relationships and social support to be a core developmental component of resilience (Luthar, 2006; Masten, 2001) as well as important to resilience across the lifespan (Masten & Wright, 2009) and for older adults in particular (Hicks & Conner, 2014; van Kessel, 2013). The Interpersonal protective factor was a significant mediator between adverse life events and QOL. Although Interpersonal protective factors increase QOL, adverse life events negatively impact QOL by reducing Interpersonal factors. Thus, the findings suggest that interpersonal support is a key mechanism in the relationship between adverse life events and QOL and that greater focus needs to be directed at enhancing interpersonal support in older adults as adverse events may diminish these protections.

The lack of relationship between adverse life events and Intrapersonal or Experiential resilience factors is encouraging, suggesting that key protective elements on an individual level (e.g., self-efficacy, positive perspective, proactivity) are not necessarily negatively impacted by increased adversity. However, the negative relationship between the Interpersonal factor and adverse life events is likely due to the type of adverse events that were reported. The most commonly mentioned adverse life events were those that involved major illness of a close family member (33% responded yes) or death of other relative or close friend (31% responded yes) (see Appendix G). Therefore, in those instances where the adversity experienced is closely linked with other people (e.g., death of friend, caring for ill family member), having multiple sources of interpersonal relationships and support may be especially crucial for QOL. This is consistent with findings from the caregiver literature that indicates that having higher perceived social

support is negatively associated with feelings of caregiver burden (e.g., del-Pino-Casado, Frias-Osuna, Palomino-Moral, Ruzafa-Martinez & Ramos-Morcillo, 2018; Reddy, 2019), and that social support can mediate the negative effects of psychological distress on QOL in caregivers (Burnette, Duci & Dhembo, 2017).

Overall, the importance of strong interpersonal support appears to be the most particularly relevant resilience protective factor when faced with sudden challenging events, particularly those involving others. Other resilience factors such as Intrapersonal and Experiential factors may be more useful when dealing with chronic everyday challenges and feelings of stress that may be less severe, and less directly interconnected with others. These findings have specific implications for older individuals who may find themselves suddenly caring for friends or family members. Mobilizing supports from family, friends, and neighbours can be particularly helpful when adapting to the difficulties associated with caring and other challenging experiences, and in turn may help to maintain good QOL. Further, the recent global pandemic situation highlights the need for more innovative methods of providing and receiving interpersonal support, particularly to older adults who may feel increasingly isolated and vulnerable during this uncertain time. Very recent research from China has indicated that individuals over the age of 60 reported some of the highest levels of COVID pandemic-related distress (Qiu, Shen, Zhao, Wang, Xie & Xu, 2020) and as such, the need for increased virtual support during this time may be particularly needed. Recent research has highlighted the increasing Internet use for social purposes among older adults and suggests that this is a worthwhile area of future research to explore in relation to older adults' well-being (Hülür & Macdonald, 2020).

While we correctly hypothesized a significant mediating relationship in the present study, previous work has suggested resilience may also serve as a moderator in relationship to adversity and adaptation (e.g. Rebagliati et al., 2016; Windle, et al., 2010). However, follow-up analyses indicated resilience was not a significant moderator in this sample (see Appendix F). Nevertheless, the varied findings in the literature suggest the relationship between adversity, resilience and positive adaptation is complex, and may be driven by more than one mechanism. More work using longitudinal or diary research is needed to elucidate this dynamic process and ascertain in what contexts resilience moderates or mediates the relationship between adversity and adaptation in later life. Lastly, a secondary aim of the present study was to examine the applicability of the newly developed RSOA in an applied study with older adults. The findings from the present study suggest that with minor modifications (i.e., removal of the Spiritual factor), the RSOA is useful in assessing mediating mechanisms in the relationship between general and specific adversity and QOL, although certain protective factors may be more salient than others depending on the type of adversity assessed. This finding supports the notion that resilience may manifest differently during different experiences of adversity (Davydov et al., 2010).

4.4.1. Limitations and Future Directions

While the present study presents promising findings for the utility of the RSOA, limitations should be noted. The adverse life events variable was operationalized as the total number of adversities experienced over the last year, however, it did not evaluate the level of distress associated with these events. Arguably some life events indicated on the GALES (Devanand et al., 2002) are more distressing than others. For instance, while retiring can be considered a challenging life event that requires significant adjustment (e.g., Atchley, 1982) it

could be considered a less negative event compared to the death of a family member. Future research should consider the severity and level of distress associated with various life events when exploring the relationship between resilience and QOL.

Additionally, many of the participants in the present study would be considered part of the young-old age group and therefore have not yet been exposed to some of the particularly difficult challenges associated with the old-old (i.e., 70-79) and oldest-old (i.e., 80+) age groups (Garfein & Herzog, 1995). In order to better evaluate the efficacy of the RSOA across all older ages, future research should aim to recruit a greater number of adults from across the older adulthood domain. Similarly, the present study consists of a purely online sample. While research suggests online surveys are a useful measure of data collection for older adults (Remillard, et al., 2014), there may be mean differences in resilience between those who are able to complete surveys online and those who are not. Utilizing online as well as paper and pencil methods in future research may improve the likelihood of recruiting individuals with more varied ages and levels of resilience protective factors. Lastly, the data collected from the present study was cross-sectional in nature, which limits the ability to make causal inferences, and to confirm the direction of the mediating relationship. Future research should longitudinally explore the relationship between adversity, resilience, and QOL to better understand the role resilience protective factors play in adaptation to adversity in older adults.

This study presents the first application of the RSOA by examining its utility in assessing protective factors and applying them to the resilience process. While the Spiritual factor may be better suited as a supplemental rather than core protective factor, overall the RSOA is able to effectively assess resilience protective factors and apply them to the relationship between adversity and adaptation. The core resilience protective factors play a significant role in the

relationship between everyday stress and QOL, however the Interpersonal protective factor is the most relevant when examining the effect of cumulative adverse life events on QOL. Overall, the RSOA is a promising measure of resilience protective factors in older adulthood and is efficacious in applied studies pertinent to resilient aging.

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Chapter 5: General Discussion

With the rapidly growing older adult population in Canada and around the world (Statistics Canada, 2014; United Nations, 2015), it is necessary to explore ways of improving or enhancing older adults' ability to adapt to the increasing number of challenges they are likely to experience across many life domains (Staudinger, Marsiske & Baltes, 1995). The study of resilience has been identified as a strengths-based approach that may be particularly relevant to addressing the adversity and challenges associated with aging (Harris, 2008; Martin, Lee & Gilligan, 2019; Wild, Wiles & Allen, 2013). However, for resilience research to continue to be relevant and valuable for older adults, it is important to have reliable and valid assessment tools that are developed for this specific population. Thus, the aim of the present research program was to develop a model of resilience grounded in relevant qualitative data, apply this model to the development of a reliable and valid measure of resilience protective factors in older adulthood, and explore the utility of this new measure by examining resilience protective factors as mediators between adversity and quality of life (QOL).

The findings from Study 1 revealed a new model of resilience in older adulthood that consists of 4 overarching factors and 11 underlying facets. The factors and facets are as follows: Intrapersonal Protective Factor consists of Perseverance and Determination, Self-efficacy and Independence, Purpose and Meaning, and Positive Perspective; Interpersonal Protective Factor consists of Sense of Community, Support from Family, Friends and Neighbours; Spiritual Protective Factor consists of Prayer and Faith; and Experiential Protective Factor consists of Previous Experiences and Proactivity (Wilson, Walker & Saklofske, 2020). This model was developed from samples with diverse ages, ethnicities, genders, and health statuses, and the model aligns well with conceptualizations of resilience as a process that includes both internal or

personal factors as well as environmental factors and life experiences that are drawn upon when faced with adversity (Luthar, Cicchetti & Becker, 2000; Windle, 2011).

Overall, Studies 2a, 2b and 2c provided support for the 11-facet, four-factor structure of the RSOA. Across the three studies, findings report good overall reliability for the factors and facets. These preliminary investigations demonstrated good convergent validity (i.e., a measure is correlated with theoretically related constructs) with RSOA factors demonstrating moderate positive relationships with similarly positive constructs (i.e., happiness, life satisfaction, quality of life (QOL)) and negative relationships with negative constructs (i.e., depression, anxiety, stress, perceived stress). Evidence of concurrent validity (i.e., how a measure compares to a well-validated measure) was also supported by the moderate positive relationship between the RSOA factors and the Resilience Scale (Wagnild & Young, 1993). Examination of gender invariance revealed that the factor structure of the RSOA is the same across genders, which allows us to accurately compare latent mean scores across groups. These latent mean comparisons indicated that women demonstrated higher average scores on the Spiritual and Experiential factors compared to men.

Finally, Study 3 supported the use of a modified version of the RSOA (i.e., Spiritual factor removed) as a mediator in the relationship between general and specific adversity and QOL. The modified RSOA protective factors mediated the relationship between perceived stress and QOL, however only the Interpersonal protective factor mediated the relationship between adverse life events and QOL. Across Studies 2 and 3, one consistent theme was the Spiritual factor of the RSOA not correlating or fitting the model as hypothesized. Therefore, it is suggested that the Spiritual factor of the RSOA be removed as a core factor and instead used as an optional supplemental scale when assessing spirituality is relevant. Overall, findings from the

three studies provide initial support for the RSOA as a new reliable and valid measure of resilience protective factors in older adulthood.

5.1. The RSOA: A New Model and Measure of Resilience in Older Adulthood

The RSOA as a measure of resilience protective factors in older adults, and the model from which it was developed, have a number of strengths. First, the RSOA was developed from a model that is grounded in qualitative data collected from older adults across a variety of populations and contexts. This is important because as we have seen from previous research, particularly in the area of successful aging, older adults' criterion may diverge from researcher conceptualizations (Cosco, Prina, Perales, Stephan & Brayne, 2014; Strawbridge, Wallhagen & Cohen, 2002; Von Faber et al., 2001). Further, in order for research and policy efforts pertaining to older adulthood to be relevant to this population, it is critical to have a measure that is appropriate and meaningful to older adults themselves (Bowling & Dieppe, 2005). By considering older adults' interpretations of what factors contribute to their resilience, the RSOA model and measure provides a means of assessing those factors older adults believe to be most applicable.

The model of resilience in older adulthood presented in this program of research expands on previous research (Bolton, Praetorius & Smith-Osborne, 2016) and provides an updated model of resilience protective factors in older adulthood. Over the last five years there has been a surge in quantitative (e.g., Meléndez, Satorres, Redondo, Escudero & Pitarque, 2018; Wermelinger Avila, Lucchetti & Lucchetti, 2017; Zhang, Zhang, Zhou & Yu, 2018) and qualitative (e.g., de Guzman, Imperial, Javier & Kawasaki, 2017; Hassani, Izadi-Avanji, Rakhshan & Majd, 2017; Kok, van Nes, Deeg, Widdershoven & Huisman, 2018; Li, Xu & Chi, 2018; Manning & Bouchard, 2019) research conducted with older adults, and therefore a more

current review was needed. In addition to presenting more up-to-date protective factors, this work integrates these factors into an explanatory model that recognizes the stability as well as the dynamic nature of various protective factors and acknowledges that many protective factors are interrelated and connected, particularly in an older adult population (Kinsel, 2005). Lastly, the new model improves on previous models of resilience in older adults which were developed from limited archival data based on researcher characterizations (e.g., Windle, Markland & Woods, 2008).

As a practical consideration, the RSOA is a relatively brief measure and requires only 33 items to assess four factors and 11 facets (27 items if excluding the Spiritual factor). Therefore, it would be easy to include in a battery of measures or assessments without substantially increasing respondent fatigue. Further, the RSOA is flexible in that it can identify protective factors at the factor or facet level, as well as provide a total overall protective factor score. This allows researchers and clinicians to use the RSOA as a tool to assess specific protective facets, or to obtain a general overall assessment of combined protective factors. While the findings presented here suggest the Spiritual factor may not always be a core resilience protective factor, the Spiritual factor is included as an optional subscale to be administered when relevant (e.g., researchers particularly interested in the contribution of spirituality to resilience, highly spiritual populations).

The RSOA measure, like the model, was developed from older adults' views of what factors contribute to their resilience ensuring its relevance and appropriateness for this population. This sets the RSOA apart from the few published resilience measures intended for an older adult demographic. For instance, the Multidimensional Individual and Interpersonal Resilience Measure (MIIRM; Martin, Distelberg, Palmer & Jeste, 2015) was developed for an

older adult population, however the relevant variables were influenced by factors drawn from the largely researcher-driven conceptualizations from the quantitative literature, and limited to the variables available in the archival dataset used. Additionally, the widely used Resilience Scale (Wagnild & Young, 1993) was initially developed from qualitative interviews with older women, however, it excludes important external protective factors such as relatedness or social support which are crucial protective elements across the lifespan (Masten & Wright, 2009).

Lastly, an additional strength of the RSOA is that it offers a positive approach to assessing adversity in aging. The findings from the present work suggest that the protective factors presented in the RSOA are not rare or difficult factors to have or achieve, as demonstrated by the ubiquity of these factors across the 34 qualitative studies examined in Study 1. This aligns with Masten's (2001) view and that of others, that resilience consists of "ordinary magic" and is actually quite common (Mancini & Bonanno, 2009; Staudinger & Greve, 2015). Similarly, research suggests that through the influence of relational and external factors, resilience can be developed or nurtured at any age (Gillespie, Chaboyer & Wallis, 2007). This view of resilience as common and achievable aligns with propositions by researchers who believe that assessing resilience in older adults, as opposed to other constructs such as successful aging, may be a more inclusive means of assessing how well someone is adjusting to the challenges of aging (Gattuso, 2003; Harris, 2008). Thus, instead of focusing on what older adults do not have (e.g., strong physical mobility, lack of disease), the RSOA focuses on what factors older adults do have that can contribute to an adaptive response in the face of adversity.

5.2. Applications and Implications

There are several potential applications and uses for the new RSOA measure. These include administering the RSOA as a pre-post measure for resilience intervention programs

aimed at older adults, using the RSOA as a brief screening tool in clinical settings to assess protective factors, and implementing the RSOA into wellness assessments in retirement communities to develop a benchmark and to explore which protective factors may need to be bolstered. In regard to resilience intervention programs, very few have been developed specifically for older adults (MacLeod, Musich, Hawkins, Alsgaard & Wicker, 2016; Windle, Salisbury & Ciesla, 2010). One pilot intervention specific to older adults utilized trained peer support persons to provide social support to older individuals to enhance their resilience (Windle et al., 2010). Another newly developed pilot intervention aims to build resilience in older adults through psychoeducation, improving access to social networks, and providing activities to enhance well-being, and the initial findings are encouraging (Woods et al., 2020).

Other intervention strategies not specific to older adults often focus on enhancing positive emotions (e.g., Fredrickson, 2000; Lyubomirsky, Sheldon & Schkade, 2005), which may be particularly useful for developing resilience (Fredrickson, 2000; Lyubomirsky & Della Porta, 2010; Ong, Bergeman, Bisconti & Wallace, 2006). Recently, Smith and Hanni (2019) applied a savouring intervention (i.e., recalling and thinking about positive experiences to illicit positive emotions) to a sample of older adults and found that those in the intervention group reported increases in resilience protective factors upon completion of the study. This is consistent with previous work that suggests savouring positive emotions is closely linked to resilience in older adults (Smith & Hollinger-Smith, 2015; Wilson & Saklofske, 2018). Thus, focusing on positive emotions may be an avenue worth considering when developing future resilience intervention programs for older adults. However, in order to assess the efficacy of any intervention program it is necessary to evaluate the outcome (Chen, 2005; Mertens & Wilson, 2018). The RSOA may

serve as a useful tool to implement into resilience intervention programs by providing a measure of baseline protective factors as well as evaluating any changes in resilience post-intervention.

In addition to providing a pre-post measure for resilience protective factors, the RSOA may also be useful in clinical settings as a screening tool. Research from clinical psychology suggests that for some clinical interventions (e.g., for those susceptible to developing PTSD after a traumatic event), it may be useful to first screen individuals for risk and protective factors so that the interventions are targeted towards those most at risk (Litz, Gray, Bryant, & Adler, 2002). Thus, the RSOA may be included in a battery of screening assessments to help identify individuals who may require further clinical intervention. Furthermore, it is important to consider variations in resilience across individuals and contexts (Luthar et al., 2000; Bonnano & Mancini, 2008). As such, it is recommended that approaches to resilience interventions in clinical settings be personalized and tailored to individual needs (Mancini & Bonnano, 2006; Mancini & Bonnano, 2009). One means of assessing individual needs is by administering measures like the RSOA that can paint a clear picture of what protective facets and factors are strong and which domains may require greater clinical focus.

When it comes to general day-to-day applications, the RSOA may serve as a useful addition to existing resources designed to assess health and wellness in older adults. Health and wellness programs are one of the most utilized services among individuals living in continuing care retirement communities (CCRC's) (Krout, Oggins & Holmesm 2000), and have been identified by these communities as a key future area of development (Brecht, Fein & Hollinger-Smith, 2009). As part of these programs, initial wellness assessments and continuing wellness checks are often conducted to assess residents' overall well-being and how they may most benefit from the use of programs and services offered (Edelman, O'Brien, Loftus & Engel, 2010;

Slivinske & Kosberg, 1984; Silva-Smith et al., 2011). Wellness assessment has also been a focal area for older adults living at home in the community (Koistinen et al., 2013). Additionally, a number of technologically advanced solutions are being developed to assess older adults' wellness, including telehealth kiosks that assess physiological, cognitive, functional, spiritual, and social well-being as well as online survey platforms (Demiris, Thompson, Boquet, Le, Chaudhuri & Chung, 2013; Thompson et al., 2011). However, to my knowledge, none of these assessments comprehensively measure resilience protective factors. The inclusion of a measure such as the RSOA in these wellness assessments may provide valuable information that can enhance opportunities to provide the best care that is appropriate for older adults' specific needs.

In addition to the broad potential applications for the RSOA, the specific findings from Study 3 have practical implications for older individuals faced with daily stressors as well as dealing with sudden adverse events. Findings from the present work suggest that Interpersonal protective factors, that is, support from community, family, friends, and neighbours may be the most significant factor in relation to individuals' QOL when faced with cumulative adverse life events. These findings have implications for older adults who may find themselves suddenly in a caregiving position due to adverse life events that may affect their support network (e.g., illness of family member or spouse). Fortunately, there are many interventions and support programs for caregivers designed to promote social support (e.g., Dam, de Vugt, Klinkenberg, Verhey & van Boxtel, 2016; Parker-Oliver et al., 2017), and enhancing social supports should also be a primary focus for future resilience intervention programs aimed at developing protective factors in older caregivers.

In addition to the aforementioned practical applications, the RSOA was primarily developed for researchers interested in studying resilience in older adults. The driving force for

this program of research was to provide an option to researchers that wanted a measure specifically developed for the older adult population. Now more than ever, it is imperative for researchers and clinicians to have the ability to properly assess protective factors that contribute to resilience (Chen, 2020). For older adults in particular, the recent global pandemic has resulted in increased adversity ranging from health-related concerns, social isolation, and increased psychological distress (Armitage & Nellums, 2020; Jordan, Adab & Cheng, 2020; Niu et al., 2020; Plagg, Engl, Piccoliori & Eisendle, 2020; Qiu et al., 2020; Shahid et al., 2020). Having a valid measure to assess protective factors in older adulthood will enable researchers and clinicians to pursue additional research studies aimed at understanding resilience in older adults, track potential declines in protective factors, see where support is especially needed, and assess the efficacy of intervention programs aimed at enhancing protective factors in this population.

5.3. Limitations and Directions for Future Research

The studies presented here need to be considered in light of their limitations. Each of the samples from Studies 2 and 3 were collected using online data collection methods. While research suggests this is a feasible method for collecting data in an older adult population (Remillard, Mazor, Cutrona, Gurwitz & Tjia, 2014), it is possible there are relevant differences between older adults who are able to access and use a computer compared to those who are not. Similarly, findings may be limited by self-selection bias with more resilient individuals choosing to participate. Furthermore, while cognitive screening questions were included, they are by no means a substitute for a thorough cognitive examination. Therefore, we cannot be certain that the participants did not suffer from cognitive impairment that may have limited their ability to accurately respond to the measures.

The samples in the present studies consisted largely of well-educated, Caucasian individuals limiting the generalizability of these findings. Future research should administer the RSOA to more diverse samples (e.g., individuals from different cultures, individuals with disabilities and cognitive impairments, bereaved older adults, etc.). Similarly, while the age ranges in the present studies were fairly large (i.e., 55-95) the mean age of the samples were consistently between 64 and 72 years of age. Despite previous findings that suggest the oldest-old age group (i.e., 85+) report greater resilience than younger age groups (Nygren et al., 2010), and that centenarians are more resilient than young-old adults (i.e., 65-79) after controlling for physical health and cognitive status (Zeng & Shen, 2010), very old age is associated with numerous challenges that may negatively impact resilience (Staudinger et al., 1995). Thus, future research is needed with a more varied older adult age group to examine how the RSOA functions across older adulthood.

Findings support initial convergent and concurrent validity of the RSOA, however further validation is needed. Future research should aim to examine predictive validity, discriminant validity, test-retest reliability, and cross-cultural validity of the RSOA. For Study 3 in particular, the data collected were cross-sectional and therefore causal inferences cannot be made. Given the dynamic nature of resilience, studies utilizing longitudinal and repeated-measures methods would allow for tracking changes in resilience protective factors across time and contexts and should be explored in future work. The protective factors in the RSOA are not indicative of all aspects of resilience and resilience protective factors across all samples of older adults. Similarly, the RSOA would be complemented by objective measures or observer reports relevant to resilience and may be administered with other outcome-focused measures of resilience (i.e., Hardy-Gill Resilience Scale; Hardy, Concato & Gill, 2004) to gain a broader understanding of

the resilience process. Additionally, collecting qualitative data (e.g., interviews) alongside the RSOA would provide a greater picture of the resilience process experienced by older adults.

Lastly, it is important to remember that individual protective factors only partly contribute to a person's overall resilience. Resilience is part of a multi-system experience that includes other contributing factors such as contextual factors (Luthar et al., 2000) societal, community, neighbourhood, and family influences that all play a role in older adults' level of resilience (Wild et al., 2013; Liu, Reed & Girard, 2017). Thus, the RSOA provides a measure of individual resilience protective factors that would complement a larger assessment package that also examines more broad surrounding factors that contribute to overall resilience. The RSOA is far from a complete resilience assessment. However, it provides a means of assessing one of the key components of resilience in older adults and can complement future work aiming to develop a comprehensive assessment of the resilience process from adversity to adaptation.

5.4. Conclusion

In order to fully and completely assess resilience in any population, additional work is needed to develop a collection of measurement tools that assess adversity, protective and risk factors, broader social, cultural, and economic contexts, and positive adaptation. However, this program of research serves as a promising first step in assessing one of the key components of the resilience process: those factors that protect individuals in the face of adversity thus improving the likelihood of experiencing positive adaptation. With interest in the study of resilience in older populations increasing, it is important to have a measurement tool that is appropriate, relevant, and valid for the population under study. The RSOA is developed specifically for an older adult population, grounded in older adults' views of resilience, and encouraging initial findings suggest it is reliable, valid, and invariant across genders. While

additional research is certainly needed, the present research studies aim to positively contribute to the increasingly pertinent and worthwhile study of resilience in older adulthood.

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APPENDICES

Appendix A: Research Ethics Approval Forms

Western Research

Date: 4 April 2019

To: Dr. Donald Saklofske

Project ID: 113701

Study Title: Development of the Resilience Scale for Older Adults

Short Title: Development of the RSOA

Application Type: NMREB Initial Application Review

Type: Delegated

Full Board Reporting Date: May 3 2019

Date Approval Issued: 04/Apr/2019

REB Approval Expiry Date: 04/Apr/2020

Dear Dr. Donald Saklofske

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Debriefing Form.Mar.5	Debriefing document	05/Mar/2019	1
Letter of Information_Consent.Mar29.Clean	Implied Consent/Assent	29/Mar/2019	2
Mechanical Turk Recruitment Posting.Mar29.Clean	Recruitment Materials	29/Mar/2019	2
Online Measures.Mar.5	Online Survey	05/Mar/2019	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions. Sincerely,
[redacted]esearch Ethics Officer on [redacted]MREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Western Research

Date: 13 June 2019

To: Dr. Donald Saklofske

Project ID: 114159

Study Title: Development of the Resilience Scale for Older Adults Part 2

Short Title: Development of the RSOA Part 2

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 05/Jul/2019 Date Approval Issued: 13/Jun/2019 14:19 REB

Approval Expiry Date: 13/Jun/2020

Dear Dr. Donald Saklofske

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Debriefing Form.May 17	Debriefing document	17/May/2019	1
Email Script for Permission to Recruit from Retirement Communities or Groups.June 10	Recruitment Materials	10/Jun/2019	2
Letter of Information_Consent.Online.June 10	Implied Consent/Assent	10/Jun/2019	2
Letter of Information_Consent.Paper.June 10	Written Consent/Assent	10/Jun/2019	2
Online Measures.May 17	Online Survey	17/May/2019	1
Online Measures.May 17	Paper Survey	17/May/2019	1
Online Recruitment Email.June 10	Recruitment Materials	10/Jun/2019	2
Recruitment Poster.June 10	Recruitment	10/Jun/2019	2

	Materials		
Verbal Recruitment Script.June 10	Oral Script	10/Jun/2019	2

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions. Sincerely,

[redacted]Research Ethics Officer on [redacted]MREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Western Research

Date: 14 January 2020

To: Dr. Donald Saklofske Project ID: 114970

Study Title: Validation of the Resilience Scale for Older Adults

Short Title: Validation of the RSOA

Application Type: NMREB Initial Application

Review Type: Delegated

Full Board Reporting Date: 07/Feb/2020

Date Approval Issued: 14/Jan/2020 12:40

REB Approval Expiry Date: 14/Jan/2021

Dear Dr. Donald Saklofske

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. All other required institutional approvals must also be obtained prior to the conduct of the study.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Debriefing Form.Nov22	Debriefing document	22/Nov/2019	1
Email Script for Permission to Recruit.Directors.Nov22	Recruitment Materials	22/Nov/2019	1
Letter of Information_Consent.Community.Jan6.	Implied Consent/Assent	06/Jan/2020	2
Letter of Information_Consent.MTurk.Nov22	Implied Consent/Assent	22/Nov/2019	1
Mechanical Turk Recruitment Posting.Nov22	Recruitment Materials	22/Nov/2019	1
Online Measures.Nov22	Online Survey	22/Nov/2019	1
Recruitment Email.Jan.6	Recruitment Materials	06/Jan/2020	1

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions. Sincerely,
[redacted]esearch Ethics Officer on [redacted] NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix B: Modified Cognitive Screening Items

1) What is today's date (day, month, year)?

2) What season is it?

3) What province/state are you in?

4) Who is the Prime Minister/President of your country?

Note. Items adapted from the Orientation section of the Cognitive Assessment Screening Test (CAST; Drachman et al., 1996)

Appendix C: The Resilience Scale for Older Adults

Instructions: Below are a list of statements that you may agree or disagree with. Please indicate your agreement with each item using the 1-5 scale below. There are no right or wrong answers so please be open and honest. *Note*. Bolded items comprise the optional Spiritual subscale.

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1	2	3	4	5

1. When faced with challenges I am persistent.
2. I am determined to achieve my goals.
3. I will not give up on something just because it is difficult.
4. When I put my mind to a task, I can effectively complete it.
5. I am capable of achieving my goals.
6. I can accomplish things on my own.
7. I believe things will usually work out in the end.
8. I try to make the most out of any situation.
9. I have a positive attitude towards most things.
10. I understand what makes my life meaningful.
11. I try to live life to the fullest.
12. I try to live each day as if it were my last.
13. I feel like I belong to something.
14. I am not alone.
15. People would miss me if I went away.
16. I have family members I can rely on.
17. I can ask my family for help if something bad happens.
18. I feel important to my family.
19. My friends are there for me when I need them.
20. My friends are important sources of support for me.
21. My neighbours will help me when I need it.
22. **I pray to help me through hard times.**
23. **Praying to God helps me cope when something bad happens.**
24. **I pray regularly.**
25. **When life gets hard, I place my trust in my god.**
26. **I believe God is watching over me.**
27. **I believe God will not give me more than I can handle.**
28. I have learned a lot from my past experiences.
29. I have faced adversity in my life.
30. The challenges in my life have taught me valuable lessons.
31. It is important to take care of yourself.
32. I try to prevent bad things from happening.
33. I try to be proactive when faced with challenges.

Appendix D: Analysis of Model Fit with and Without Outliers for Study 2

Table 12. Study 2b Model fit comparisons for facet-level CFA with and without outlier

Model	χ^2 *(df)*	CFI	TLI	RMSEA	RMSEA 90% C.I.	SRMR
1. With outlier	89.78**(38)	.935	.906	.079	.058 - .101	.057
2. Without outlier	92.57**(38)	.934	.904	.082	.061 - .103	.060

Note. **p<.001.

Table 13. Study 2c Model fit comparisons for facet-level CFA with and without outlier

Model	χ^2 *(df)*	CFI	TLI	RMSEA	RMSEA 90% C.I.	SRMR
1. With outlier	122.44**(38)	.954	.934	.078	.063 - .094	.049
2. Without outlier	124.24**(38)	.952	.931	.079	.064 - .095	.050

Note. **p<.001.

Appendix E: Frequency of Participant Spiritual Factor Scores for Study 3

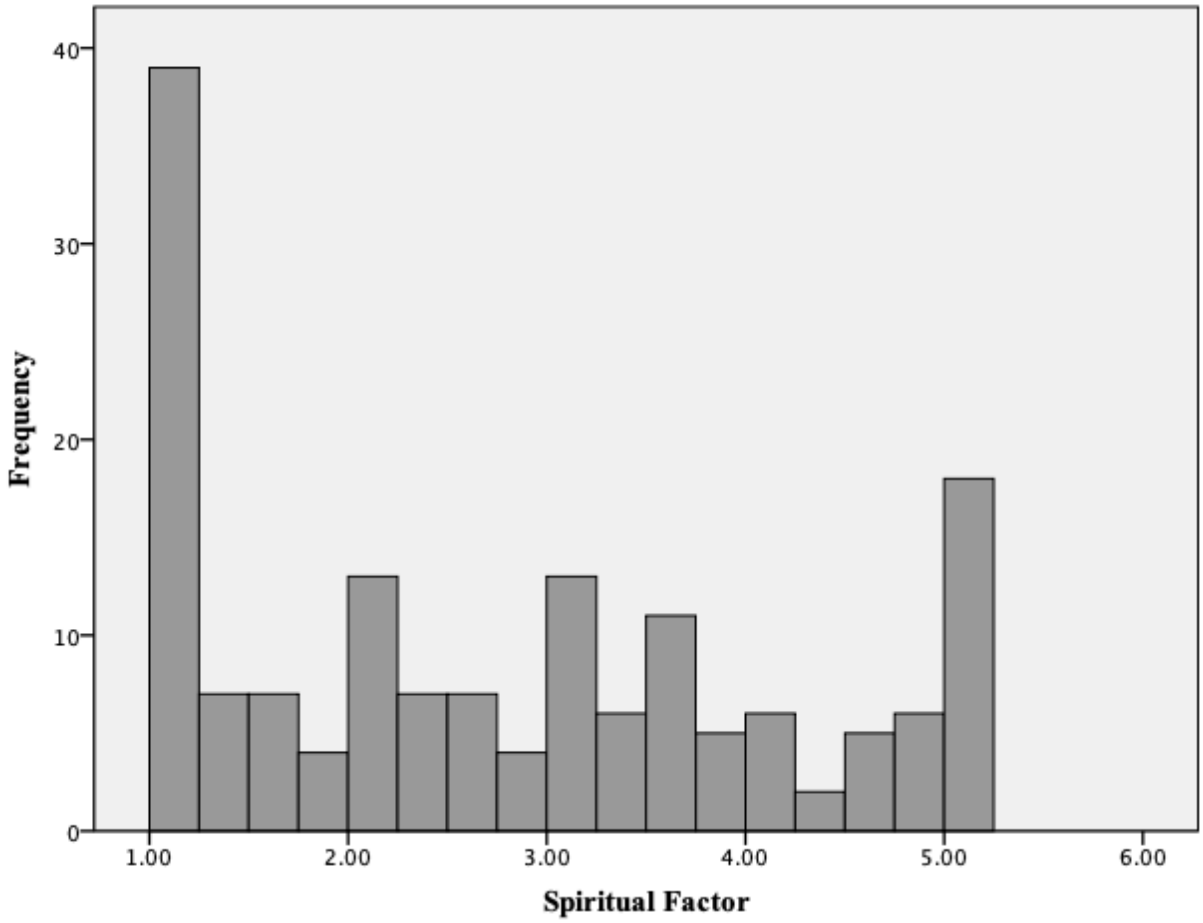

Figure 5. The frequency of participant scores on the Spiritual Factor

Appendix F: Exploratory Moderation Analyses

Table 14. Exploratory Moderation Analyses with Quality of Life as Outcome.

Predictor	*b*	SE	*β*	95% CI	p
Model 1: Perceived Stress					
Perceived Stress	**-.11**	**.04**	**-.16**	**-.19, -.02**	**.016**
Resilience	**.68**	**.07**	**.63**	**.54, .81**	**< .001**
Perceived Stress x Resilience	.01	.09	.01	-.17, .20	.906
					$R^2 = .538$; $p < .001$
Model 2: Adverse Life Events					
Adverse Life Events	**-.03**	**.01**	**-.16**	**-.05, -.01**	**.005**
Resilience	**.74**	**.06**	**.69**	**.63, .86**	**< .001**
Adverse Events x Resilience	.00	.03	.01	-.05, .05	.896
					$R^2 = .539$; $p < .001$

Note. Predictors were grand-mean centered; *b* = unstandardized coefficient; SE = standard error for *b; β* = standardized coefficient; CI = confidence interval; significant predictors are bolded.

Appendix G: Frequency and Percentage of Participant Responses of Adverse Life Events

Table 15. Frequency of Geriatric Adverse Life Events Scale items.

Item	Frequency "yes"	Percentage "yes"
1. Major financial difficulties	16	10%
2. Retirement	23	14.4%
3. Sudden loss of employment	5	3.1%
4. New major physical illness	20	12.5%
5. Other major physical illness	37	23.1%
6. Major physical illness of a close family member	**53**	**33.1%**
7. Accident or injury	26	16.3%
8. Marital separation or divorce	0	0%
9. Other marital difficulties	9	5.7%
10. Major family problems/conflicts other than with spouse	24	15.2%
11. Major problems/conflicts with friends or neighbours	4	2.5%
12. Break up of a long-term relationship other than marriage	5	3.1%
13. Separation from any other close friend or relative	27	16.9%
14. Death of spouse	4	2.5%
15. Death of child	1	0.6%
16. Death of parent	5	3.1%
17. Death of sibling	2	1.3%
18. Death of other relative or close friend	**49**	**30.6%**
19. Death of pet	18	11.3%
20. Forced to leave or lose home	1	0.6%
21. Voluntarily changed place of residence	13	8.1%
22. Individual moved out of house	5	3.1%
23. Individual moved into house	7	4.4%
24. Difficulty getting adequate professional services	18	11.3%
25. Victim of crime	12	7.5%
26. Became caretaker for relative or friend	23	14.4%

CURRICULUM VITAE

Claire Anne Wilson

Post-secondary Education

2016-2020 Doctor of Philosophy, Psychology
Supervisor: Dr. Donald H. Saklofske, Ph.D.
Western University, London, Ontario

2014-2016 Master of Science, Psychology
Supervisor: Dr. Donald H. Saklofske, Ph.D.
Western University, London, Ontario

2009-2013 Bachelor of Arts, Honours Specialization in Psychology
Supervisor: Dr. Laura Melnyk, Ph.D.
King's University College at Western University, London, Ontario

Honours and Awards

2020 Dr. Sam Paunonen Award ($1000)
2019-2020 Ontario Graduate Scholarship ($15,000)
2019 Social Science Graduate Alumni Award ($3,000)
2019 Graduate Research Award Funds ($525)
2014-2015 SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship ($17,500)
2013 King's University College Board of Director's Gold Medal Award
2010-2013 Dean's Honour List
2010-2012 King's University College Continuing Scholarship ($1,000)
2009 King's University College Entrance Scholarship ($1,500)

Academic Funding

2019-2021 Collaborator: Investigating the relationship between psychological and physiological factors on surgical trainability: A surgical simulation study. *Social Sciences and Humanities Research Council (SSHRC) New Frontiers in Research Grant.* ($247, 103)

2018-2020 Co-investigator: Investigating the relationship between admissions, social skills, and quality of care: A multi-institutional study. *Canadian Dental Association Committee on the Identification of Future Dentists Grant.* ($140, 000)

Related Work Experience

2015-Present Research Assistant
Department of Psychology, Western University, London, Ontario

2017-Present	Research Assistant *Schulich School of Medicine and Dentistry, Western University, London, Ontario*
2015-2018	Research Assistant *Centre for Education, Research & Innovation (CERI), Western University, London, Ontario*
2014-2019	Teaching Assistant *Department of Psychology, Western University, London, Ontario*

Publications

Papers Published in a Refereed Journal

Wilson, C. A., Chahine, S., Cristancho, S., Aquil, S., Mandurah, M., Levine, M. A. & Sener, A. (in press). Unusual suspects: Real time physiological evaluation of stressors during laparoscopic donor nephrectomy. *Canadian Urological Association Journal*.

Plouffe, R. A., **Wilson, C. A.** & Saklofske, D. H. (in press). The role of dark personality traits in intimate partner violence: A multi-study investigation. *Current Psychology*.

Plouffe, R. A., **Wilson, C. A.** & Saklofske, D. H. (in press). Examining the relationships between childhood exposure to intimate partner violence, the dark tetrad of personality, and violence perpetration in adulthood. *Journal of Interpersonal Violence.*

Wilson, C. A., Walker, D., & Saklofske, D. H. (2020). Developing a model of resilience in older adulthood: A qualitative meta-synthesis. *Ageing & Society*. Advance online publication. https://doi.org/10.1017/S0144686X20000112

Plouffe, R. A., Dave, H. P., **Wilson, C. A.,** Topa, G., Riggin, A., Lau, C., Sinclair, V., Saklofske, D. H., & Prince-Embury, S. (2020). Validity and cross-cultural invariance of the Resiliency Scale for Young Adults – Spanish version. *European Journal of Psychological Assessment*. Advance online publication. doi.org/10.1027/1015-5759/a000563

Feher, A., Smith, M. M., Saklofske, D. H., Plouffe, R. A., **Wilson, C. A.,** & Sherry, S. B. (2020). The Big Three Perfectionism Scale-Short Form (BTPS-SF): Development of a brief self-report measure of multidimensional perfectionism. *Journal of Psychoeducational Assessment*, *38*(1), 37-52.

Wilson, C. A., Babcock, S. E., & Saklofske, D. H. (2019). Sinking or swimming in an academic pool: A study of resiliency and student success in first year undergraduates. *Canadian Journal of Higher Education*, *49*(1), 60-84.

Wilson, C. A., Plouffe, R. A., Saklofske, D. H., Di Fabio, A., Prince-Embury, S., & Babcock, S. E. (2019). Resiliency across cultures: A validation of the Resiliency Scale for Young Adults. *Journal of Psychoeducational Assessment*, *37*(1), 14-25.

Wilson, C. A., Plouffe, R. A., Saklofske, D. H., Gonggu, Y., Nordstokke, D. W., Prince-Embury, S., & Gao, Y. (2019). A cross-cultural validation of the Resiliency Scale for Young Adults in Canada and China**.** *PsyCH Journal, 8*(2), 240-251.

Lau, C., Feher, A., **Wilson, C. A**., Babcock, S. E., & Saklofske, D. H. (2019). Resiliency, meaning in life, and life satisfaction: An examination of moderating effects. *Acción Psicológica, 15*(2), 5-14.

Sinclair, V. M., Feher, A., **Wilson, C. A.,** Topa, G., & Saklofske, D. H. (2019). Researching personal strengths for creating positive lives and environments: An international perspective. *Acción Psicológica, 15*(2), 1-4.

Wilson, C. A., & Saklofske, D. H. (2018). The relationship between trait emotional intelligence, resiliency, and mental health in older adults: The mediating role of savouring. *Aging and Mental Health, 22*(5), 646-654.

Manuscripts Submitted to a Refereed Journal

Wilson, C. A., Plouffe, R. A. & Saklofske, D. H. (revise and resubmit). Assessing resilience in older adulthood: Development and validation of the Resilience Scale for Older Adults. *Canadian Journal on Aging*.

Wilson, C. A. & Saklofske, D. H. (under review). Older adults' quality of life and experiences of adversity: The mediating role of resilience protective factors. *Aging & Mental Health*.

Huda, N., Faden, L., **Wilson, C. A.,** Plouffe, R. A., Li, E. C., Saini, M. K. & Chahine, S. (under review). The ebb and flow of identity formation and competence development in sub-specialty residents: Study of a continuity training setting. *BMC Medical Education*.

Manuscripts in Preparation

Wilson, C. A., Dave, H. P., Plouffe, R. A., Topa, G., Prince-Embury, S. & Saklofske, D. H. (in preparation). Assessing resiliency across the lifespan: Age invariance analysis of the Resiliency Scale for Young Adults.

Book Chapters

Wilson, C. A. (2020). Genetic basis of personality. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H. Saklofske, & C. Stough (Vol. Eds.), *Wiley-Blackwell encyclopedia of personality and individual differences: Vol. III. Personality processes and individual differences* (pp. 1253-1257). Hoboken, NJ: John Wiley & Sons.

Babcock, S. E., & **Wilson, C. A.** (2020). Big five model of personality. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H. Saklofske, & C. Stough (Vol. Eds.), *Wiley-Blackwell encyclopedia of personality and individual differences: Vol. III. Personality processes and individual differences* (pp. 1107-1112). Hoboken, NJ: John Wiley & Sons.

Plouffe, R. A., **Wilson, C. A.,** & Smith, M. M. (2020). Dark triad. In B. J. Carducci (Editor-in-Chief) & A. Di Fabio, D. H. Saklofske, & C. Stough (Vol. Eds.), *Wiley-Blackwell encyclopedia of personality and individual differences: Vol. III. Personality processes and individual differences* (pp. 1153-1158). Hoboken, NJ: John Wiley & Sons.

Book & Test Reviews

Babcock, S. E., **Wilson, C. A.,** & Lau, C. (2018). Test review of the School Motivation and Learning Strategies Inventory (SMALSI) College Form. *Canadian Journal of School Psychology*, *33*(2), 150-169.

Wilson, C. A. & Spencer, C. J. (2016). Review of the book Well Aware: Developing resilient, active and flourishing students, by P. Carney. *Canadian Journal of School Psychology, 31*, 66-70.

Journal Reviewer

The Journal of Psychology: Interdisciplinary and Applied
Canadian Journal of Higher Education
Canadian Journal of School Psychology
Studies in Higher Education
Aging and Mental Health
Accion Psicologica