Spirituality and Mental Health among Canadians

by

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Abstract

This research implements advanced statistical techniques to examine the relationship between spirituality and mental health among Canadians 25 years of age and older in 2002. Using ordinary least squares regression and logistic regression to analyze data from the Canadian Community Health Survey, this study attempts to contribute to the emerging body of research surrounding mental health and spirituality. The quantitative results indicate that the strength, meaning and understanding that spiritual values provide respondents in their everyday lives significantly affect mental health. These results are integrated and discussed in the context of the study's theoretical and methodological contributions to the sociological study spirituality and mental health.

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Acknowledgements

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CHAPTER 1: Introduction

The relationship between spirituality and mental health is an important emergent topic. An increasing amount of research has demonstrated that spirituality can enhance overall health (Jung, 1933; Allport, 1950; Gartner, Larson and Allen, 1991; Idler and Kasl, 1992; Koenig and Larson, 2001; Coyle, 2002; Moreira-Almeida and Koenig, 2006). Research about the relationship between spirituality and health in general has grown from a relatively obscure topic into a thriving field in the past 20 years in health care (Aukst-Margetić and Margetić, 2005; Sinclair et al., 2006). Spirituality training has even been incorporated into the medical school curriculum (Graves, Shue and Arnold, 2002). The World Health Organization has incorporated spirituality as a measure in their quality of life instrument (WHOQOL SRPB Group, 2006).

Using secondary data analysis of a nationally representative sample, the purpose of this study is to explore the association between mental health among Canadians and different domains of their spiritual engagement (i.e., how important respondents rate their spiritual values as well as the strength, meaning and understanding that spiritual values provide to them in their lives). The research herein is intended to add to the growing body of research that has indicated a positive association overall between spirituality and health. This will be accomplished by using data from Cycle 1.2 of the Canadian Community Health Survey, a national study of Canadians over the age of twelve years old (Statistics Canada, 2002).

The unique contributions of this research include using a large nationally representative sample, multiple indicators of spirituality and mental health, and advanced statistical techniques. Most research on the relationship between spirituality and mental health tends to be limited to either very specific groups of people or very specific

concepts of spirituality. In the past, research on the topic typically measured spiritual involvement through religious service attendance. Religious service attendance is not necessarily an accurate measure of spirituality. People do not need to be spiritual in order to attend religious services and people can be spiritual without attending religious services. By studying multiple alternative indicators of spirituality, this research will add to our understanding of what it means to be spiritually engaged and what those different domains of spiritual engagement imply for mental health. By using a nationally representative sample, this research will contribute to our understanding of a diverse spectrum of spiritual subjectivities as well as a broad range of mental health indicators. That is, this research is not limited to respondents that consider themselves spiritually engaged and not limited to healthy people or people with poor mental health. In addition, by using multiple measures of mental health, this research elucidates the relationship between multiple facets of mental health and spirituality.

The empirical analysis of this research will control for a series of confounding factors that are known to affect mental health. These risk factors include age, gender, marital status, income, education, main source of household income, geographic region, and the presence of chronic conditions.

Ultimately the effects of spirituality on mental health in Canada are being studied in order to explore how different operationalizations of spirituality affect mental health. This research is intended to develop and expand contemporary understandings of the relationship between mental health and spirituality by unpacking and unfolding that relationship further.

Chapter 2 provides a brief review of the literature on religion, religiosity, spirituality and mental health as well as a theoretical framework for understanding the

relationship between spirituality and mental health. Most of the literature indicates a positive relationship between religious and spiritual engagement and favourable mental health outcomes. Contradictions in the literature are understood as the product of different means of measuring and defining spirituality as well as mental health. The theoretical framework used to understand the relationship between spirituality and mental health is the stress process model (Pearlin, 1981). Through the stress process model, religion and spirituality can be conceived as social and psychological resources capable of mediating stressors, or stressful lives events. The research questions are articulated as well as some definitions and distinctions between religion, religiosity and spirituality.

Chapter 3 provides an overview of the methodological and research design of the study. The data set used in this study and data collection methods are described in great detail. The variables used in the analysis are described as well along with the advanced statistical methods used to model the relationship between spirituality and mental health.

Chapter 4 presents the research findings of the study. The descriptive statistics for the dependent, independent and control variables included in the models are presented in the first section. Ordinary Least Squares model output for three different measures of mental health are presented in the next section. Binary logistic regression model output predicting the probability of experiencing a major depressive episode are also presented along with interaction results for all of the models included in the study.

Chapter 5 provides a discussion of the results in the context of the existing literature in the field of spirituality and mental health as well as the limitations of the study and some recommendations and conclusions.

CHAPTER 2: Literature Review and Theoretical Framework

2.1 Literature Review

Social scientists have long documented a relationship between spirituality and mental health among adults and children (Abbotts et al., 2004; Maselko and Kubzansky, 2006; McCullough and Laurenceau, 2005; Moreira-Almeida and Koenig, 2006; Smith, McCullough and Poll, 2003; WHOQOL SRPB Group, 2006). Durkheim's ([1897] 1951; [1915] 1965) work on religion is often held up as one of the first systematic contributions to logical positivism in sociological research (Idler and Kasl, 1992). Despite the sociological impact attributed to Durkheim's ([1897] 1951; [1915] 1965) research, spirituality and its influence on mental health is seldom addressed in sociological research (Idler and Kasl, 1992). Most research on the subject is conducted in the fields of psychology and psychiatry and this body of research tends to be limited to either very specific groups of people or very specific concepts of spirituality (e.g., Koenig, 1998; Koenig, 1999; Koenig, McCullough and Larson, 2001; McCullough et al., 1999; Smith, McCullough and Poll, 2003; McCullough and Laurenceau, 2005; Maselko and Kubzansky, 2006; Leavey, Loewenthal and King, 2007; Vaillant et al., 2008).

Research conducted on spirituality and mental health in the fields of sociology and epidemiology is often limited to very specific operationalizations of spirituality and is often limited to very specific social groups (e.g., Berkman and Syme, 1979; House, Robbins and Metzner, 1982; Idler and Kasl, 1992; Bierman, 2006; Thuné-Boyle et al., 2006; Keyes and Reitzes, 2007; Lawson and Thomas, 2007; Ellison and Fan, 2008). A great deal of this work has been hampered by inadequate conceptualizations and measurements of what it means to be religious and what it means to be spiritual (Hill and Pargament, 2003; Idler et al., 2003; Ellison and Henderson, 2011). Sociological

understandings of social processes, structures, beliefs and values have a great deal to offer in terms of explanations of the relationships between mental health and spirituality (Idler and George, 1998). The distinguishing feature of sociological research is its attempt to discover patterns and regularities among people with similar social characteristics and circumstances (Pearlin, 1989: 242). The stress process model in particular has a great deal to offer in terms of explanations of the relationships between mental health and spirituality.

The proliferation in research surrounding spirituality and mental health is not the result of consensus in the field. Research on mental health and spirituality has moved in many different directions, has been used to study numerous facets of social and interpersonal relationships, and has focused on a multitude of different topics. Some of these different directions, numerous facets and topics include: illness adjustments for patients with cancer (Thuné-Boyle, Stygall, Keshtgar and Newman, 2006), the salutary effects of spirituality for survivors of natural disasters like hurricanes (Lawson and Thomas, 2007), religiosity and spirituality in coping with personal distress among black students in South Africa (Peltzer, 2005), disability, depression and timing of death (Idler and Kasl, 1992), religiousness and spirituality among older adults (Klemmack et al., 2007), religion, spirituality, social support and mental health for the elderly living in rural areas (Yoon and Lee, 2007), religion, social support and health for the elderly in Japan (Krause, Ingersoll-Dayton and Liang, 1999), and gender differences in spiritual experiences and health in the United States (Maselko and Kubzansky, 2006). This expansion in research cannot be judged by the problems it has solved, if indeed any of these problems have solutions, but can be assessed by problems that arise as

advancements emerge. The identification of problems that arise as research takes place can indicate fruitful lines of investigation for future research.

Two themes have emerged out of the literature on spirituality and mental health: researchers are calling for longitudinal research on the topic, and for data that interrogate different aspects of spiritual engagement (Idler and George, 1998). Incorporating research that interrogates different aspects of being spiritually engaged may provide important insights into the relationship between spirituality and mental health, and is therefore one of the main goals of this research.

A number of health related outcomes, including mental health and physical health, have been associated with spirituality and religiosity (Maselko and Kubzansky, 2006). Research suggests that spirituality and religiosity have a moderate protective effect on health status (Idler and Kasl, 1992; Koenig, McCullough and Larson, 2001). However, the association between spirituality and mental health is far from completely understood.

Women are usually found to be more religious and spiritual than men (Maselko and Kubsansky, 2006), and research from American studies demonstrates that the association between spirituality and self-rated health is different for men and women as well as among different age groups (Idler and Kasl: 1992; McCullough et al., 2000). The magnitude of the difference in the association between mental health and spirituality for different demographic groups has yet to be explored in great detail. Few studies have even explicitly explored the effects of gender in this context (Maselko and Kubsansky, 2006).

Another aspect of the association between spirituality and mental health that is poorly understood is the manner in which different ways of being spiritually engaged

affect mental health independently as well as in concert (Maselko and Kubsansky, 2006). The most commonly studied form of spiritual engagement in the literature is religious service attendance. There is a paucity of available data that will facilitate the evaluation of the effects of other means of being spiritually engaged, such as holding spiritual values, prayer, beliefs and faith (Maselko and Kubsansky, 2006). The growing body of literature that demonstrates a positive association between spirituality and health overall necessitates the exploration of the association between mental health and different ways of being spiritually engaged. In addition, different groups for whom the association between spirituality and mental health seems to vary need to be compared.

Maselko and Kubzansky (2006) investigate the role of gender and the effects of various operationalizations of spirituality and religiousness on health and well-being. They compare public religious activities and private religious activities and their respective effects on health and well-being, and find that public religious activities are consistently associated with better self-rated health, less psychological distress and greater overall happiness for men but have mixed effects for women. Private religious activities are not associated with health or well-being outcomes for either men or women.

However, one limitation of Maselko and Kubzansky (2006) is their definition of public and private religious activities, and their operationalization of private religious activities. Maselko and Kubzansky (2006) used three questions from the 1998 US General Social Survey (GSS) in order to examine private religious activities. The questions are: how often they pray in privacy in places other than a church or a synagogue; how often they read the bible in the past year; and how often they meditate in their religious or spiritual tradition. The first question is limited because of its focus on Christian and Jewish places of worship. The wording of the first question confuses places

of worship other than churches and synagogues, like mosques as well as Sikh and Buddhist temples, with private places of worship. The second question is biased because it only asks about one spiritual text, the bible. While the third question is more inclusive of spiritual practices other than those found in Christianity and Judaism, these three questions fail to capture a broad range of ways of being spiritually engaged. Spiritual values and the meaning of spirituality overall is not explored in this study.

Another limitation of Maselko and Kubzansky's study is the cross-sectional nature of their data. Maselko and Kubzansky (2006) conclude by suggesting that longitudinal studies are necessary to assess the causal relationship between health, psychological health and spirituality. While longitudinal studies are useful in sorting out the temporal sequence of events in order to establish causality, they are costly, time consuming and the attrition rate of respondents dropping out of longitudinal studies is generally problematic. Constructing a longitudinal survey to explore the mental health effects of different ways of being religiously engaged is not feasible for the purposes of this study because the costs are so prohibitive. Moreover, the existing longitudinal studies that have asked questions regarding spirituality have either been limited to very specific groups of people or have simply operationalized spirituality through religious service attendance. For example, Abbotts et al. (2004: 649) used longitudinal data to examine the relationship between religious service attendance and "self-esteem, social anxiety, depression and aggressive behaviour for 11-year old children" belonging to one of the two main denominations in Western Scotland: the Church of Scotland and the Catholic Church. The purpose of their study was "to look for sociological or social psychological explanations for differences between religious denominations by considering the influences of youth culture, the peer group and the social context" (Abbotts et al. 2004:

648). Abbotts et al. (2004) hypothesize that the relationship between religious service attendance and mental health depends on whether religious service attendance is normative within one's peer group. While the normativity of religious service attendance within one's peer group is an excellent example of an intervening variable that must be considered when investigating the mental health effects of religious service attendance, the findings from this study have limited generalizability. Not only were considerations of the mental health effects of spirituality limited in their operationalization of spirituality through religious service attendance, but the specific age group studied and the fact that there are only two main denominations in Western Scotland limits the generalizability of the findings.

McCullough and Laurenceau (2005) also conducted a longitudinal analysis on data from the "Terman Life Cycle Study of Children with High Ability". The study involved 1,528 gifted boys and girls with intelligence quotients above 135 from the State of California who were born, on average, in 1910 and who have been subsequently interviewed 12 times since the study began. The purpose of this study was to "examine the association of religiousness with the development of self-rated health over the adult life span" (p. 562). McCullough and Laurenceau (2005) measured the degree of religiousness of participants with a scale that measured overt displays of religiousness and private, attitudinal aspects of religion. A limitation that the authors acknowledge in their study is that the "Terman Life Cycle Study" was conducted on a select group of middle class, well-educated Californians and therefore cannot be generalized to the American population.

In an attempt to control for confounding effects between religious involvement and physical and mental health, Vaillant et al. (2008: 221) conducted a longitudinal

analysis using the "65-year-old US prospective Study of Adult Development" and monitored the "physical and mental health of 224 Harvard University sophomores" for 65 years. The authors focus on male respondents and find that, no matter how it is measured, religious involvement is uncorrelated with physical or mental health in late life. The authors suggest that if their findings can be generalized, their research indicates that "religious involvement may exert the greatest mental health benefits on people with the fewest alternative social and personal resources (Valliant et al., 2008: 221). This study was similarly conducted on a select group of middle class, well-educated Americans and cannot be generalized at the population level.

Keyes and Reitzes (2006) investigate whether religious identity can explain the unique variation in self esteem and symptoms of depression among older working and retired adults. The authors made use of data collected for a larger five-year project that compared the mental health of older working adults with that of recent retirees in 1992 living in the North Carolina metropolitan area. They used religious attendance, religiosity and religious identity to predict mental health outcomes and found that "self esteem increased and depressive symptoms decreased as religious identity increased" (Keyes and Reitzes, 2006: 434). Religious identity tended to be "more strongly predictive of mental health among retirees than among the working adults" (Keyes and Reitzes, 2006: 434). However, the relationship between mental health and religious identity was not statistically significant and cannot be generalized at the population level.

Smith, McCullough and Poll (2003) conducted a meta-analysis of 147 independent investigations of the relationship between religiousness and depressive symptoms. To acquire a sample of the existing studies, Smith and colleagues used keyword searches in fourteen different electronic search engines. Specifically, they

searched for words that began with the root "depress" cross-listed with words connected to spirituality and religion that began with "relig, spirit, church, mosque, synagogue, temple, worship and pray" (p. 617). Combining the results of all 147 studies in their sample, they found a small negative correlation between religiousness and depressive symptoms suggesting that greater religiousness is modestly associated with fewer depressive symptoms. However, it is important to note that their study fails to consider the importance of interrogating different means of being spiritually engaged.

Koenig and Larson (2001) review 850 studies on the relationship between mental health and religion and report numerous associations between mental health and religiosity. Eighty percent of the studies reviewed that focused on the relationship between life satisfaction and religiosity revealed a positive relationship between greater life satisfaction and religious beliefs and practices. Of those studies that focused on the relationship between religiosity and depression, approximately two-thirds reported lower rates of depression among respondents that reported being more religious. Koenig and Larson (2001) conclude that, in general, a positive relationship between religiosity and mental health exists and they offer a number of suggestions for dealing with religious issues in a clinical setting.

Moreira-Almeida, Neto and Koenig (2006) review scientific studies on the relationships between mental health and religion. Moreira-Almeida and colleagues present the most salient studies and conclusions from Koenig and Larson's (2001) systematic review of 850 studies on the relationship between mental health and religion published throughout the 20th Century. Moreira-Almeida, Neto and Koenig (2006) also include a concise methodological and historical background and a review of work published since 2000 as well as a review of research conducted specifically in Brazil.

Moreira-Almeida, Neto and Koenig (2006) found that most of the studies that were well-conducted revealed a positive association between religious involvement and mental health. The authors indicate that the relationship tends to be more robust for people living under stressful circumstances, as in the elderly, people with disabilities or those who suffer from medical illness. Finally, the authors conclude that religious involvement is generally associated with improved mental health and that researchers need to enhance understandings of the factors that mediate this relationship as well as develop its use in clinical settings.

Aukst-Margetić and Margetić (2005) review literature on the relationship between mental health and religion and find that a substantial proportion of empirical research supports a positive association between religious commitment and improved mental and physical health. They find that relatively few studies indicate no effect or a negative effect between religiosity and health outcomes. Further, the authors suggest directions for future research and state that the "regular inclusion of religiosity and spirituality measures in health research studies is needed in order to understand the integration of mind, body and spirit and to move toward a biopsychospiritual model of quality of life" (Aukst-Margetić and Margetić, 2005: 370). Aukst-Margetić and Margetić (2005) also state that religiosity is a multidimensional phenomenon and it therefore must be assessed as such.

Hackney and Sanders (2003) perform a meta-analysis of 34 studies published between 1990 and 2001 in order to elucidate the relationship between religiosity and mental health. The authors find that some researchers report a positive correlation between religion and mental health (e.g. Koenig and Larson, 2001; Gartner, Larson, and Allen, 1991) while others report a negative correlation (e.g. Dreger, 1952; Schaefer,

1997). Hackney and Sanders (2003) focus specifically on the definitions used by researchers in an attempt to explicate these contradictory findings. They take the position that contradictions in the research conducted on mental health and religion are due to the different operationalizations of religiosity and mental health used by different researchers. Hackney and Sanders (2003) explain that religion is a complicated and intricate concept and it is feasible that different features of religiosity are related to mental health differently.

McCullough and Larson (1999) review 80 studies that investigate the relationship between religious affiliation and either depressive symptoms or major depressive disorders. The studies that McCullough and Larson (1999: 126) review measure religious affiliation through: "general religious involvement; organizational religious involvement; prayer or private religious involvement; religious salience and motivation; or religious beliefs." While McCullough and Larson (1999) find that some religious affiliations put individuals at an elevated risk of exhibiting depressive symptoms or experiencing major depressive disorders, the authors also discover that having no religious affiliation puts people at an elevated risk of depression compared to those with some religious affiliation (p. 129). The authors also find that individuals with: "high levels of general religious involvement, organizational religious involvement, religious salience, and intrinsic religious motivation are at a reduced risk for depressive symptoms and depressive disorders" (McCullough and Larson, 1999: 126). They find no reliable relationship between private religious activities and depression. These associations are typically consistent throughout the literature but modest and considerably reduced in multivariate research (McCullough and Larson, 1999). McCullough and Larson (1999) find little

evidence of longitudinal research and suggest that researchers should measure religion with higher methodological standards in the future.

Payne et al. (1991) review multiple studies on the relationship between mental health and religion to reveal ambiguity in the research. Overall, the authors find that religiosity is positively related to multiple measures of improved mental health. However, they find no evidence overall to support the relationship between religiosity and a protective effect over major clinical disorders. Payne et al. (1991) conclude that this ambiguity is due, in part, to religion's multifaceted nature as well as researchers' attempts to rationalize religiosity as having either a positive, negative or neutral effect on individuals based on the erroneous assumption that religion is uniform in nature and function. The authors claim that it would be better to interrogate the different ways in which people report being religious rather than attempt to measure the extent of how religious respondents are.

Gartner, Larson and Allen (1991) review approximately 200 studies and find ambiguity in the research as well. For example, these authors find that religiosity has a protective effect on positive functioning in the literature that they review but they also find ambiguity in the research surrounding religion and its relationships to nervousness, sexual disorders, psychosis, discrimination, self-esteem and intellect. In addition, the authors find that religion is associated with some measures of poor mental health. They conclude, like Payne et al. (1991), that this ambiguity could be due to the multifaceted nature of religion and they recommend that researchers employ greater specificity in their operationalization of religion and mental health.

Larson et al. (1992) review all the measures of religious devotion used between 1978 and 1989 in the *American Journal of Psychiatry* and *Archives of General*

Psychiatry, and compare the proportions of the studies that report positive, negative and neutral relationships between psychological well-being and religiosity. Of the 50 studies that Larson et al. (1992) review, 72% report an increasing relationship between religious devotion and improved mental health, 16% report a negative relationship and 12% report a neutral relationship. Larson et al. (1992) conclude, like Gartner, Larson and Allen (1991), that the multifaceted nature of religion necessitates the accurate measurement of its relevant features for mental health.

Most substantial reviews of the literature on religion and mental health do not arrive at the same conclusions (Hackney and Sanders, 2003). Even though most reviews reveal a positive relationship, there is ambiguity in the research (Hackney and Sanders, 2003). Therefore, research to disambiguate the relationship between mental health and different means of being spiritually engaged is in order.

Even though nearly 60% of Canadians report that spiritual values play an important role in their lives (Statistics Canada, 2002), the mental health consequences of different ways of being spiritually engaged are not well understood. In the past, religiousness was most often measured through religious affiliation (Idler and George, 1998; Larson et al., 1986). The second most common measure of religiousness is religious services attendance (Idler and George, 1998). Researchers assumed that the more often respondents reported going to religious services, the more religious respondents were. There are problems with this assumption. People do not need to be religious in order to attend religious services frequently and people can be religious and spiritual without attending religious services.

New conceptualizations and operationalizations of spirituality and religiousness are therefore necessary in order to further explore the sociological significance of the

association between spirituality and mental health. Idler and George (1998) called upon sociologists to renew their efforts to measure religiousness in systematic surveys of representative populations. Idler and George (1998: 60) insist that these measurements should be: "multidimensional and inclusive of the many aspects of religiousness which might be relevant to mental health, and … inclusive in their language so that they are appropriate for use in religiously diverse populations". In addition, research is needed to compare groups for whom this association may differ. Some emerging literature in this area include Hank and Schaan's (2008) investigation of the relationship between frequency of prayer and different aspects of physical and mental health for older adults in nine European countries, and a cluster analysis by Klemmack et al. (2007) that identified groups of people similar to one another with respect to multiple measures of religiousness and then investigated whether these similar groups differed in terms of their sociodemographic characteristics.

In response to the limitations associated with previous measures of religiousness, more comprehensive data on spirituality and religiousness were collected in Cycle 1.2 of the Canadian Community Health Survey (Statistics Canada, 2002) and will therefore be used in this analysis.

2.2 Theoretical Framework

This study employs the theoretical framework of the stress process model developed by Leonard Pearlin, in order to examine and understand the relationship between spirituality and mental health. The stress process combines three important conceptual domains: "the sources of stress, the mediators of stress, and the manifestations of stress" (Pearlin et al., 1981: 337). Each of these conceptual domains involves an

assortment of components. Researchers have directed considerable attention towards life events and chronic strains in their search for the sources of social stress (Pearlin et al., 1981). In the search for resources capable of mediating the effects of stressful circumstances, considerable attention has been directed towards coping and social support (Pearlin et al., 1981). In terms of stress outcomes, research surrounding the symptoms of stress covers a broad range of topics from microbiology and the immune system to overt expressions of emotional and behavioural distress (Pearlin et al., 1981; Pearlin, 1999).

Sociological research on stress and its consequences for mental health outcomes, like research on the relationship between spirituality and mental health, has expanded substantially in the past 20 years. This expansion in research is not the result of agreement or consistency in the field (Pearlin, 1999). Research on stress has moved in a number of different directions, has been used to examine numerous aspects of social and personal life, and has focused on a wide variety of topics. The stress process model represents an attempt to provide conceptual organization to the proliferation of research surrounding stress and its health related outcomes (Pearlin, 1999).

The stress process label is not meant to suggest that stress always follows one path with predictable outcomes or consequences (Pearlin, 1999). The unique situations and circumstances that provide the contexts for combinations of stressors in people's lives and the resources that individuals are able to mobilize to regulate the effects of those stressors vary a great deal and are highly complicated. The stress process is therefore a conceptual model and intended as an orientating framework to guide research rather than a rigid set of rules for all kinds of social research on stress and its consequences (Pearlin, 1999). The purpose of the stress process model is to help

researchers think about possible stressful circumstances, to sensitize researchers to the type of information that needs to be collected and studied for their research topics on stress, and to recommend productive means of analyses for the outcomes of stress (Pearlin, 1999). The stress process model is meant to be of particular use in sociological research aimed at incorporating and highlighting aspects of socio-economic life in explanations of mental health and psychological well-being (Pearlin, 1999).

The three central components of stress combine to form a process. Sources of social stress permeate society, social structures and culture (Pearlin et al., 1981). At the individual level, however, stress generally arises because of either discrete life events or the presence of more enduring social problems. The adverse effects of discrete life events on psychological well-being depend on the number of events that occur for an individual, the extent of the behavioural changes the events necessitate from an individual, and the quality of the behavioural changes required by an individual in order to adapt to events (Pearlin et al., 1981). Researchers have long sought to differentiate between life events depending on their desirability, the control individuals exercise over the occurrence of events, and whether events can be conceptualized as part of the life-cycle (Pearlin et al., 1981).

Once events are identified as likely to bring about stress, it remains to be determined how they become stressful. That is, the connections between events and stress need to be investigated. One explanation is that events do not directly affect individuals but operate through a broader social context of life strains (Pearlin et al., 1981). Thus, there are two important sources of social stress that converge to create stress: life events and chronic life strains (Pearlin et al., 1981). Brown and Harris (1978), for example, observe how seemingly inconsequential events bring about major depressive episodes

and conclude that life events sometimes draw attention to the negative implications of problems in life. Therefore, it is the reminder of old problems by new events that creates distress (Brown and Harris, 1978). From this perspective, life events create stress by negatively changing the meaning of enduring problems.

Another explanation of how events and strains coalesce to create stress is that life events either create new strains or reinforce existing ones and the new strains, or intensified strains, in turn create stress (Pearlin et al., 1981). To be sure, conflict in role strains emerge for all kinds of reasons but life events are typically a powerful precursor to the detrimental effects of stress (Pearlin et al., 1981). Thus, life events sometimes intensify enduring problems in life, or role strains, and therefore contribute to stress.

Another component in the study of the causation of the manifestation of stress is the concept of self. Life events and role strains are more likely to create stress when they detract from an individual's concept of self (Pearlin et al., 1981). Two key features of self-concepts in the stress process model are self-esteem and mastery. Mastery involves the extent to which individuals believe they can exercise control over the forces that affect their lives; and self-esteem involves an individual's sense of self-worth (Pearlin et al., 1981).

Most people strive to protect themselves and better themselves. When individuals are repeatedly confronted with enduring problems in life, it becomes more difficult for them to protect and better themselves. Enduring role strains and life problems can plague individuals with a sense of failure and an inability to affect noxious circumstances in their lives (Pearlin et al., 1981). When this happens, people can lose their sense of self-esteem and mastery. The stress process model places this diminished sense of self as the final stage in the process leading to manifestations of stress (Pearlin et al., 1981).

It is generally accepted that we cannot adequately predict the intensity with which people experience stress based solely on the intensity of its sources (Pearlin et al., 1981). Individuals typically bring different mediating resources to deal with stressful situations in the form of behaviour, cognition and insight. Of these mediating resources, those that can be invoked willingly by individuals in their own defense are called mediators (Pearlin et al., 1981). Two types of mediators are prominent in the stress process model: social support and coping. Social support refers to the individuals, groups and organizations that a person has access to and can make use of in order to deal with problems as they arise (Pearlin et al., 1981). There is a great deal of ambiguity surrounding what constitutes social support, what can be drawn from a social support system, and the types of problems that can be solved through social support systems. Although studies have demonstrated that social support is a resource capable of mediating the harmful effects of stressful circumstances, there is no clear evidence of what makes a social support system effective in dealing with stress (Pearlin et al., 1981).

A social support system is different from a social network. If an individual has family, friends and acquaintances, they may not necessarily have access to social support when confronted by stressful circumstances (Pearlin et al., 1981). Social support depends on a level of involvement and concern that extends beyond superficial encounters (Pearlin et al., 1981). Membership in a social network is thus merely a prerequisite for having access to social support. Social support depends on the quality of the relationships within a social network. The most important qualities of those relationships include intimate communication, solidarity and trust among members (Pearlin et al., 1981).

Another social resource for mediating the effects of stress and its outcomes is coping (Pearlin et al., 1981). Coping refers to the actions and behaviors people use in

order to prevent, reduce or avoid stress and its effects (Pearlin and Schooler, 1978). These actions and behaviors may alter the circumstances from which stressors arise, change the meaning of the stressors to reduce their menacing effect, or reduce the severity of the distress created by the stressors (Pearlin, 1999). A central assumption of the concept of coping is that individuals respond actively to the social forces that impose on their daily existence (Pearlin and Schooler, 1978). Coping responses are the things that individuals actively do in order to deal with the stressful circumstances that they encounter, whereas social and psychological resources refer to what is available to an individual in order to develop their coping repertoire (Pearlin and Schooler, 1978).

The stress process model focuses on coping mechanisms that are normative (Pearlin et al., 1981). In other words, we are interested in coping strategies that people share and learn from one another in group settings. We are not interested in coping mechanisms or strategies that are unique to the individual (Pearlin et al., 1981). Different coping behaviours are separated based on the function they serve. Coping strategies are not viewed as a set of dispositions used regardless of the problems encountered but are instead understood as specific behaviours that change with the problems that people face along with the social settings in which problems emerge (Pearlin et al., 1981).

Coping strategies and social resources are usually treated as separate and independent mediators in research surrounding the stress process (Pearlin et al., 1981). Both are, however, resources people use in order to mediate stressful life events and enduring social problems. People do not pick and choose between coping strategies and social support when faced with a number of social problems and strains (Pearlin et al., 1981). They make use of both in order to evade, remove, or decrease distress. Finally, there are numerous stages at which individuals can use mediators to reduce distress:

before an event occurs, after an event occurs but before the strains that it stimulates occur, after the life strains occur but before concepts of self deteriorate, and before stress manifests in outcomes (Pearlin et al., 1981).

The last component of the stress process model involves outcomes. At some point, in order to understand the stress process, researchers must either qualify the meaning of stress or quantify its measurement. Stress can be understood as a broad and general term that assumes multiple outcomes (Pearlin et al., 1981). The multiplicity of these outcomes underlies the ambiguity in the meaning and measurement of stress (Pearlin et al., 1981). Simply put, stress outcomes are the result of the converging consequences of the stress process model's other components. In the past, sociological research has focused on the mental health consequences of stress like mental disorders and depression (Pearlin, 1999). Sociological researchers interested in mental health tend to analyze sets of social conditions and then use those conditions to observe or predict multiple outcomes. Ideally, this approach will sensitize our understandings of the range of outcomes produced by different sets of social circumstances and assist us to appreciate the diverse spectrum of effects social forces have on mental health and psychological well-being (Pearlin, 1999).

Thus far, the stress process model purports that life events can adversely affect the roles that people occupy in life creating strains (Pearlin et al., 1981). These strains, in turn, can detract from an individual's concept of self and this creates stress (Pearlin et al., 1981). Coping and social support are mechanisms that individuals can mobilize in order to mediate the outcome of the stress process. In addition to these components, the stress process model involves three key assumptions. The first assumption is that the different aspects of life that affect the mental health and well-being of people are interrelated

(Pearlin, 1999). Stress and its consequences are not merely the result of discrete events. The second assumption is that the stress process model is not about abnormal people encountering unusual circumstances and dealing with extraordinary events (Pearlin, 1999). The sociological study of stress involves the study of thoroughly socialized individuals with widely shared norms and values, and engaged in the regular pursuits of their everyday lives. The third and final assumption of the stress process model distinguishes it as sociological from other disciplines concerned with stress research. The stress process model is primarily concerned with understanding the natural origins of stress (Pearlin, 1999).

Among the interrelated aspects of life that converge on the mental health and well-being of individuals are their social statuses, the social contexts of their everyday lives, the stressors to which they are exposed, the resources that they are able to mobilize in order to respond to those stressors, and the way in which stress manifests in their body and mind (Pearlin, 1999). An implication of the interconnectivity of these aspects of life is that they rarely change independently. Changes in one aspect can affect changes in others, resulting in a cascading chain of effect (Pearlin, 1999). The pieces of these chains of effect are neither always nor necessarily simultaneously discernable. Changes that occur at one point in time can affect other changes later on. The interconnectivity of the different aspects of life that affect the mental health and the chains of effect that are set into motion in people's lives are the reason that stress is referred to as a process (Pearlin, 1999). Stress and its consequences for mental health do not involve discrete events involving stimuli followed immediately a response (Pearlin, 1999). Stress and its consequences can involve numerous factors that connect the lives of people to the larger social systems in which they are immersed.

The fact that the stress process model is concerned with thoroughly socialized individuals engaged in their everyday affairs is of critical importance because it connects contemporary research on social stress to classical sociological theory (Pearlin, 1999). Accordingly, Durkheim ([1897] 1951) did not rationalize suicide as the act of a deviant but as the result of a lack of attachment to others; and Merton (1968) did not conceptualize anomie as a result of delusion but as emerging from the gaps between the aspirations that individuals are socialized to value and the opportunities that they have for achieving those aspirations. People certainly do experience stress as the result of rare circumstances but the sociological study of stress is characterized by its concern for difficult situations experienced by entire groups with similar social and economic characteristics (Pearlin, 1999).

There is substantial overlap between the sociological study of stress and other disciplines engaged in research in this area but the sociological investigation for the source of stress brings our attention to the aspects of social life that are normative. Sociologists, psychologists and psychiatrists are all interested in the resources that individuals have at their disposal to mobilize in order to mediate stress, and sociologists and psychiatrists alike are interested in the consequences of stress. However, sociological inquiry stands alone in its interest in how stress originates in its natural social environment (Pearlin, 1999). Researchers in other disciplines are more interested in what happens to individuals when they experience stress. The questions that guide research in other disciplines do not always require human subjects and can sometimes be answered with experiments conducted on laboratory animals (Pearlin, 1999). Sociologists studying social stress, on the other hand, are primarily interested in how stress manifests in social contexts.

In the stress process model, the socio-economic statuses of people envelope the stress process affecting all the components of the model including the connections between its parts: stressors, resources and mental health outcomes (Pearlin, 1999). The superimposition of socio-economic status on all aspects of the stress process model are what essentially make the model inherently sociological (Pearlin, 1999). The socio-economic statuses of people are revealing of the connections between their placement within the larger social systems around them and the consequences that has for their mental health and psychological well-being. Placement within stratified social systems of economic class, sex, age, and education all have the capacity to permeate every aspect of social existence and the experiences that stem from it. Thus, socio-economic status is connected to every part of the stress process (Pearlin, 1999).

The central tenets of the stress process model are extremely malleable and can be used to explain a number of problems and topics in the social and behavioral sciences. When applied to variations in mental health and spirituality and religion, researchers have observed religious and spiritual factors facilitating: a reduction in the levels of social stress; the accrual of psychological and social resources, and; the cultivation of coping techniques and improving the ability of individuals to mobilize personal resources in order to deal with stressors (Ellison and Henderson, 2011).

The strength, meaning and understanding that spiritual values provide respondents in their lives will be framed as resources in order to determine whether they have a protective effect on mental health outcomes in this analysis. Control variables that are salient in the literature on mental health and spirituality will be included in this analysis but only as control variables. The main independent variables will measure the extent to

which respondents feel spiritual values provide them with: strength to face every day difficulties, meaning in everyday life, and understanding in life.

2.3 What is Religiosity? Definitions and Distinctions between Religion, Spirituality and Religiosity

Definitions of religiosity and spirituality abound. The plethora of definitions of these terms has been a recurrent source of controversy (Moreira-Almeida et al., 2006). The way in which researchers define religiosity and spirituality influences what they are able to observe about the relationship between the concepts and their consequences for mental health. In 1912, James Leuba found 48 different definitions of the noun and root word of religiosity, religion (Moreira-Almeida et al., 2006), which seems to be much more easily defined than its counterparts religiosity and spirituality. Moreira-Almeida et al. (2006: 243) adopt these definitions of religion and spirituality: "religion is an organized system of beliefs, practices, rituals, and symbols designed to facilitate closeness to the sacred or transcendent (God, higher power, or ultimate truth/reality)"; and "spirituality is the personal quest for understanding answers to the ultimate questions about life, about meaning, and about relationships with the sacred or transcendent, which may (or may not) lead to or arise from the development of religious rituals and the formation of a community."

However, Statistics Canada interviewers were not provided with a definition of the word spiritual when they asked respondents to rate the extent to which spiritual values provide them with strength, meaning and understanding in their lives. The meaning of the word spiritual was left up to respondents to interpret subjectively. Therefore, popular dictionary definitions from the time of the interview for the data used in this study are an

appropriate means of defining religiosity and spirituality: "religiosity is the condition of being religious" so, as a quantitative measure in sociological analysis, religiosity is often understood as the extent to which individuals are religious, and spirituality is "the quality or condition of being spiritual" (Oxford English Dictionary, 2001). Spiritual is an adjective describing either things "relating to the soul or spirit, usually in contrast to material things" or "relating to religious or sacred things rather than worldly things" (Oxford English Dictionary, 2001). So, all things religious can be considered spiritual but all things spiritual need not necessarily be religious in that the spiritual need not be related to any organized system or institutionalized system of beliefs and practices. Also, as a quantitative measure in sociological analysis, spirituality is often understood as the extent to which individuals can be considered spiritual.

2.4 Research Questions

Some descriptive questions related to the research problem of this study are:

1. Do Canadians consider themselves spiritual?
2. How important do Canadians rate the strength, meaning and understanding that spiritual values provide them in their everyday lives?
3. How do Canadians rate their mental health?
4. What are the prevalence rates of depression and major depressive episodes in the Canadian adult population?

Some inferential questions related to the research problem of this study are:

1. Are the strength, meaning and understanding that spiritual values provide respondents related to mental health after controlling for the effects of age,

gender, marital status, income, education, main source of household income, region, and the presence or absence of chronic conditions?

2. Are the strength, meaning and understanding of spiritual values provide respondents related to mental health after controlling for the effects of tangible support, affection, positive social contact and emotional support available to respondents in addition to age, gender, marital status, income, education, main source of household income, region, and the presence or absence of chronic conditions?
3. Does any of the control variables included in the model interacts with the strength, meaning and understanding that spiritual values provide respondents in their lives?

CHAPTER 3: Research Design and Methodology

3.1 Data and Method

The data source for this study is the Canadian Community Health Survey (CCHS) Cycle 1.2 (Statistics Canada, 2002). The CCHS provides information on health for 133 health regions as well as social determinants of health, health status and health care service utilization for those 133 regions. Cycle 1.2 of the CCHS was conducted by Statistics Canada, in collaboration with Health Canada, the Canadian Institute of Health Information (CIHI), all ten provincial ministries of health and the three territorial ministries of health.

The purpose of Cycle 1.2 of the CCHS is to create well-timed cross-sectional estimates of the social determinants of health, health status and health care service utilization at the sub-provincial level determined by health regions. In addition, the purpose of survey research in general is to generalize from a small sample to a large population in order to make inferences about that population's characteristics (Creswell, 2003: 154). Surveying a sample of a population is advantageous because it allows researchers to make inferences about that population's characteristics without surveying the entire population, thus saving time and the financial resources necessary to survey an entire population.

Cycle 1.2 of the CCHS collected data from individuals 12 years of age and older who live in private residences in all ten Canadian provinces and the three Canadian territories. First Nations people living on Reservations or Crown Land, individuals living in institutions, members of the Armed Forces and people living in particular remote areas were excluded from the CCHS. With these restrictions, the CCHS applies to approximately 98% of Canadians 12 years of age and older (Statistics Canada, 2002).

The CCHS is a sample survey based on a cross-sectional design. In order to create reliable estimates of 133 health regions, and because of the budget constraints of the CCHS, the target sample size for the CCHS was 30,000 respondents. Each of the health regions and their respective provinces were given relatively equal importance by using a sample allocation strategy. The sample allocation strategy involved drawing different numbers of respondents from each province based on provincial population estimates and the number of health regions that each province contains. The number of respondents drawn from each health region was determined by the estimated population in each of these regions.

Three sampling frames were used to select places of residence: 49% of residences were selected from an area frame, 50% of residences were selected from a list frame of telephone numbers and the remaining 1% of the sample was selected using a Random Digit Dialling (RDD) sampling frame (Statistics Canada, 2002).

The area frame for the CCHS is drawn from an area frame that was designed for the Labour Force Survey (LFS). The LFS uses a multistage stratified cluster sampling design where the place of residence is the final sampling unit of analysis (Statistics Canada, 2002). Homogeneous strata are determined by either geographic area or socio-economic characteristics and independent samples of clusters are taken from every one of these strata in the first stage of the CCHS (Statistics Canada, 2002). In the second stage of the CCHS, lists of places of residence are created for each cluster and residences are selected from these lists.

The ten provinces were divided into three kinds of regions: large urban centres, cities and rural areas. Each major urban centre is divided into either geographic or socio-economic strata. Places of residence are grouped within each stratum to create clusters.

Within each stratum, cluster or residential building, places of residence are chosen through a random sampling technique with a "probability proportional to size" (PPS), where the probability of being selected is proportional to the number of dwellings in each stratum, cluster or residential building. Cities and rural areas are divided into strata based on geographical region first and then separated again on the basis of socio-economic characteristics. The PPS method is then used to select individual clusters from these strata. The final sample is attained through a systematic sampling of places of residence (Statistics Canada, 2002). The advantages of such a complex sampling procedure for this study make it possible to generalize the potential findings of the proposed study to 98% of the entire Canadian population.

In total, 36,984 places of residence were interviewed using these sampling techniques (Statistics Canada, 2002). The population of all ten provinces and three territories combined was 26,578,128 when Cycle 1.2 of the CCHS was conducted (Statistics Canada, 2002).

3.2 Measurements

Dependent Variables

The dependent variable in this analysis will be mental health. Multiple indicators of mental health will be used in order to explore the relationship between mental health and spirituality. Four indicators of mental health will be considered in this study. The first is psychological well-being measured on a scale from 0 to 100 where higher scores indicate higher levels of well-being. The second is self-rated mental health, which is measured on a five-point Likert scale with response categories of excellent, very good, good, fair and poor. A third indicator of mental health will be depressive

symptomatology, a numeric scale constructed using the Diagnostic and Statistical Manual of Mental Disorders (DSM -IV). A fourth measure of mental health will be Major Depressive Episodes (MDE), a dichotomous variable indicating whether respondents experienced a major depressive episode in the past 12 months (see Statistics Canada 2002).

The variable that measures psychological well-being is a numerical scale based on 25 questions proposed by Raymond Massé at the University of Laval to assess mental health (Statistics Canada, 2002). The 25 questions respondents were asked involve how often in the past month they: felt self-confident; felt satisfied with their accomplishments and proud of themselves; felt they took on a lot of projects; felt emotionally balanced; felt loved and appreciated; felt they had goals and ambitions; felt like having fun, participating in sports or their favorite activities or hobbies; felt useful; smiled easily; were true to themselves, feeling natural at all times; felt they did a good job of listening to their friends; felt curious and interested in all sort of things; felt were able to clearly sort out things when confronted with complicated situations; found life exciting and wanted to enjoy every moment; felt their lives were well balanced between their familial, personal and professional activities; felt they were calm and level-headed; were able to find solutions to their problems; were able to get along with everyone around them; lived at a normal pace without doing anything excessive; had the impression of enjoying life; felt they had a good sense of humour and were able to make their friends laugh; felt good and at peace with themselves; felt healthy and in good shape; were able to face difficulties in a good way; and, felt their morale was good (Statistics Canada, 2002). Possible responses to these 25 questions were: never, rarely, half the time, frequently, and almost always. These responses were coded from 1 to 5 and then summed for all 25

questions to create the scale variable measuring psychological well-being on a scale from zero to one-hundred.

The variable that measures depressive symptomatology is based on 9 questions used to identify respondents who may have experienced a major depressive episode. The 9 symptoms must represent a change from prior functioning in the respondent's life. If respondents report having at least 5 of the 9 depressive symptoms then they are considered eligible of having experienced a major depressive episode. These 9 symptoms include: being in a depressed mood most of the day; a diminished interest in almost all activities or hobbies most of the day; significant changes in weight or appetite; insomnia or hypersomnia; psychomotor agitation or retardation; fatigue and loss of energy; a sense of worthlessness; an inability to concentrate; and, recurrent thoughts about death (Statistics Canada, 2002). However, experiencing 5 of these 9 symptoms is not sufficient for determining whether or not an individual has experienced depression.

The variable that measures whether respondents report having experienced a major depressive episode in the past 12 months depends on these criteria: whether the depressed mood lasted two weeks or longer and they report experiencing at least 5 of the 9 depressive symptoms listed above; whether the symptoms cause significant distress or impairment at work or other areas of important social function; whether the symptoms cannot be better accounted for by bereavement if the symptoms last longer than two months or the symptoms are marked by severe functional impairment, feelings of worthlessness, suicidal thoughts, and psychomotor retardation (Statistics Canada, 2002).

Independent Variables

The independent variables in this analysis include: the importance of spiritual values in respondents' lives; the extent to which spiritual values help respondents find

meaning in their lives; the extent to which spiritual values provide respondents with strength to face everyday difficulties; the extent to which spiritual values help respondents understand difficulties in life; and how often respondents attend religious activities, religious services or meetings.

The importance of spiritual values in respondents' lives is a dichotomous variable derived from a yes or no question asking respondents whether spiritual values play an important role in their lives. The extent to which spiritual values help respondents find meaning in their lives, the extent to which spiritual values provide respondents with strength to face everyday difficulties, and the extent to which spiritual values help respondents understand difficulties in life are measured on a four point Likert scale with response categories of a lot, some, a little, and not at all. These response categories were reverse coded and the three variables measuring the strength, meaning and understanding that spiritual values provide respondents were added together to form a scale variable ranging from 3 to 12 (Cronbach's alpha = 0.9045). Only respondents who felt that spiritual values played an important role in their lives were asked about the strength, meaning and understanding that spiritual values provide them in their lives.

Control Variables

Control variables included in the analysis are age, gender, marital status, geographic region, total household income, education, main source of household income, religious service attendance, presence of chronic conditions, tangible support, affection, positive social interaction, and emotional and informational support. These variables are known to affect mental health (Ellison and Fan, 2008; Keyes and Reitzes, 2007; Benjamins and Brown, 2004; Hank and Schaan, 2008; Galek et al., 2007; Thuné-Boyle et al. 2006; Ellison, Burdette and Hill, 2009). Age, gender, marital status, income,

education, geographic region and chronic conditions are some of the most common control variables in social research using spiritual engagement to predict mental health (Witter et al., 1985; Ellison, 1991; Krause, 1995; Krause et al., 1999; Idler, 1987; McCullough and Laurenceau, 2005; Kohls and Walach, 2007; Klemmack et al., 2007; Yoon and Lee, 2007; Hank and Schaan, 2008; Ellison, Burdette and Hill, 2009; Greenfield, Valliant and Marks, 2009; Nicholson, Rose and Bobak, 2009). Also present in the literature are tangible social support and social networks available to respondents measured through various means (Krause, 1995; Kohls, and Walach, 2007; Yoon and Lee, 2007; Ellison, Burdette and Hill, 2009; Greenfield, Valliant and Marks, 2009). Some other popular control variables in the literature that are not included in this analysis because they are not available in the Canadian Community Health Survey are ethnicity and religious doubt (Idler, 1987; Ellison 1991; Krause et al., 1999; Maselko and Kubzansky, 2006; Klemmack et al., 2007; Galek et al., 2007; Yoon and Lee, 2007; Ellison, Burdette and Hill, 2009; Greenfield, Vaillant and Marks, 2009).

In this analysis, age is measured in five year increments from 25 years old to 80 years and older. The analysis is limited to respondents 25 years of age and older because marital status is included as one of the main control variables in the analysis and most Canadians tend to marry after 25 years of age. Gender is measured dichotomously and respondents are asked to identify as either being male or female. Marital status is a 5-level categorical variable: married, cohabitating, widowed, separated/ divorced, and never married. Total household income is measured in dollars on an 11 point scale with response categories ranging from no income to $80,000 and over. Highest level of education is measured on a 10 point scale ranging from less than a grade 8 education up to university education or more. Canadian provinces were divided up into five geographic

regions: the Atlantic provinces, Quebec, Ontario, the Prairie provinces and British Columbia. The presence of chronic conditions is determined by asking respondents whether they have one or more chronic conditions which are broadly defined by Statistics Canada to include persistent medical conditions diagnosed by a health professional and are expected to last 6 months or more. These long-term conditions include: food allergies, other allergies, asthma, fibromyalgia, arthritis or rheumatism excluding fibromyalgia, back problems excluding fibromyalgia and arthritis, high blood pressure, migraine headaches, chronic bronchitis, emphysema or chronic obstructive pulmonary disease, diabetes, epilepsy, heart disease, cancer, stomach of intestinal ulcers, suffering from the effects of a stroke, Crohn's disease or colitis, Alzeimer's or other dementia, cataracts, glaucoma, a thyroid condition, chronic fatigue syndrome, suffering from chemical sensitivities, having schizophrenia, or psychoses, obsessive-compulsive disorder, dysthymia, post-traumatic stress disorder, autism or other developmental disorders like Asperger's syndrome or Rett syndrome, attention deficit disorder or attention deficit hyperactivity disorder or dyslexia, eating disorders like anorexia and bulima, or other long term health conditions diagnosed by a health professional (Statistics Canada, 2002).

Tangible social support is measured on a scale from zero to sixteen with high scores indicating higher levels of support. The variable is a composite measure derived by summing the values of four other variables that measure the extent to which tangible support is available to the respondent. The four variables that measure the extent to which tangible support is available are based on questions concerning how often: the respondent has someone around that they could ask for help if they were confined to a bed; whether the respondent has someone that they can ask to take them to the doctor; whether the respondent has someone to prepare meals for them if needed; and whether the respondent

has someone to help with daily chores if needed. Possible responses to these four questions were: “none of the time, a little of the time, some of the time, most of the time, all of the time” (Statistics Canada, 2002). These responses were coded zero to four and then summed for all four questions to create the scale variable measuring tangible social support on a scale from zero to sixteen.

Affection is measured on a scale from zero to twelve with higher scores indicating higher levels of support. The variable is a composite measure derived by summing up the values of three variables that measure how often respondents have: someone around that will show them love; someone to hug or show affection towards; and someone to make them feel wanted. Responses to these three variables ranging from “none of the time” to “all of the time” are coded from zero to four, and summed up for all three variables to create a variable measuring support for affection on a scale from zero to twelve.

Positive social interaction or contact is measured on a scale from zero to sixteen with higher scores indicating more support. The variable is a composite measure derived by summing up the values of four variables that measure how often respondents have someone around to: have a good time with; get together with to relax; do things with in order to get their mind off things; and, do something enjoyable with. Responses to these four questions ranging from “none of the time” to “all of the time” are coded zero to four, and summed up to create a variable that measures support for positive social interaction on a scale from zero to sixteen.

Emotional and informational support is measured on a scale from zero to thirty-two with higher scores indicating higher levels of support. The variable is a composite measure derived by summing up the values of eight variables that measure how often respondents have someone around: to depend on to listen to them when they need to talk;

to provide advice in a crisis; to provide information to clarify a situation; to confide in or talk to about problems; whose advice they really want; to share their most private fears with; to turn to for suggestions about dealing with personal problems; and, who can empathize with them (Statistics Canada, 2002). Responses to these eight questions ranging from "none of the time" to "all of the time" are coded zero to four, and summed up to create a variable that measures emotional and informational support on a scale from zero to thirty-two.

3.3 Statistical Methods

Two separate kinds of models will be used to explore the relationship between spiritual engagement and mental health: an ordinary least squares (OLS) regression model and a binary logistic regression model. Stata 10 is used for data analysis.

In the OLS model, the independent and control variables are used to predict the self-rated mental health and depressive symptomatology that respondents identified with. The OLS model involves a number of assumptions that are seldom upheld in survey data analysis. Some of these assumptions include: linearity, normality, homoscedasticity, the absence of influential outliers and the absence of collinear data (Agresti and Finlay, 1999). The small number of response categories used to measure most variables in social research is also a serious limitation to how appropriate OLS regression can be considered for social research.

In order to test whether the relationship between the dependent variables and the independent variables in the OLS models were linear, scatter diagrams of the model residuals and independent variables were generated. The scatter diagrams did not reveal any non-linearity issues in the relationships between independent and dependent

variables. The normality of the distribution of all the variables included in the OLS models was assessed by generating frequency distributions of all the variables. The limited number of response categories used to measure the variables included in the OLS models made it difficult for the distributions to be highly skewed. None of the variables included in the OLS models, including age and income, were severely skewed. The homoscedasticity of the residuals for the independent variables was assessed using a formal diagnostic for heteroscedasticity. None of the tests revealed a significant departure from the assumption of homoscedasticity. The assumption of the absence of influential outliers was assessed by generating frequency distributions for all the variables included in the OLS models. The limited number of categories used to measure the variables included in the OLS models and the coarse categorization of the variables like age and income made it impossible to have outliers. Finally, variance inflation factors were produced in order to assess whether any of the independent variables were collinear and the results of those tests were reported throughout the analysis.

In the logistic regression model, the dichotomous MDE variable will be used to separate respondents who have experienced a major depressive episode from respondents who have not experienced a major depressive episode. The independent and control variables will then be used to predict the probability with which respondents identify as having experienced a major depressive episode. A logistic regression model will be used to analyze the data. The assumptions for logistic regression include: the outcome variable being dichotomous and coded “0” and “1”, the scores of the outcome variable are statistically independent of one another, the model is specified correctly and includes all relevant predictors, and the categories of the outcome variable are exhaustive and mutually exclusive (Warner, 2008). Binary logistic regression does not assume or require

normally distributed scores for the endogenous variable, it does not assume a linear relationship between the endogenous variable and ordinal exogenous variables, and it does not assume homogeneous variance of the endogenous variable across all categories of the exogenous variables (Warner, 2008). Binary logistic regression is generally viewed as a more suitable method than OLS regression in research situations where the endogenous variable corresponds to dichotomous variables because its assumptions are less restrictive (Warner, 2008).

CHAPTER 4: Results

4.1 Descriptive Statistics

Table 1 provides descriptive statistics for each of the variables included in the study for Canadians 25 years of age and older in 2002. The average level of psychological well-being was 81.96 on a scale from 0 to 100 where higher scores indicate greater well-being. The average level of depressive symptoms was 0.94 on a scale from 0 to 9 where higher scores indicate more symptoms. Only 5.00% of the sample reported experiencing a major depressive episode within the 12 months prior to the survey. The variable that measures self-perceived mental health revealed that only 1.42% reported having poor mental health, 6.79% reported having fair mental health, 27.29% reported having good mental health, 38.62% reported having very good mental health and 25.89% reported having excellent mental health. The average level of strength, meaning and understanding derived from spiritual values was 10.15 on a scale from 3 to 12 where higher scores indicate a higher level of strength, meaning and understanding derived from spiritual values.

Almost two-thirds (67.99%) of the sample reported that spiritual values play an important role in their lives. Of those that reported spiritual values playing an important role in their lives, only 0.60% said that spiritual values did not help them find meaning in their lives, 9.25% said that spiritual values help them find a little meaning in their lives, 35.40% reported that spiritual values help them find some meaning in their lives and over half (54.75%) said that spiritual values help them find a lot of meaning in their lives. In addition, of those who reported spiritual values playing an important role in their lives, only 1.81% said that spiritual values do not provide them with strength to face everyday difficulties, 11.12% said that spiritual values afford them a little strength, 34.17% said

Tabel 1. Descriptive statistics for Canadians 25 years of age and older, 2002.

	N	Mean (%)	SD	Range
Mental health outcomes				
Psychological well-being scale	30,629	81.96	14.68	3-100
Depression scale	30,744	0.94	2.45	(0-9)
Major depressive episode 12 months				(0-1)
Yes	1,557	5.00		
No	29,578	95.00		
Self-perceived mental health				(1-5)
Poor	443	1.42		
Fair	2,123	6.79		
Good	8,539	27.29		
Very good	12,084	38.62		
Excellent	8,100	25.89		
Spiritual measures				
Spirituality scale	21,001	10.15	2.04	(3-12)
Spiritual values play important role				(0-1)
Yes	21,086	67.99		
No	9,928	32.01		
Spiritual values provide meaning				(1-4)
Not at all	126	0.60		
A little	1,948	9.25		
Some	7,455	35.40		
A lot	11,528	54.75		
Spiritual values provide strength				(1-4)
Not at all	380	1.81		
A little	2,340	11.12		
Some	7,193	34.17		
A lot	11,139	52.91		
Spiritual values help understand				(1-4)
Not at all	520	2.47		
A little	2,660	12.65		
Some	7,449	35.43		
A lot	10,396	49.45		
Religious service attendance				(0-4)
Not at all	8,930	32.97		
Once a year	2,477	9.15		
3 or 4 times a year	4,683	17.29		
Once a month	3,136	11.58		
Once a week	7,856	29.01		
Social resources				
Tangible support	30,498	13.02	3.75	(0-16)
Affection	30,538	10.34	2.58	(0-12)
Positive social interaction	30,537	13.33	3.39	(0-16)
Emotional support	30,350	26.41	6.63	(0-32)

Tabel 1. Descriptive statistics for Canadians 25 years of age and older, 2002 (continued).				
Sociodemographic control variables				
Male (Female reference)	14,036	44.83		(0-1)
Age	31,311	7.86	3.29	(3-14)
Age categories				(1-11)
25 to 29 years	2,542	8.12		
30 to 34 years	3,229	10.31		
35 to 39 years	3,529	11.27		
40 to 44 years	3,513	11.22		
45 to 49 years	2,907	9.28		
50 to 54 years	2,799	8.94		
55 to 59 years	2,729	8.72		
60 to 64 years	2,327	7.43		
65 to 69 years	2,073	6.62		
70 to 74 years	2,040	6.52		
75 to 79 years	1,641	5.24		
80 or more	1,982	6.33		
Marital status				(1-4)
Married	16,055	51.33		
Common-law	2,359	7.54		
Widowed, separated or divorced	7,931	25.35		
Single	4,935	15.78		
Total household income all sources				(1-6)
No Income	68	0.23		
Less than $15,000	3,649	12.60		
$15,000-$29,999	5,935	20.49		
$30,000-$49,999	6,914	23.87		
$50,000-$79,999	6,918	23.88		
$80,000 or more	5,480	18.92		
Main source of total household income				(1-4)
Employment income	19,464	63.67		
Worker's compensation	1,548	5.06		
Seniors benefits	8,391	27.45		
Other	1,165	3.81		
Chronic condition				(0-1)
Yes	23,720	75.82		
No	7,565	24.18		
Region				(1-5)
Atlantic provinces	6,037	19.28		
Quebec	4,511	14.41		
Prairie provinces	6,211	19.84		
British Columbia	3,356	10.72		
Ontario	11,196	35.76		
Education				(1-4)
Less than secondary	8,286	26.64		
Secondary graduate	5,328	17.13		
Some Post-secondary	2,071	6.66		
Post-Secondary graduate	15,416	49.57		

that spiritual values provide them with some strength and 52.91% said that spiritual values provide them with a lot of strength to face everyday difficulties. Finally, of those that reported spiritual values playing an important role in their everyday lives, only 2.47% said that spiritual values do not help them understand difficulties in life, 12.65% said that spiritual values help them a little to understand difficulties in life, 35.43% said that spiritual values help them some to understand difficulties in life and 49.45% said that spiritual values help them a lot to understand difficulties in life.

Almost one third (32.97%) of the sample reported not attending religious services at all. Only 9.15% reported going to religious services once a year and 17.29% reported going 3 or 4 times per year. Only 11.58% reported going to religious services once a month and 29.01% reported going to religious services once a week.

The average level of tangible support was 13.02 on a scale from 0 to 16 where higher scores indicate more tangible support. The average level of affection received was 10.34 on a scale from 0 to 12 where higher scores indicate higher levels of affection. The average level of positive social interaction was 13.33 on a scale from 0 to 16 where higher scores indicate more positive social interaction. And finally, the average level of emotional support was 26.41 on a scale from 0 to 32 where higher scores indicate more social support.

Of the 31,311 respondents in the sample, 44.83% are male. The average age is between 45 and 49 years of age. The distribution of the variable that measures age in 5 year increments is skewed to the right with fewer respondents in the older age categories and most respondents in the younger age categories. The variable that measures marital status reveals that 51.33% of respondents identified as being married, 7.54% reported

being in a common-law relationship, 25.35% reported being either widowed, separated or divorced and 15.78% of respondents identified as single.

The distribution of the variable that measures total household income from all sources is skewed to the left with 0.23% reporting no income, 12.69% reporting an income less than $15,000, 20.49% reporting an income between $15,000 and $29,000, 23.87% reporting an income between $30,000 and $49,999, 23.88% reporting an income between $50,000 and $79,999, and 18.92% reporting an income of $80,000 or more.

Most respondents, 63.67%, reported obtaining their main source of household income from employment income. Only 5.06% identified as obtaining an income from worker's compensation. Almost one third (27.45%) of respondents reported obtaining a household income from seniors benefits and only 3.81% reported obtaining a household income from other sources.

Nearly three-quarters (75.82%) of respondents reported having a persistent medical condition diagnosed by a health professional that was expected to last or already had lasted 6 months or more. The variable that measures geographic region revealed that 19.28% of the sample came from the Atlantic provinces, 14.41% came from Quebec, 19.84% came from the Prairie provinces, only 10.72% came from British Columbia and 35.76% came from Ontario.

More than one quarter (26.64%) of respondents reported not having a complete secondary education. Nearly one fifth (17.13%) of respondents reported having a complete secondary education. Only 6.66% of respondents reported having some post-secondary education without a degree. And finally, nearly half (49.57%) of respondents reported having completed a post-secondary education.

4.2 Ordinary Least Squares Model Results

4.2.1 OLS Model Estimates for Psychological Well-being

Table 2 provides ordinary least squares estimates for psychological well-being with a dummy variable included that indicates whether or not respondents report spiritual values playing an important role in their lives. The model is statistically significant at $p<0.001$ ($F=113.50$, $df=17, 24531$) so at least one of the coefficients is not zero and the adjusted R^2 is 0.0723 so 7.23% of the variation in psychological well-being can be explained by the independent variables included in the model. Spiritual values have a statistically significant effect on psychological well-being at $p<0.05$ and since the coefficient is positive (i.e., 0.53), respondents who report that spiritual values play an important role in their lives tend to have a higher level of psychological well-being than respondents who report that spiritual values do not play an important role in their lives. Control variables in the model include age, sex, marital status, household income, main source of household income, geographic region, chronic conditions, religious service attendance and education.

Older respondents tend to have higher levels of psychological well-being ($p<0.001$). Men tend to have higher levels of psychological well-being than women ($p<0.01$). Single people ($p<0.001$) and widowed, separated and divorced people ($p<0.001$) tend to have lower levels of psychological well-being than married people. People in common-law relationships did not differ significantly from married people. People who report higher levels of income tend to have higher levels of psychological well-being ($p<0.001$). People who report a source of income other than seniors' benefits, worker's compensation and employment income have, on average, lower levels of psychological well-being than respondents who came from a household where the main source of income was employment income ($p<0.01$). Respondents from households where the main source of income was from worker's compensation tend to have lower levels of psychological

well-being than respondents who came from a household where the main source of income was employment income ($p<0.001$). Respondents from the Atlantic provinces ($p<0.001$) and Quebec ($p<0.001$) tend to have higher levels of psychological well-being than respondents from Ontario. Respondents from British Columbia tend to have lower levels of psychological well-being than respondents from Ontario ($p<0.01$). Respondents who report having a persistent medical condition diagnosed by a health professional tend to have lower levels of psychological well-being than respondents without a medical condition ($p<0.001$). Respondents who report attending religious services more frequently tend to report higher levels of psychological well-being ($p<0.001$).

Table 3 provides ordinary least squares estimates for psychological well-being with a scale variable included that measures the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives. The extent to which spiritual values provide strength, meaning and understanding in life has a statistically significant effect on psychological well-being ($p<0.001$) and since the coefficient is positive (i.e., 0.673), respondents who report spiritual values provide them with more strength, meaning and understanding in their lives also tend to have higher levels of psychological well-being. Control variables in the model again include age, sex, marital status, household income, main source of household income, geographic region, chronic conditions, religious service attendance and education. The model is statistically significant at $p<0.001$ ($F= 91.54$, $df=17, 17919$) so at least one of the coefficients is non-zero and the adjusted R^2 is 0.0790 so 7.90% of the variation in psychological well-being can be explained by the independent variables included in the model.

Age ($p<0.001$), sex ($p<0.01$), income ($p<0.001$) and religious service attendance ($p<0.001$) all have a positive effect on psychological well-being in this model. Single people ($p<0.001$), and widowed, separated and divorced people ($p<0.001$) all tend to have lower levels

Table 2. OLS regression estimates for psychological well-being with a dummy variable for spiritual values for Canadian adults 25 years of age and older, 2002.

Psychological well-being	Coefficients
Spiritual values play an important role	0.53 *
Age	0.85 ***
Male	0.49 **
Marital status	
Single	-2.51 ***
Widowed, separated, divorced	-2.18 ***
Common-law	-0.30
Married (reference)	
Total household income	0.82 ***
Household income main source	
Other	-1.69 **
Senior benefits	-0.23
Worker's compensation	-4.84 ***
Employment income (reference)	
Regions	
Atlantic provinces	1.67 ***
Quebec	1.14 ***
Prairie provinces	0.31
British Columbia	-1.01 **
Ontario (reference)	
Chronic conditions	-3.85 ***
Religious service attendance	0.62 ***
Education measured at 4 different levels	0.03
Constant	74.14 ***
R^2 (adjusted) = 0.0723	

***p<0.001, **p<0.01, *p<0.05

Table 3. OLS regression estimates for psychological well-being of adults 25 years of age and older, 2002.

Psychological well-being	Coefficients
Spirituality scale	0.673 ***
Age	0.776 ***
Male	0.595 **
Marital status	
Single	-2.495 ***
Widowed, separated, divorced	-2.037 ***
Common-law	-0.423
Married (reference)	
Total household income	0.878 ***
Household income main source	
Other	-1.780 **
Senior benefits	0.050
Worker's compensation	-4.760 ***
Employment income	
Regions	
Atlantic provinces	1.954 ***
Quebec	0.883 **
Prairie provinces	0.369
British Columbia	-1.320 ***
Ontario	
Chronic conditions	-3.979 ***
Religious service attendance	0.325 ***
Education measured at 4 different levels	-0.041
Constant	69.024 ***
R^2 (adjusted) = 0.0790	

***p<0.001, **p<0.01, *p<0.05

of psychological well-being than married people. Individuals from households with alternative sources of income ($p<0.01$) and people from households where the main source of income was worker's compensation ($p<0.001$) tend to have lower levels of psychological well-being than respondents from households where the main source of income is employment income. Respondents from the Atlantic provinces ($p<0.001$) and Quebec ($p<0.01$) again tend to have higher levels of psychological well-being than respondents from Ontario, and British Columbians ($p<0.01$) tend to have lower levels of psychological well-being than respondents from Ontario. Respondents who report having a persistent medical condition diagnosed by a health professional tend to have lower levels of psychological well-being than respondents without a medical condition ($p<0.001$). Respondents who report attending religious services more frequently tend to have higher levels of psychological well-being ($p<0.001$). Education did not have a statistically significant effect on psychological well-being in this model.

Table 4 presents nested ordinary least squares regression models for psychological well-being. When the variable that measures how much affection respondents report receiving is included in the base model described above, the sign of the coefficients for single people and for widowed, separated and divorced people change from negative to positive. This implies that when we control for the affection respondents report receiving, single people ($p<0.001$) and widowed, separated and divorced people ($p<0.01$) report higher levels of psychological well-being, on average, than married people. Respondents who report receiving more affection tend to have higher levels of psychological well-being ($p<0.001$). Variance inflation factors calculated for all the independent variables included in the model reveal no values greater than 10 when the variable measuring affection is included in the model. The adjusted R^2 for the model increases from 0.0790 to 0.180 when the variable measuring the amount of affection respondents receive is

Table 4. Nested OLS regression models for psychological well-being of adults 25 years of age and older, 2002.

Psychological well-being	Model 1	Model 2	Model 3	Model 4	Model 5
Spirituality scale	0.673 ***	0.522 ***	0.525 ***	0.504 ***	0.485 ***
Age	0.776 ***	0.890 ***	0.872 ***	0.873 ***	0.878 ***
Male	0.595 **	1.158 ***	0.911 ***	0.780 ***	0.864 ***
Marital status					
Single	-2.495 ***	1.541 ***	1.787 ***	1.193 ***	1.020 **
Widowed, separated, divorced	-2.037 ***	0.707 **	1.047 ***	0.965 ***	0.769 **
Common-law	-0.423	-0.610	-0.529	-0.712	-0.657
Married (reference)					
Total household income	0.878 ***	0.471 ***	0.431 ***	0.371 ***	0.365 ***
Household income main source					
Other	-1.780 **	-1.849 **	-1.856 **	-1.823 **	-1.807 **
Senior benefits	0.050	-0.404	-0.515	-0.515	-0.488
Worker's compensation	-4.760 ***	-3.546 ***	-3.471 ***	-3.271 ***	-3.243 ***
Employment income					
Regions					
Atlantic provinces	1.954 ***	1.680 ***	1.522 ***	1.579 ***	1.545 ***
Quebec	0.883 **	1.586 ***	1.396 ***	0.988 **	1.062 ***
Prairie provinces	0.369	0.396	0.388	0.391	0.361
British Columbia	-1.320 **	-1.115 **	-0.953 **	-0.621	-0.601
Ontario					
Chronic conditions	-3.979 ***	-3.825 ***	-3.748 ***	-3.629 ***	-3.628 ***
Religious service attendance	0.325 ***	0.260 ***	0.259 ***	0.253 ***	0.262 ***
Education measured at 4 different levels	-0.041	0.013	0.054	0.013	0.017
Affection		2.038 ***	1.655 ***	0.429 ***	0.313 ***
Tangible support			0.405 ***	-0.068	-0.137 **
Positive social interaction				1.588 ***	1.373 ***
Emotional support					0.209 ***
Constant	69.024 ***	48.377 ***	47.231 ***	45.594 ***	45.167 ***
R^2 (adjusted)	0.0790	0.1796	0.185	0.226	0.229

***p<0.001, **p<0.01, *p<0.05

included in the model. So, more than twice the variation in psychological well-being can be explained when the variable measuring affection is included in the model.

When the variable measuring the amount of tangible support that respondents report receiving is included in the model along with affection, the adjusted R^2 for the model increases again but this time it is less dramatically from 0.180 to 0.185. Respondents who report receiving more tangible support tend to have higher levels of psychological well-being ($p<0.001$). Variance inflation factors calculated for all the independent variables in the model reveal no values greater than 10 when the variable measuring tangible support is included in the model. This means that collinearity is not an issue for the independent variables included in the model.

When the variable measuring the amount of positive social interaction that respondents are involved in is included in the model, the adjusted R^2 for the model increases again from 0.185 to 0.226 so an additional 4.1% of the variation in psychological well-being can be explained when positive social interaction is included in the model. Respondents who report being involved in more positive social interaction tend to have higher levels of psychological well-being ($p<0.001$). The amount of tangible support that respondents report receiving no longer has a statistically significant effect on psychological well-being when positive social interaction is included in the model. However, variance inflation factors calculated for all the independent variables included in the model reveal no values greater than 10 when the variable measuring positive social interaction is included in the model. This means that collinearity is not an issue for the independent variables included in the model.

When the variable measuring the amount of emotional and informational support respondents report receiving is added to the model, the adjusted R^2 for the model increases from 0.2260 to 0.2286. Respondents who report receiving more emotional and informational support tend to have higher levels of psychological well-being ($p<0.001$). The amount of tangible

support that respondents report receiving has a statistically significant effect on psychological well-being when emotional and informational support is included in the model. Variance inflation factors again reveal no values greater than 10 when the variable measuring emotional and informational support is included in the model. This means that collinearity is not an issue for the independent variables included in the model.

4.2.2 OLS Model Estimates for Self-Rated Mental Health

Table 5 provides ordinary least squares estimates for self-rated mental health with a scale variable included that measures the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives. The model is statistically significant at $p<0.001$ ($F= 76.25$, $df=17,18198$) so at least one of the coefficients is not zero and the adjusted R^2 is 0.0656 so 6.56% of the variation in self-rated mental health can be explained by the independent variables included in the model. Spiritual values have a statistically significant effect on self-rated mental health ($p<0.001$) and since the coefficient is positive (i.e. 0.0252), respondents who report spiritual values provide them with more strength, meaning and understanding in their lives also tend to have higher levels of self-rated mental health. Control variables in the model again include age, sex, marital status, household income, main source of household income, geographic region, chronic conditions, religious service attendance and education.

Age ($p<0.001$), sex ($p<0.05$), income ($p<0.001$), religious service attendance ($p<0.001$) and education ($p<0.001$) all have a positive effect on self-rated mental health in this model. Single people ($p<0.01$), and widowed, separated and divorced people ($p<0.001$) all tend to report lower levels of self-rated mental health than married people. People in common-law relationships did not differ significantly from married people. Individuals from households with alternative

Table 5. OLS Regression estimates for self-rated mental health for Canadian adults 25 years of age and older, 2002.

Self-rated mental health	Coefficients	
Spirituality scale	0.0252	***
Age	0.0206	***
Male	0.0367	*
Marital status		
Single	-0.0680	**
Widowed, separated, divorced	-0.0802	***
Common-law	-0.0554	
Married (reference)		
Total household income	0.0785	***
Household income main source		
Other	-0.0800	*
Senior benefits	0.0207	
Worker's compensation	-0.3155	***
Employment income		
Regions		
Atlantic provinces	-0.0061	
Quebec	0.0825	***
Prairie provinces	-0.0788	***
British Columbia	-0.1225	***
Ontario		
Chronic conditions	-0.3166	***
Religious service attendance	0.0166	***
Education measured at 4 different levels	0.0432	***
Constant	3.2144	***
R^2 (adjusted) = 0.0656		

***p<0.001, **p<0.01, *p<0.05

sources of income ($p<0.05$) and people from households where the main source of income was worker's compensation ($p<0.001$) tend to report lower levels of self-rated mental health than respondents from households where the main source of income is employment income. Respondents from the Atlantic provinces did not differ significantly from respondents from Ontario. Respondents from Quebec ($p<0.01$) tend to report higher levels of self-rated mental health than respondents from Ontario, and British Columbians ($p<0.01$) and respondents from the Prairie provinces tend to report lower levels of self-rated mental health than respondents from Ontario. Respondents who report having a persistent medical condition diagnosed by a health professional tend to report lower levels of self-rated mental health than respondents without a medical condition ($p<0.001$). Respondents who report attending religious services more frequently tend to report higher levels of self-rated mental health ($p<0.001$). Respondents who report having higher levels of education tend to report higher levels of self-rated mental health in this model ($p<0.001$).

Table 6 presents nested ordinary least squares regression models for self-rated mental health. When the variable that measures how much affection respondents report receiving is included in the base model described above, the sign of the coefficient for single people changes from negative to positive. This implies that when we control for the affection respondents report receiving, single people ($p<0.001$) report higher levels of self-rated mental health, on average, than married people. Widowed, separated and divorced people no longer differ significantly from married people in terms of self-rated mental health when the variable that measures affection is included in the model. However, individuals in common-law relationships now differ significantly from married people when we control for the amount of affection that respondents report receiving. People in common-law relationships tend to report lower levels of self-rated mental health than married people when we control for affection ($p<0.05$). Respondents who

Table 6. Nested OLS Regression models for self-rated mental health for adults 25 years of age and older, 2002.

Self-rated mental health	Model 1	Model 2	Model 3	Model 4	Model 5
Spirituality scale	0.0252 ***	0.0195 ***	0.0195 ***	0.0188 ***	0.0179 ***
Age	0.0206 ***	0.0250 ***	0.0240 ***	0.0243 ***	0.0244 ***
Male	0.0367 *	0.0583 ***	0.0432 **	0.0399 **	0.0432 **
Marital status					
Single	-0.0680 **	0.0920 ***	0.1036 ***	0.0826 ***	0.0756 **
Widowed, separated, divorced	-0.0802 ***	0.0250	0.0438 *	0.0401 *	0.0319
Common-law	-0.0554	-0.0669 *	-0.0623 *	-0.0688 *	-0.0663 *
Married (reference)					
Total household income	0.0785 ***	0.0612 ***	0.0587 ***	0.0562 ***	0.0560 ***
Household income main source					
Other	-0.0800 *	-0.0833 *	-0.0807 *	-0.0814 *	-0.0789 *
Senior benefits	0.0207	0.0058	0.0000	-0.0016	0.0000
Worker's compensation	-0.3155 ***	-0.2698 ***	-0.2654 ***	-0.2599 ***	-0.2555 ***
Employment income					
Regions					
Atlantic provinces	-0.0061	-0.0178	-0.0250	-0.0217	-0.0230
Quebec	0.0825 ***	0.1115 ***	0.1009 ***	0.0872 ***	0.0887 ***
Prairie provinces	-0.0788 ***	-0.0767 ***	-0.0757 ***	-0.0760 ***	-0.0783 ***
British Columbia	-0.1225 ***	-0.1180 ***	-0.1072 ***	-0.0945 ***	-0.0952 ***
Ontario					
Chronic conditions	-0.3166 ***	-0.3100 ***	-0.3059 ***	-0.3021 ***	-0.3023 ***
Religious service attendance	0.0166 ***	0.0142 **	0.0142 **	0.0141 **	0.0141 **
Education measured at 4 different levels	0.0432 ***	0.0452 ***	0.0470 ***	0.0459 ***	0.0459 ***
Affection		0.0805 ***	0.0596 ***	0.0173 ***	0.0123 *
Tangible support			0.0222 ***	0.0061 *	0.0033
Positive social interaction				0.0545 ***	0.0455 ***
Emotional support					0.0088 ***
Constant	3.2144 ***	2.4037 ***	2.3447 ***	2.2877 ***	2.2727 ***
R^2 (adjusted)	0.0656	0.1027	0.1061	0.1179	0.1187

***p<0.001, **p<0.01, *p<0.05

report receiving more affection tend to report higher levels of self-rated mental health ($p<0.001$). Variance inflation factors calculated for all the independent variables included in the model reveal no values greater than 10 when the variable measuring affection is included in the model. The adjusted R^2 for the model increases from 0.0656 to 0.1027 when the variable measuring the amount of affection respondents receive is included in the model. So, 3.71% more of the variation in self-rated mental health can be explained when the variable measuring affection is included in the model.

When the variable measuring the amount of tangible support that respondents report receiving is included in the model along with affection, the adjusted R^2 for the model increases again but this time it is less dramatically from 0.1027 to 0.1061. Respondents who report receiving more tangible support tend to report higher levels of self-rated mental health ($p<0.001$). Widowed, separated and divorced people now differ significantly from married people in terms of self-rated mental health when we control for the amount of tangible support that respondents report receiving. Interestingly, widowed, separated and divorced people report higher levels of self-rated mental health when we control for the amount of tangible support received ($p<0.05$). Variance inflation factors calculated for all the independent variables in the model reveal no values greater than 10 when the variable measuring tangible support is included in the model.

When the variable measuring the amount of positive social interaction that respondents are involved in is included in the model, the adjusted R^2 for the model increases again from 0.1061 to 0.1179 so an additional 1.18% of the variation in self-rated mental health can be explained when positive social interaction is included in the model. Respondents who report being involved in more positive social interaction tend to report higher levels of self-rated mental health ($p<0.001$). Variance inflation factors calculated for all the independent variables included

in the model reveal no values greater than 10 when the variable measuring positive social interaction is included in the model.

When the variable measuring the amount of emotional and informational support respondents report receiving is also included in the model, the adjusted R^2 for the model increases from 0.1179 to 0.1187. Respondents who report receiving more emotional and informational support tend to report higher levels of self-rated mental health ($p<0.001$). The amount of tangible support that respondents report receiving no longer has a statistically significant effect on self-rated mental health when emotional and informational support is included in the model. Variance inflation factors again reveal no values greater than 10 when the variable measuring emotional and informational support is included in the model. This means that collinearity is not an issue for the independent variables included in the model.

4.2.3 OLS Model Estimates for Depressive Symptomatology

Table 7 provides ordinary least squares estimates for depressive symptoms with a scale variable included that measures the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives. The model is statistically significant at $p<0.001$ ($F= 64.69$, $df=17, 17885$) so at least one of the coefficients is not zero and the adjusted R^2 is 0.0570 so 5.70% of the variation in depressive symptoms can be explained by the independent variables included in the model. The extent to which spiritual values provide respondents with strength, meaning and understanding in their lives has a statistically significant effect on depressive symptomology ($p<0.001$) and since the coefficient is positive, respondents who report spiritual values providing them with more strength, meaning and understanding in their lives also tend to exhibit more depressive symptoms. Control variables in the model again

Table 7. OLS Regression estimates for depressive symptomology for Canadian adults 25 years of age and older, 2002.

Depressive symptomology scale	**Coefficients**
Spirituality scale	0.0546 ***
Age	-0.1221 ***
Male	-0.2501 ***
Marital status	
Single	0.1983 **
Widowed, separated, divorced	0.5835 ***
Common-law	0.1984 *
Married (reference)	
Total household income	-0.0538 **
Household income main source	
Other	0.2762 **
Senior benefits	-0.1220
Worker's compensation	0.6082 ***
Employment income	
Regions	
Atlantic provinces	-0.0059
Quebec	0.4006 ***
Prairie provinces	0.0470
British Columbia	0.2392 ***
Ontario	
Chronic conditions	0.6492 ***
Religious service attendance	-0.0676 ***
Education measured at 4 different levels	0.0627 ***
Constant	0.9338 ***
R^2 (adjusted) = 0.0570	

***p<0.001, **p<0.01, *p<0.05

include age, sex, marital status, total household income, main source of household income, geographic region, chronic conditions, religious service attendance and education.

Age ($p<0.001$), sex ($p<0.001$), income ($p<0.01$) and religious service attendance ($p<0.001$) all have a negative effect on depressive symptoms in this model. So, older respondents, men, people who make more money and people who attend religious services more frequently tend to exhibit fewer depressive symptoms. Education has a positive effect on depressive symptomatology so respondents with more education tend to exhibit more depressive symptoms ($p<0.001$). Single people ($p<0.01$), widowed, separated and divorced people ($p<0.001$), and people in common-law relationships ($p<0.05$) all tend to exhibit more depressive symptoms than married people. Individuals from households with alternative sources of income ($p<0.001$) and people from households where the main source of income was worker's compensation ($p<0.001$) tend to exhibit more depressive symptoms than respondents from households where the main source of income is employment income. Respondents from the Atlantic provinces did not differ significantly from respondents from Ontario. Respondents from Quebec ($p<0.001$) and British Columbia ($p<0.001$) tend to exhibit more depressive symptoms than respondents from Ontario. Respondents who report having a persistent medical condition diagnosed by a health professional tend to exhibit more depressive symptoms than respondents without a medical condition ($p<0.001$).

4.3 Binary Logistic Regression Model Results

4.3.1 Predicting Major Depressive Episodes in the Past Year

Table 8 presents binary logistic model estimates of experiencing a major depressive episode in the 12 months prior to data collection for Canadians 25 years of age and older in 2002. The extent to which spiritual values provide respondents with strength, meaning and

Table 8. Binary logistic model estimates of major depressive episodes in the 12 months prior to data collection for Canadians 25 years of age and older, 2002.

Major depressive episode	**Coefficients**
Spirituality scale	0.0170
Age	-0.1626 ***
Male	-0.2060 **
Marital status	
Common-law	0.1025
Widowed, separated, divorced	0.8335 ***
Single	0.2521 *
Married (reference)	
Total household income	-0.1550 ***
Household income main source	
Worker's compensation	0.6824 ***
Senior benefits	-0.0874
Other	0.3943 **
Employment income (reference)	
Regions	
Atlantic provinces	-0.1735
Quebec	0.1525
Prairie provinces	0.0070
British Columbia	0.1369
Ontario	
Chronic conditions	1.1470 ***
Religious service attendance	-0.0950 ***
Education measured at 4 different levels	0.0699 *
Constant	-2.5987 ***
Psuedo R^2 = 0.0853	

***p<0.001, **p<0.01, *p<0.05

understanding in their lives does not have a statistically significant effect on whether or not they experienced a major depressive episode in the 12 months prior to data collection. This means that the observed effect could be due to random chance.

4.3.2 Predicting Major Depressive Episodes in the Past Year without Control Variables for Age and Religious Service Attendance

Table 9 presents binary logistic model estimates of experiencing a major depressive episode in the 12 months prior to data collection for Canadians 25 years of age and older in 2002 without control variables for age and religious service attendance included in the model. The extent to which spiritual values provide respondents with strength, meaning and understanding in their lives now has a statistically significant effect on whether or not they experienced a major depressive episode in the 12 months prior to their interview with Statistics Canada ($p<0.001$). This implies that age, religious service attendance and spirituality are confounding variables. The observed effect of spirituality in this model may actually be a result of age and religious service attendance rather than spirituality.

Sex ($p<0.01$), income ($p<0.001$), chronic conditions ($p<0.001$) and education ($p<0.01$) all have a statistically significant effect on whether or not respondents experienced a major depressive episode in the past 12 months. People in common-law relationships ($p<0.05$), widowed, separated and divorced people ($p<0.001$) and single people ($p<0.001$) all differed significantly from married people in terms of whether or not they experienced a major depressive episode. Respondents from households where the main source of income was worker's compensation ($p<0.001$) and respondents from households where the main source of income was seniors' benefits ($p<0.001$) differed significantly from respondents who came from households where the main source of income was employment income. Respondents who reported alternative

Table 9. Binary logistic model estimates of major depressive episodes in the 12 months prior to data collection for Canadians 25 years of age and older, 2002.

Major depressive episode	Coefficients	
Spirituality scale	-0.0506	**
Male	-0.2421	**
Marital status		
Common-law	0.3716	*
Widowed, separated, divorced	0.7139	***
Single	0.7340	***
Married (reference)		
Total household income	-0.1932	***
Household income main source		
Worker's compensation	0.5774	***
Senior benefits	-0.9668	***
Other	0.1287	
Employment income (reference)		
Regions		
Atlantic provinces	-0.1605	
Quebec	0.1047	
Prairie provinces	0.0491	
British Columbia	0.2065	
Ontario		
Chronic conditions	1.1445	***
Education measured at 4 different levels	0.0854	***
Constant	-3.0038	***
Psuedo R^2 = 0.0771		

***p<0.001, **p<0.01, *p<0.05

sources of income did not differ significantly from respondents who came from households where the main source of income was employment income. Respondents from all four regions did not differ significantly from respondents from Ontario in terms of major depressive episode prevalence rates in the past 12 months.

The coefficients for the variables included in the binary logistic regression model are log-odds ratios of experiencing a major depressive episode in the past 12 months over not experiencing a major depressive episode in the past 12 months. In order to make these numbers easier to interpret, expected proportions and expected probabilities were calculated.

Table 10 provides odds ratios and expected probabilities of experiencing a major depressive episode for different values of the independent variables in the model that have a statistically significant effect on the dependent variable. Respondents who report that spiritual values provide them with more strength, meaning and understanding have a lower probability of experiencing a major depressive episode in the 12 months prior to data collection. Women have a higher probability than men of experiencing a major depressive episode. Single people have the highest probability of experiencing a major depressive episode, at 5.71%, compared to people in all other marital status categories. Widowed, separated and divorced people have the next highest probability of experiencing a major depressive episode, at 5.61%, followed by people in common-law relationships at 4.05%. Married people have the lowest chance of experiencing a major depressive episode at 2.83%. Individuals who reported higher levels of household income tend to have a lower chance of experiencing a major depressive episode. People who report that their main source of household income comes from worker's compensation have the highest probability of experiencing a major depressive episode, at 8.29%, compared to respondents from households where the main source of income is derived from employment income. Individuals from households where the main source of income comes from seniors' benefits have the lowest

Table 10. Odds ratios and expected probabilities of experiencing a major depressive episode for Canadians 25 years of age and older, 2002.

Spirituality Scale	Log-odds	Odds	Probability	1-Probability
4	-2.9016	0.0549	0.0521	0.9479
6	-3.0028	0.0497	0.0473	0.9527
8	-3.1039	0.0449	0.0429	0.9571
10	-3.2051	0.0406	0.0390	0.9610
12	-3.3063	0.0367	0.0354	0.9646
Sex	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Men	-3.3460	0.0352	0.0340	0.9660
Women	-3.1039	0.0449	0.0429	0.9571
Marital Status	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Common-Law	-3.1657	0.0422	0.0405	0.9595
Widowed, Separated, Divorced	-2.8234	0.0594	0.0561	0.9439
Single	-2.8033	0.0606	0.0571	0.9429
Married	-3.5373	0.0291	0.0283	0.9717
Income	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Less than $15,000	-2.7964	0.0610	0.0575	0.9425
$30,000-$49,000	-3.1828	0.0415	0.0398	0.9602
$80,000 and more	-3.5693	0.0282	0.0274	0.9726
Source of household income	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Worker's Compensation	-2.4038	0.0904	0.0829	0.9171
Seniors' Benefits	-3.9480	0.0193	0.0189	0.9811
Emploment income	-2.9812	0.0507	0.0483	0.9517
Chronic Condition	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Yes	-2.9357	0.0531	0.0504	0.9496
No	-4.0802	0.0169	0.0166	0.9834
Education	**Log-odds**	**Odds**	**Probability**	**1-Probability**
Less than Highschool	-3.3654	0.0345	0.0334	0.9666
Highschool Graduate	-3.2800	0.0376	0.0363	0.9637
Some Post-secondary	-3.1947	0.0410	0.0394	0.9606
Post-secondary Graduate	-3.1093	0.0446	0.0427	0.9573

chance of experiencing a major depressive episode at 1.89%. Individuals from households where the main source of income is derived from employment income have a 4.83% chance of experiencing a major depressive episode. Respondents who reported having a persistent medical condition had a 5.04% chance of experiencing a major depressive episode when all the other variables in the model are held at their average. Alternatively, respondents who did not report having a persistent medical condition have a 1.66% probability of experiencing a major depressive episode. Respondents with higher levels of education had a higher chance of experiencing a major depressive episode.

4.4 Interaction Results

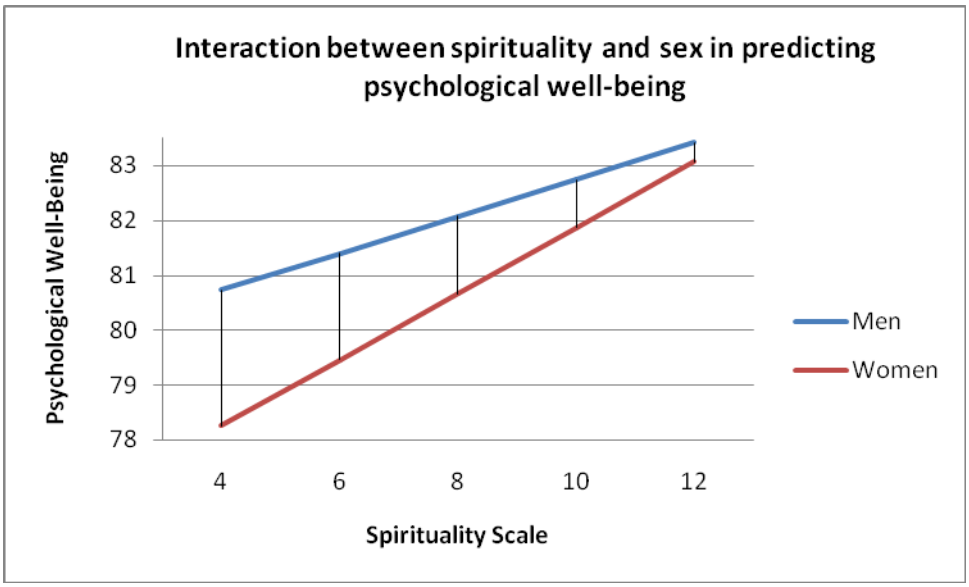
All of the interaction effects were tested for statistical significance and only statistically significant interaction results are presented below. The most common interaction effects tested in the existing literature are between spirituality and sex as well as spirituality and age (Greenfield, Vaillant and Marks, 2009; Krause, Ingersoll-Dayton and Liang, 1999; Krause et al., 1999; Ellison, 1991; McCullough and Laurenceau, 2005). However, interaction effects between spiritual engagement and all of the control variables in the models were tested in this study.

4.4.1 Interaction Results in OLS Models for Psychological Well-being

Figure 1 presents interaction results between the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives and sex in predicting psychological well-being. Men tend to have higher levels of psychological well-being, on average, than women but the difference between men and women's psychological well-being converge when both groups report spiritual values provide them with more strength, meaning and understanding in life. That is, the difference between men and women's psychological well-being is greater when respondents report spiritual values provide them with less strength, meaning and

Figure 1. Interaction between spirituality and sex in predicting psychological well-being.

Spirituality Scale	Men	Women
4	80.73	78.25
6	81.40	79.46
8	82.08	80.66
10	82.75	81.87
12	83.42	83.07

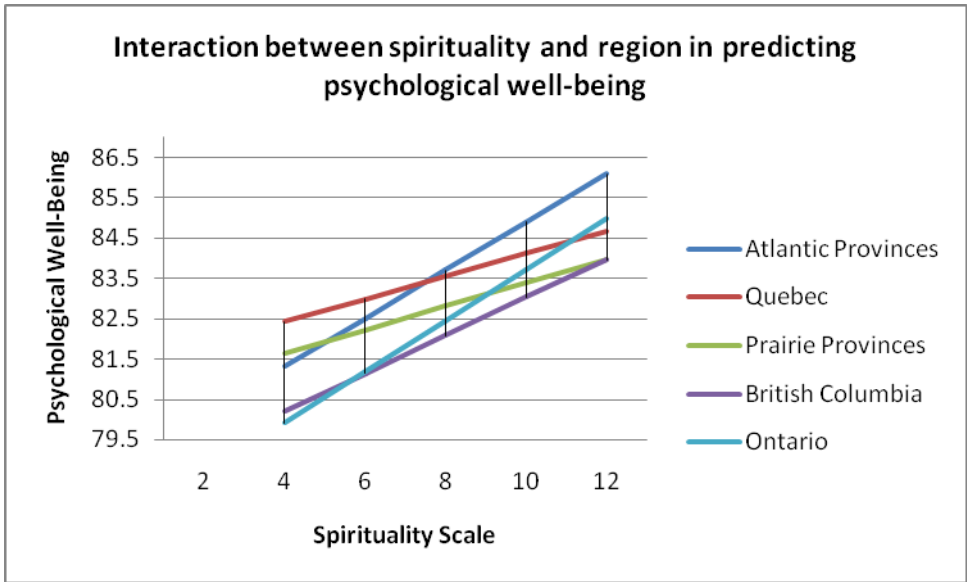


understanding in their lives and the difference is smaller when respondents report spiritual values provide them with more strength, meaning and understanding in their lives.

Figure 2 displays interaction results between the strength, meaning and understanding spiritual values provide respondents in their lives and geographic region in predicting psychological well-being. At the lowest levels of strength, meaning and understanding, respondents from Ontario display the lowest levels of psychological well-being. However, at the highest levels of strength, meaning and understanding, respondents from Ontario display the second highest levels of psychological well-being crossing with all other groups except respondents from the Atlantic provinces. British Columbians display the second lowest level of psychological well-being at the lowest level of strength, meaning and understanding. However, at the highest level of strength, meaning and understanding, British Columbians converge with respondents from the Prairie provinces to exhibit the lowest levels of psychological well-being. At the lowest level of strength, meaning and understanding, respondents from the Atlantic provinces exhibit the third lowest level of psychological well-being. However, at the highest level of strength, meaning and understanding, respondents from the Atlantic provinces exhibit the highest level of psychological well-being crossing over with respondents from Quebec and the Prairie provinces. Respondents from the Prairie provinces exhibit the second highest level of psychological well-being at the lowest level of strength, meaning and understanding. Respondents from the Prairie provinces cross over with respondents from the Atlantic provinces and Ontario to display the lowest level of psychological well-being at the highest level of spiritual values providing strength, meaning and understanding in life. Respondents from Quebec display the highest level of psychological well-being at the lowest level of spiritual values providing strength, meaning and understanding in life. At the highest level of spiritual values providing strength, meaning and understanding, however, respondents from Quebec have the

Figure 2. Interaction between spirituality and region in predicting psychological well-being.

	Spirituality Scale				
Region	**4**	**6**	**8**	**10**	**12**
Atlantic Provinces	81.31	82.51	83.70	84.90	86.10
Quebec	82.43	83.00	83.56	84.12	84.68
Prairie Provinces	81.65	82.23	82.81	83.39	83.96
British Columbia	80.19	81.14	82.09	83.03	83.98
Ontario	79.91	81.18	82.44	83.71	84.98



third highest level of psychological well-being crossing over with respondents from the Atlantic provinces and Ontario.

Figure 3 displays interaction results between the extent to which spiritual values provide respondents with strength, meaning and understanding in life and the tangible social support respondents report receiving. The interaction reveals a cross-over pattern between spiritual values and tangible social support in predicting psychological well-being. At the lowest levels of spiritual values providing strength, meaning and understanding, respondents who report the lowest level of tangible support also display the lowest level of psychological well-being. However, at the highest level of spiritual values providing strength, meaning and understanding, respondents who report the lowest level of tangible social support display the highest level of psychological well-being. Conversely, at the lowest level of spiritual values providing strength, meaning and understanding, respondents who report the highest level of tangible support also display the highest level of psychological well-being; but at the highest level of spiritual values providing strength, meaning and understanding, respondents who report the highest level of tangible support display the lowest level of psychological well-being.

Figure 4 displays the interaction results between the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives and the amount of affection that respondents report receiving. The results reveal a converging pattern where the differences between psychological well-being are the greatest at the lowest level of spiritual values providing strength, meaning and understanding for all levels of affection received; and the differences in psychological well-being are the smallest at the highest level of spiritual values providing strength, meaning and understanding for all levels of affection received. Respondents who report receiving the least amount of affection consistently display the lowest level of psychological well-being but the effects of spirituality are the most pronounced for respondents

Figure 3. Interaction between spirituality and tangible social support in predicting psychological well-being.

	Spirituality Scale				
Tangible Social Support	**4**	**6**	**8**	**10**	**12**
Low support	77.59	79.53	81.48	83.42	85.36
Low to Medium	78.37	79.89	81.41	82.92	84.44
Medium to high	79.16	80.25	81.34	82.43	83.52
High support	79.94	80.60	81.27	81.93	82.59

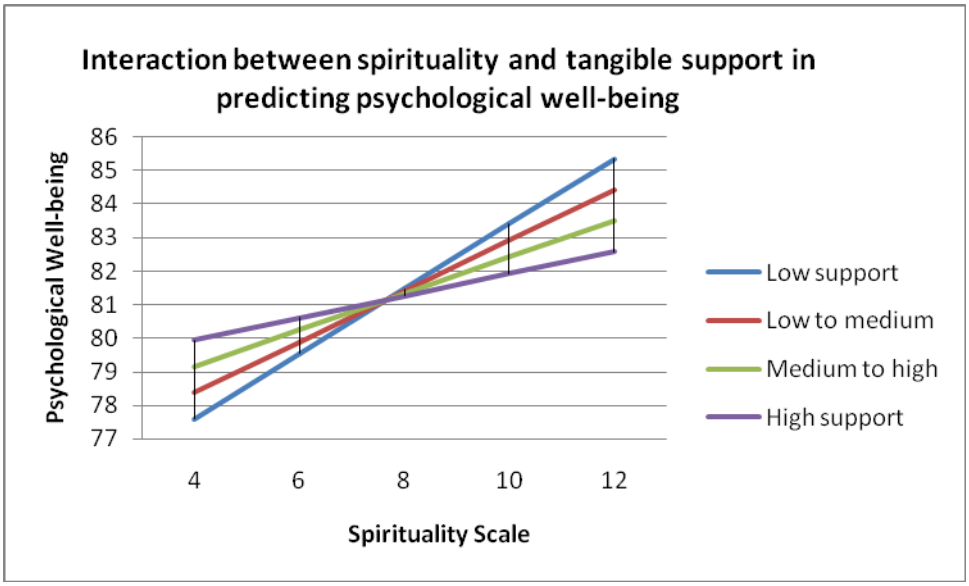
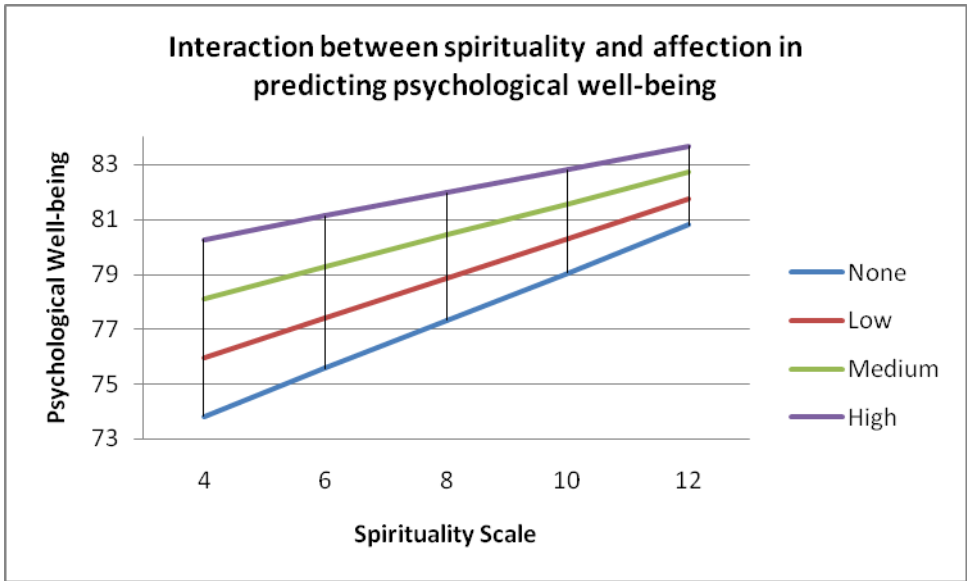


Figure 4. Interaction between spirituality and affection in predicting psychological well-being.

	Spirituality Scale				
Affection	**4**	**6**	**8**	**10**	**12**
None	73.83	75.57	77.31	79.06	80.80
Low	75.98	77.42	78.87	80.31	81.76
Medium	78.12	79.27	80.42	81.57	82.72
High	80.27	81.12	81.97	82.82	83.67



who report receiving the least amount of affection. That is, the strength, meaning and understanding that spiritual values provide respondents has the greatest pay off, in terms of psychological well-being, for respondents who report receiving the least amount of affection.

Figure 5 displays the interaction results between the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives and positive social contact in predicting psychological well-being. The results reveal a modest converging pattern where the differences between psychological well-being are the greatest at the lowest level of spiritual values providing strength, meaning and understanding for all levels of positive social contact; and the differences in psychological well-being are the smallest at the highest level of spiritual values for all levels of positive social contact. Respondents who report the lowest level of positive social contact consistently display the lowest level of psychological well-being and respondents who report more positive social contact consistently show higher levels of psychological well-being. However, the effects of the strength, meaning and understanding that spiritual values provide respondents in life are the most pronounced for respondents who report receiving the least amount of positive social contact. That is, the strength, meaning and understanding that respondents report spiritual values afford them have the greatest effect for respondents who report the least amount of positive social contact and the least effect for respondents who report the most amount of positive social contact.

Figure 6 displays the interaction results between the extent to which spiritual values provide respondents with strength, meaning and understanding in their lives and emotional and informational support in predicting psychological well-being. The results reveal a converging pattern where the differences between psychological well-being are the greatest at the lowest level of spiritual values providing strength, meaning and understanding for all levels of emotional and informational support; and the differences in psychological well-being are the smallest at the

Figure 5. Interaction between spirituality and positive social contact in predicting psychological well-being.

	Spirituality Scale				
Positive Social Contact	**4**	**6**	**8**	**10**	**12**
Low	63.57	65.50	67.42	69.35	71.28
Low to medium	70.35	71.87	73.39	74.91	76.42
Medium to high	77.13	78.24	79.35	80.46	81.57
High	83.91	84.61	85.31	86.02	86.72

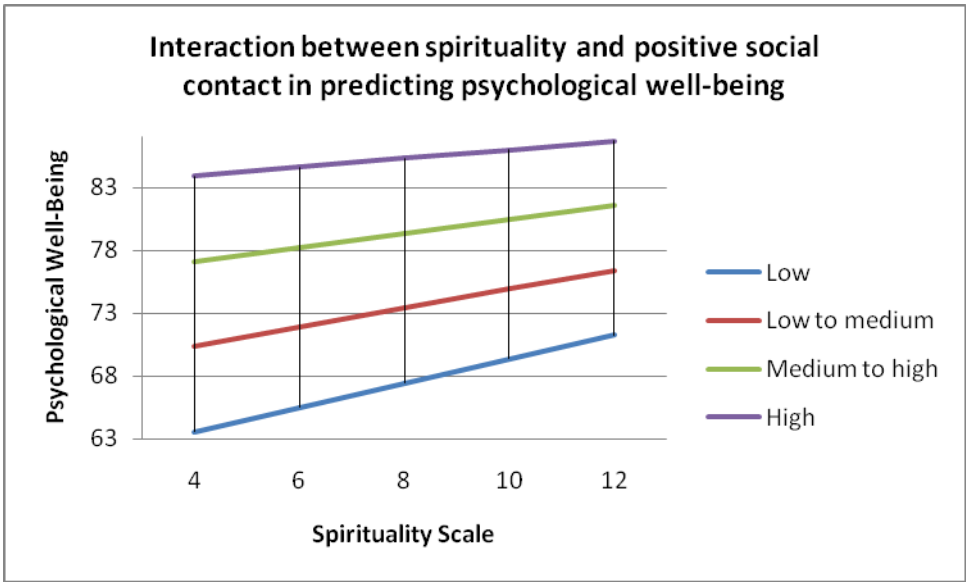
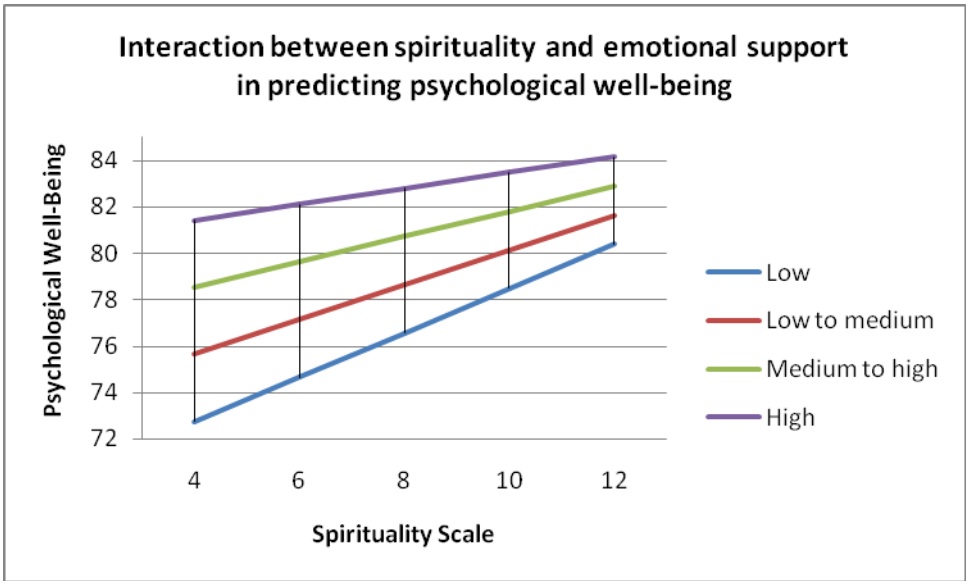


Figure 6. Interaction between spirituality and emotional support in predicting psychological well-being.

	Spirituality Scale				
Emotional Support	**4**	**6**	**8**	**10**	**12**
Low	72.74	74.65	76.57	78.48	80.39
Low to medium	75.63	77.13	78.64	80.15	81.65
Medium to high	78.52	79.62	80.71	81.81	82.91
High	81.41	82.10	82.79	83.48	84.17

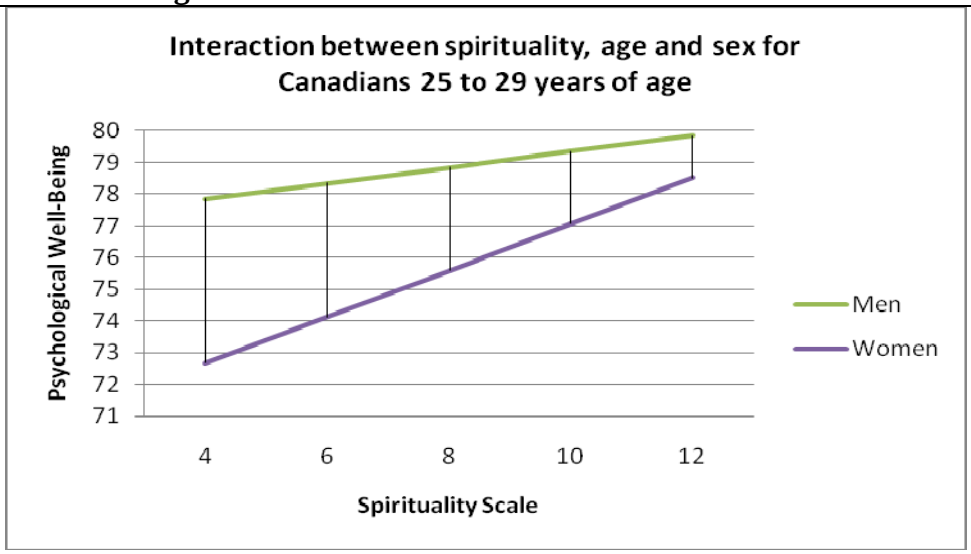


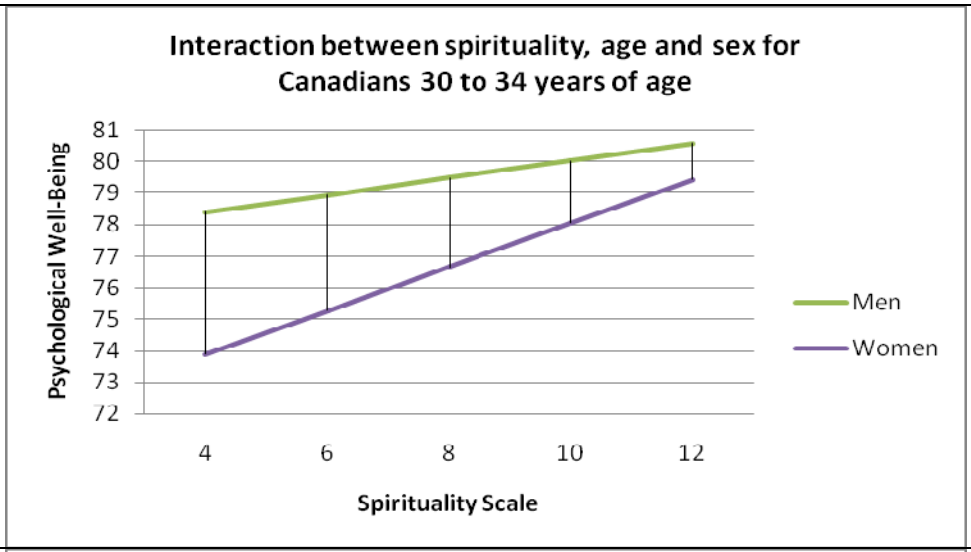
highest level of spiritual values providing strength, meaning and understanding for all levels of emotional and informational support. Respondents who report the lowest level of emotional and informational support consistently display the lowest level of psychological well-being and respondents who report more emotional support show higher levels of psychological well-being. However, the strength, meaning and understanding that respondents report spiritual values afford them have the most pronounced effect for respondents who report the least amount of emotional and informational support and the least effect for respondents who report the most amount of emotional and informational support.

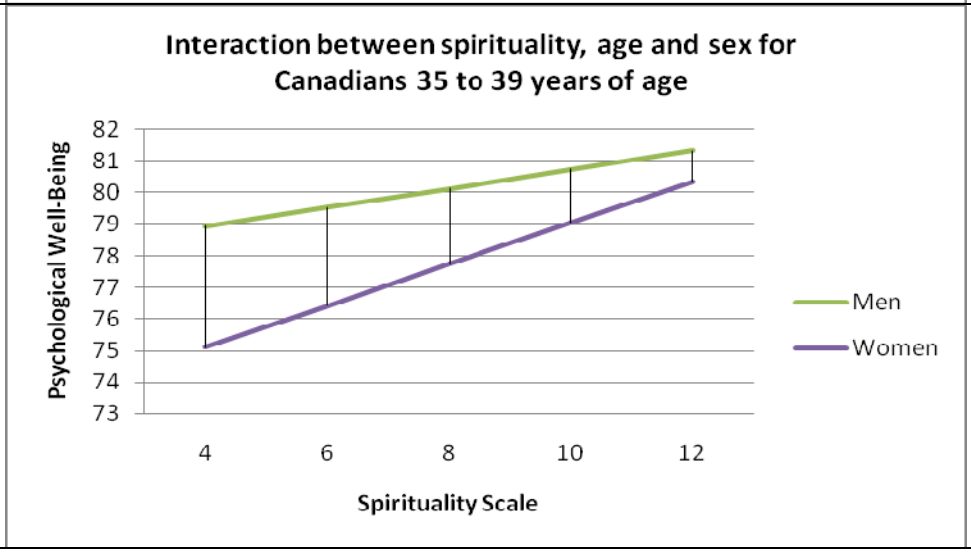
Figure 7 displays the three-way interaction results for spiritual values, age and sex in predicting psychological well-being. The interaction reveals a converging pattern for men and women in every age group with a greater difference between men and women's psychological well-being when respondents report spiritual values provide them with less strength, meaning and understanding in life and a smaller difference when respondents report spiritual values provide them with more strength, meaning and understanding. However, men tend to consistently display higher levels of psychological well-being until the age group for 65 to 69 year olds at which point women start to exhibit higher levels of psychological well-being. The converging pattern for men and women aged 65 to 69 years old is almost identical but women display a slightly higher level of psychological well-being than men for this age group. For the last four age groups (i.e., 65 to 69, 70 to 74, 75 to 79, and 80 and over) women exhibit higher levels of psychological well-being than men. The interaction still reveals a converging pattern but the difference in the relative levels of psychological well-being are reversed.

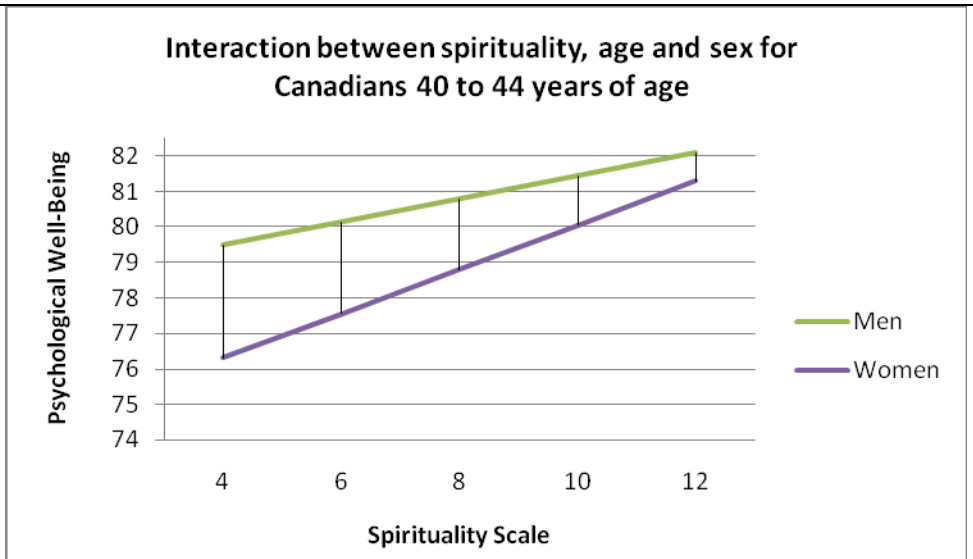
Figure 8 displays three-way interaction results between spiritual values, age and total household income in predicting psychological well-being. The interaction results reveal a converging pattern for the first seven age groups. That is, the difference between psychological

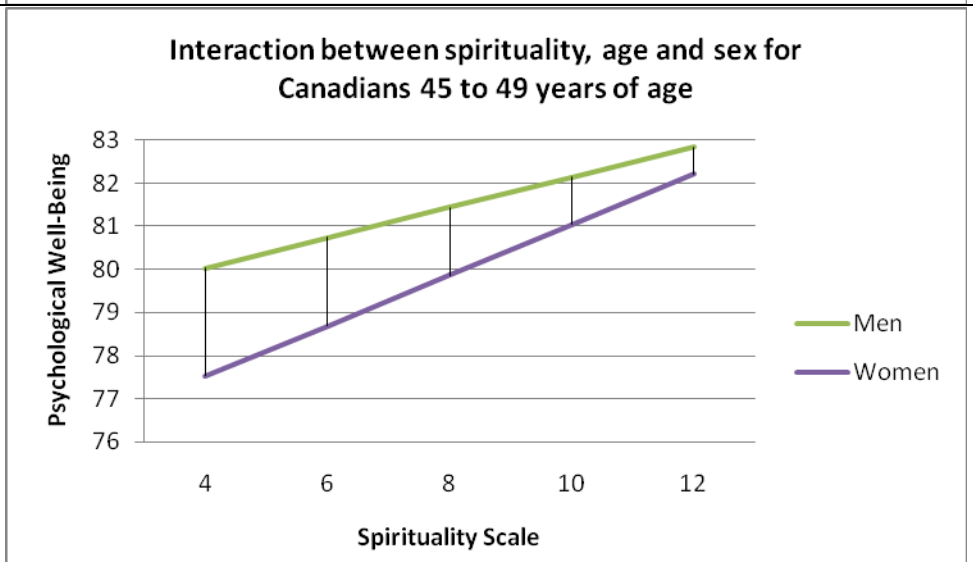
Figure 7. Three-way interaction between spirituality, age and sex in predicting psychological well-being.








Interaction between spirituality, age and sex for Canadians 40 to 44 years of age
Psychological Well-Being
82
81
80
79
78
77
76
75
74
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 45 to 49 years of age
Psychological Well-Being
83
82
81
80
79
78
77
76
4
6
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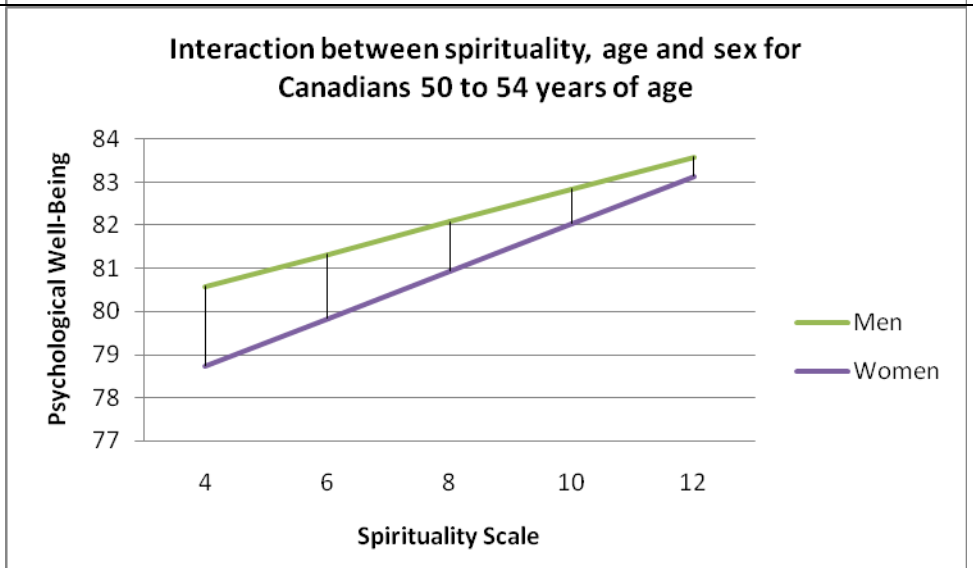
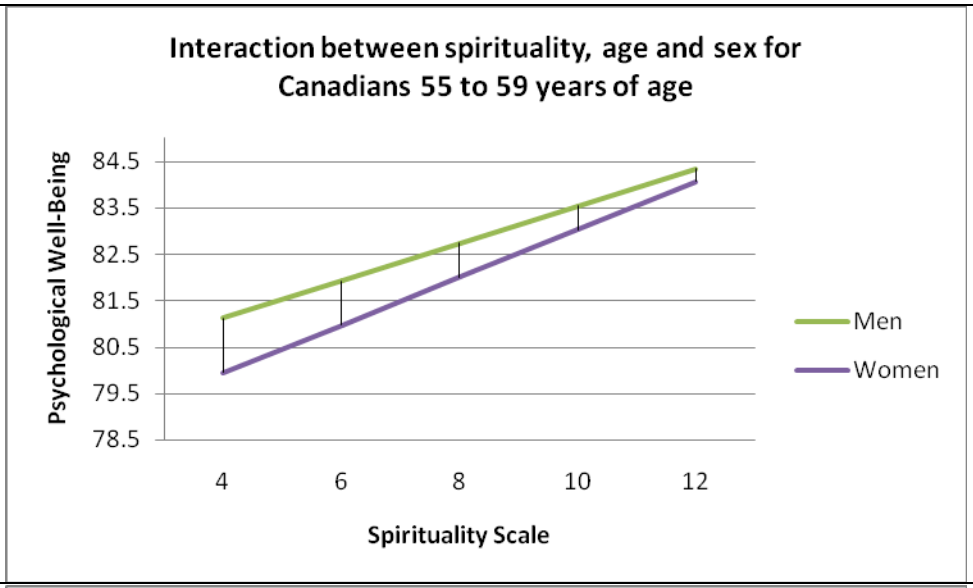
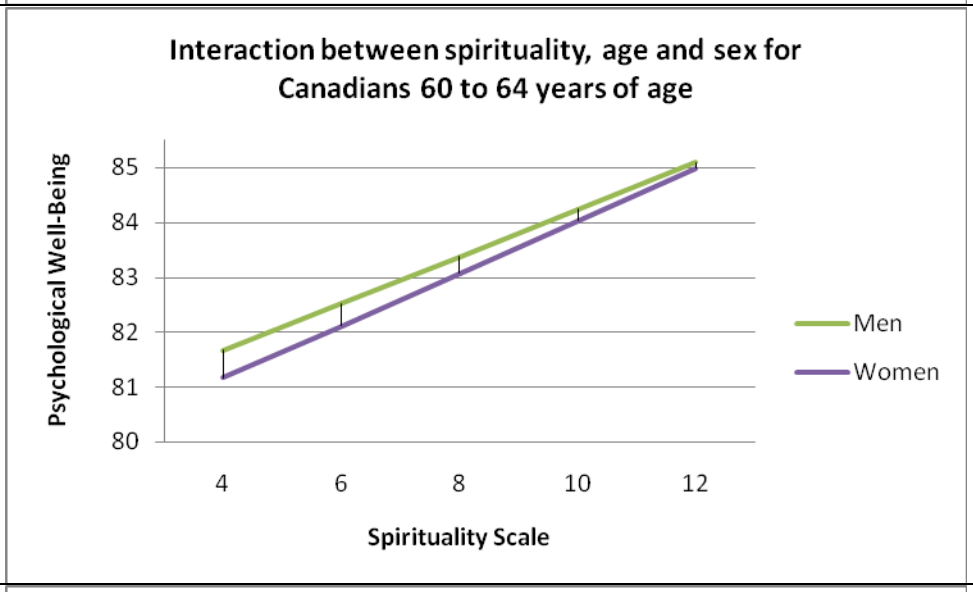
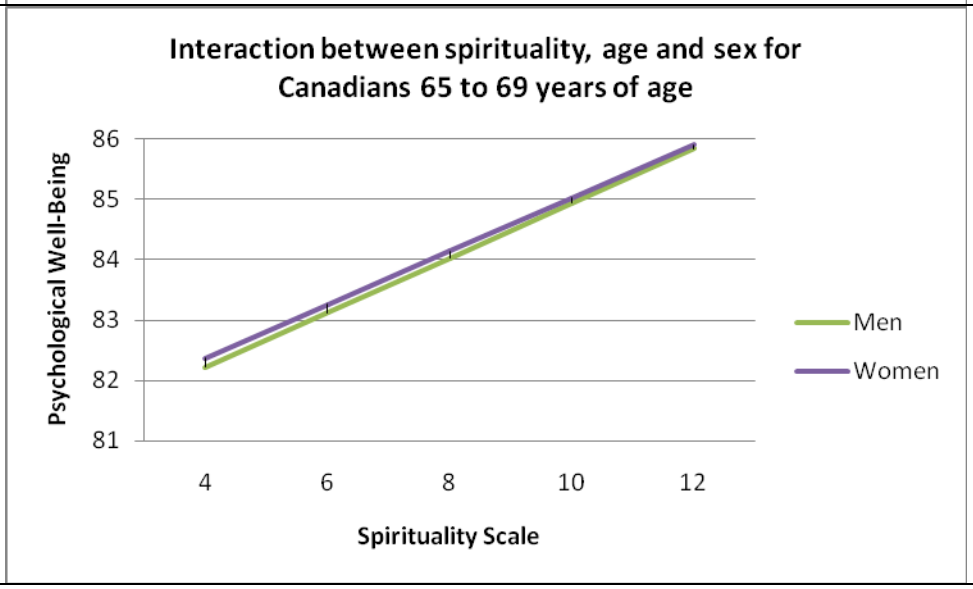
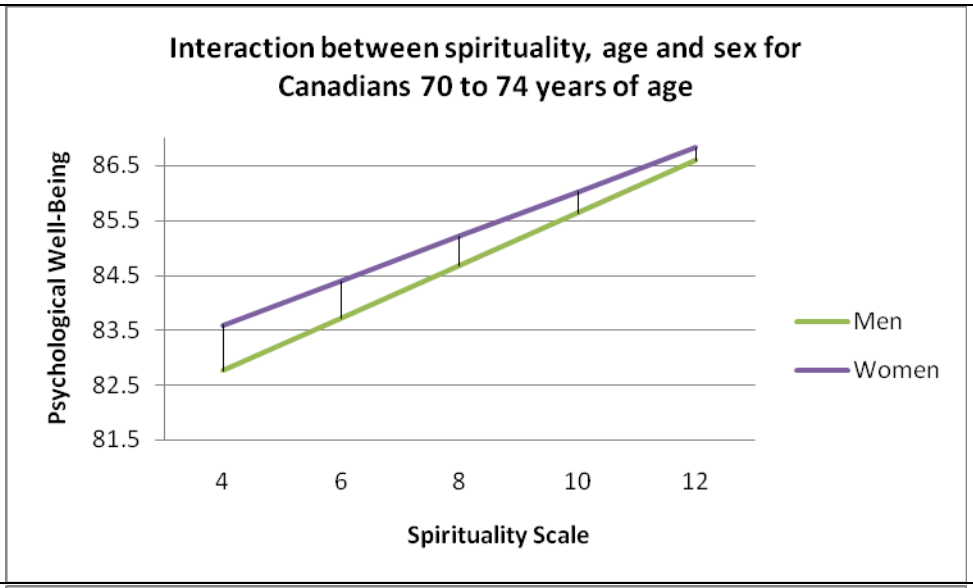
10
12
Spirituality Scale
Men
Women

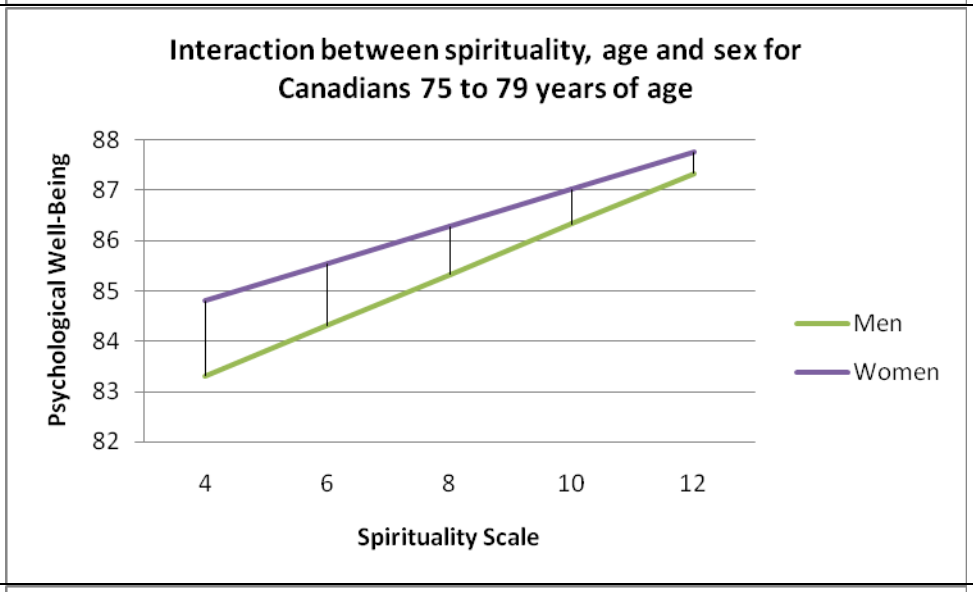

Interaction between spirituality, age and sex for Canadians 50 to 54 years of age
Psychological Well-Being
84
83
82
81
80
79
78
77
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 55 to 59 years of age
Psychological Well-Being
84.5
83.5
82.5
81.5
80.5
79.5
78.5
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 60 to 64 years of age
Psychological Well-Being
85
84
83
82
81
80
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 65 to 69 years of age
Psychological Well-Being
86
85
84
83
82
81
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 70 to 74 years of age
Psychological Well-Being
86.5
85.5
84.5
83.5
82.5
81.5
4
6
8
10
12
Spirituality Scale
Men
Women


Interaction between spirituality, age and sex for Canadians 75 to 79 years of age
Psychological Well-Being
88
87
86
85
84
83
82
4
6
8
10
12
Spirituality Scale
Men
Women

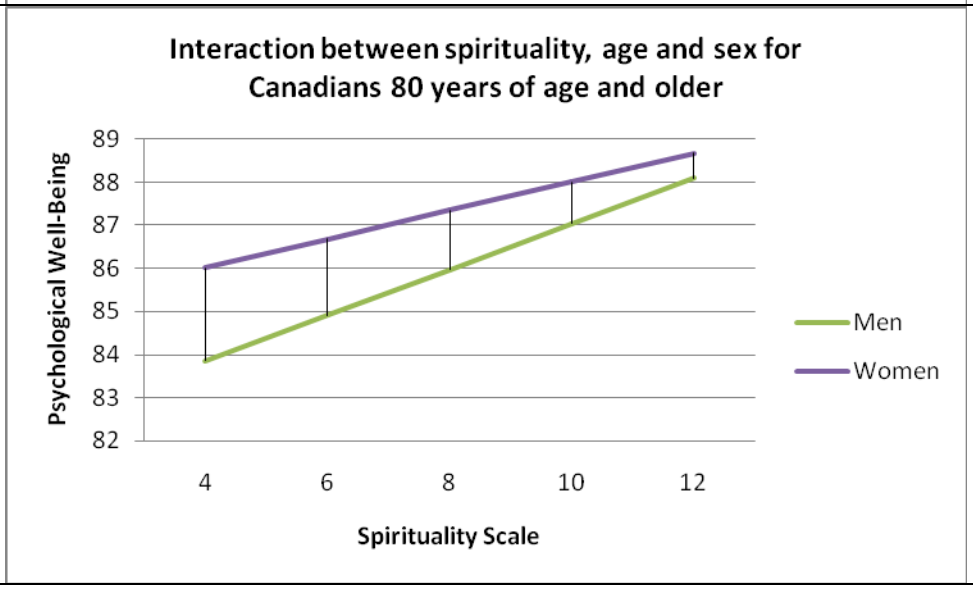
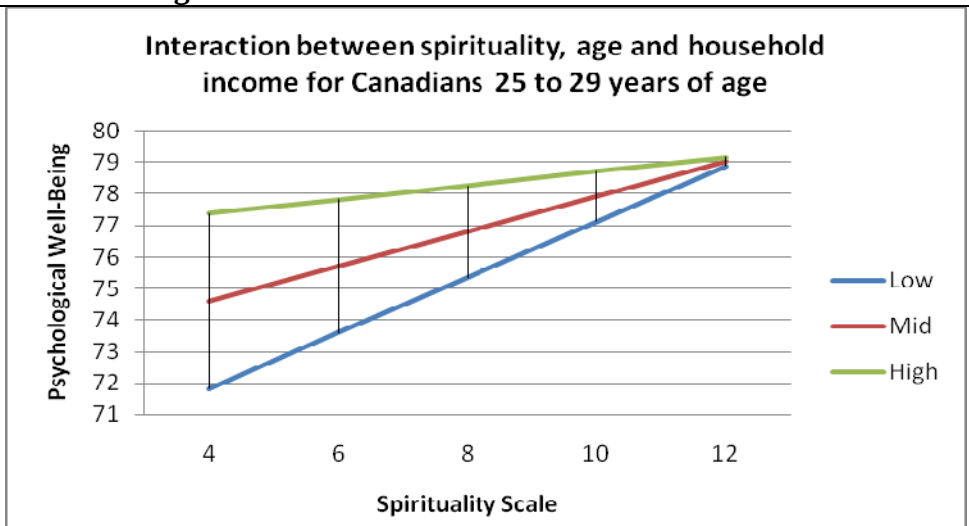
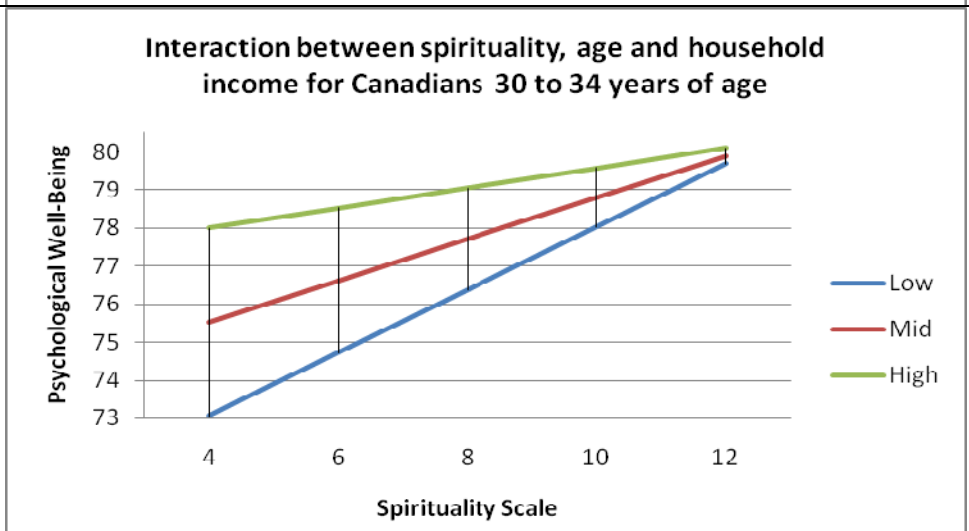
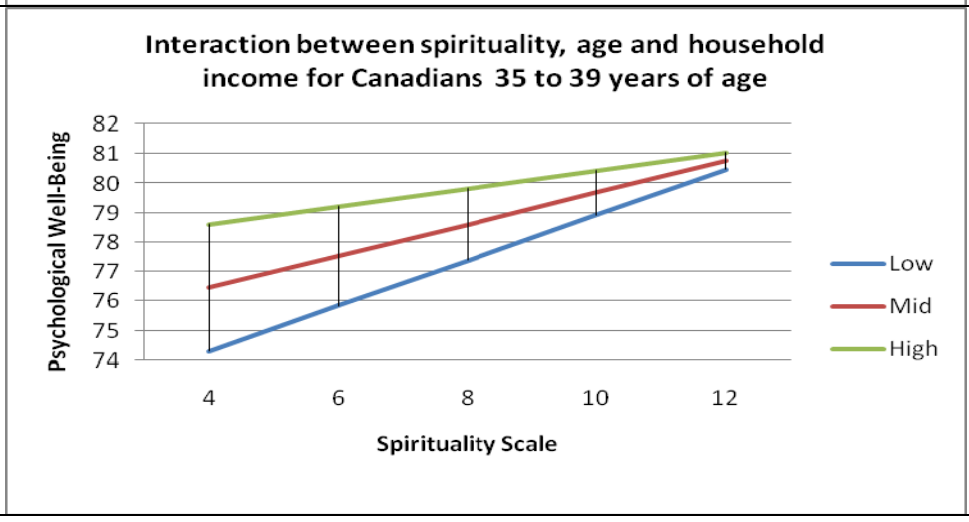
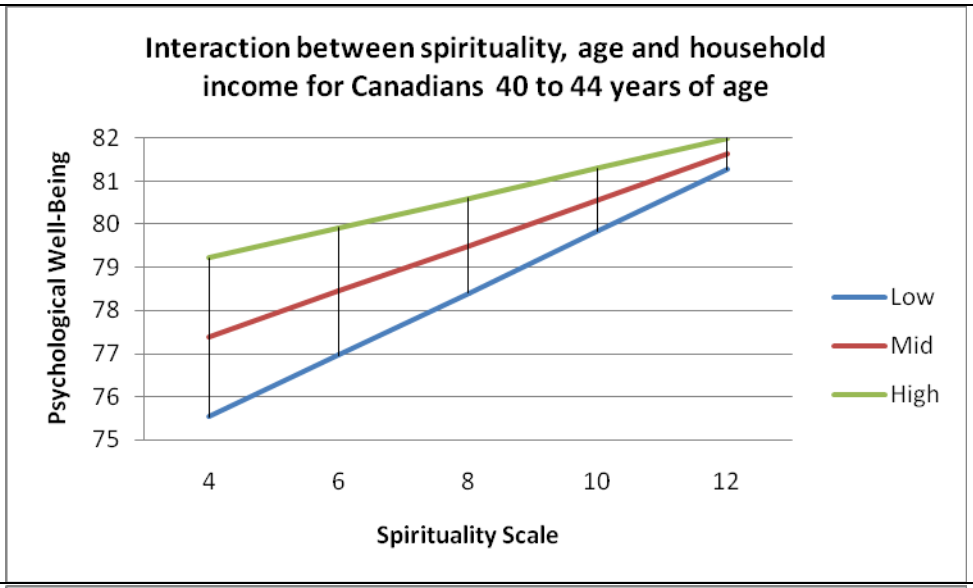

Interaction between spirituality, age and sex for Canadians 80 years of age and older
Psychological Well-Being
89
88
87
86
85
84
83
82
4
6
8
10
12
Spirituality Scale
Men
Women

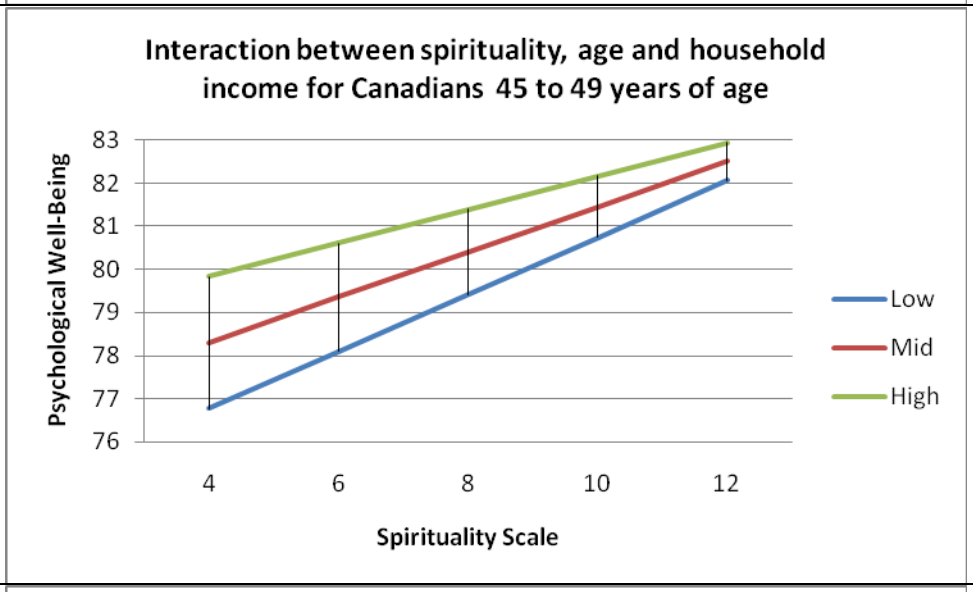
Figure 8. Interaction between spirituality, age and household income in predicting psychological well-being.

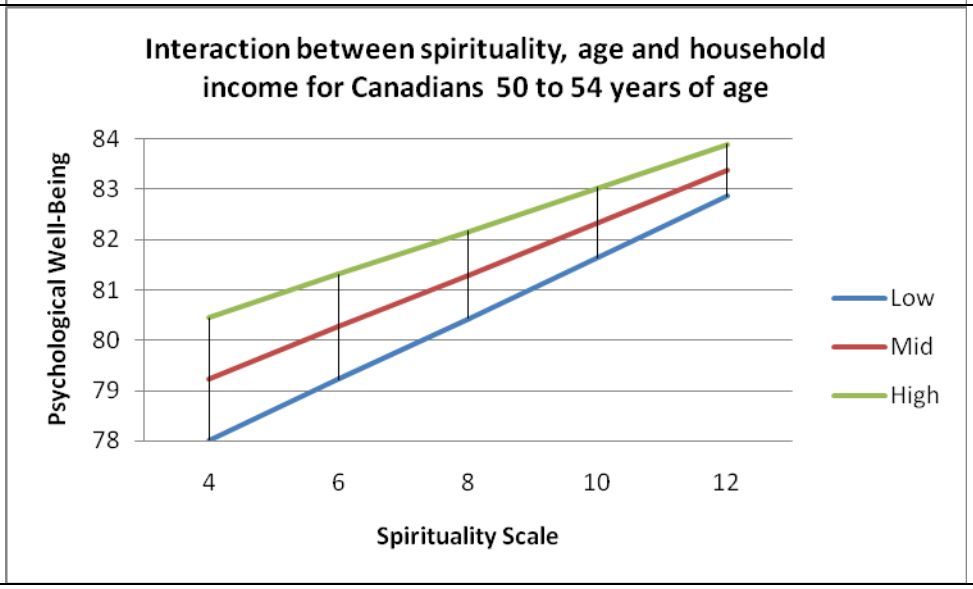


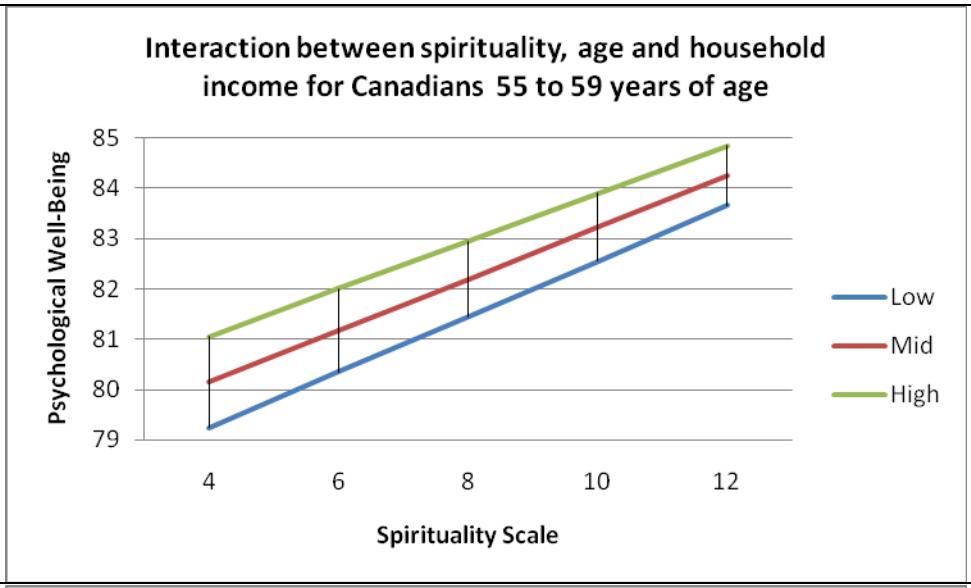


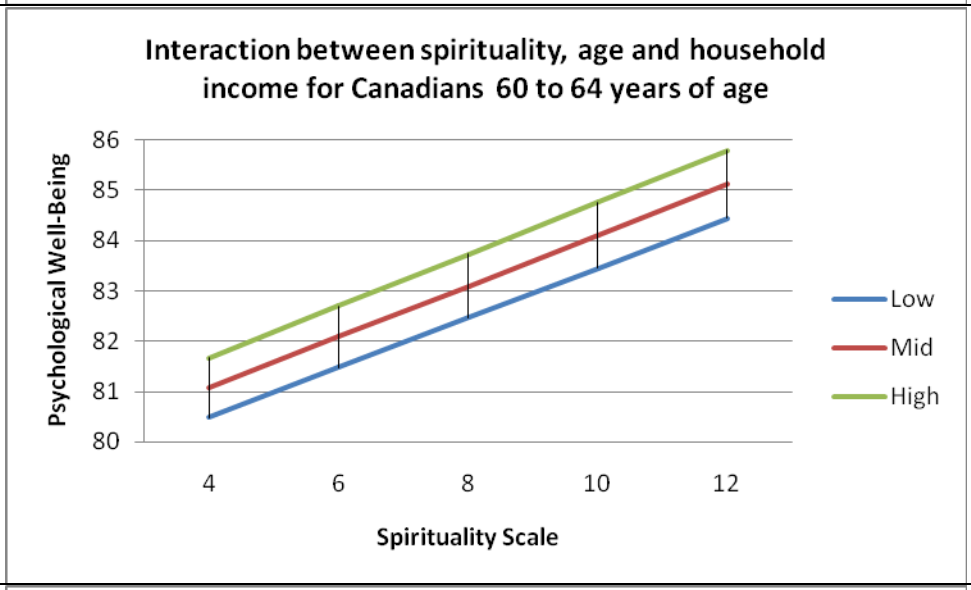


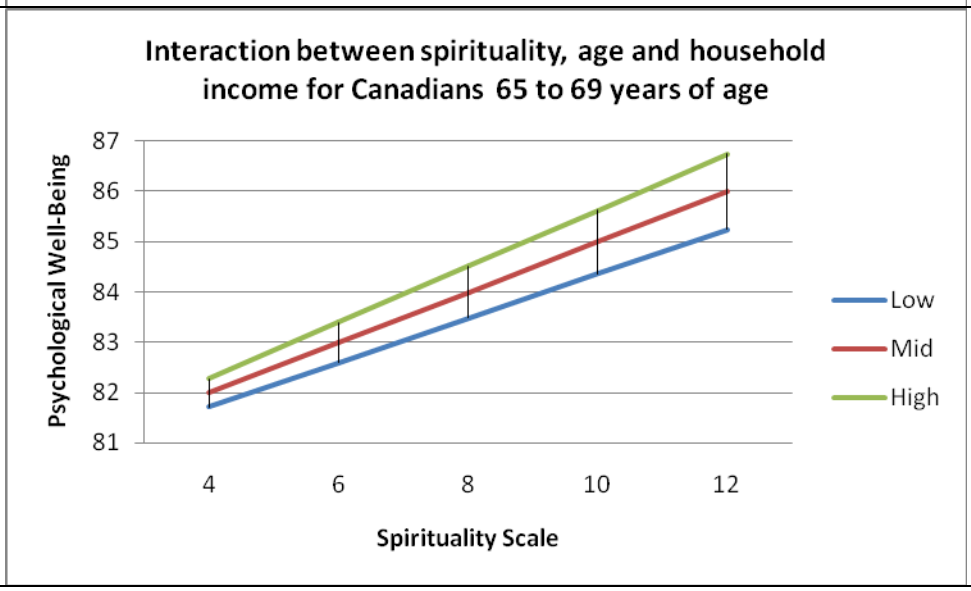

Interaction between spirituality, age and household income for Canadians 40 to 44 years of age
Psychological Well-Being
82
81
80
79
78
77
76
75
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 45 to 49 years of age
Psychological Well-Being
83
82
81
80
79
78
77
76
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 50 to 54 years of age
Psychological Well-Being
84
83
82
81
80
79
78
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 55 to 59 years of age
Psychological Well-Being
85
84
83
82
81
80
79
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 60 to 64 years of age
Psychological Well-Being
86
85
84
83
82
81
80
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 65 to 69 years of age
Psychological Well-Being
87
86
85
84
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82
81
4
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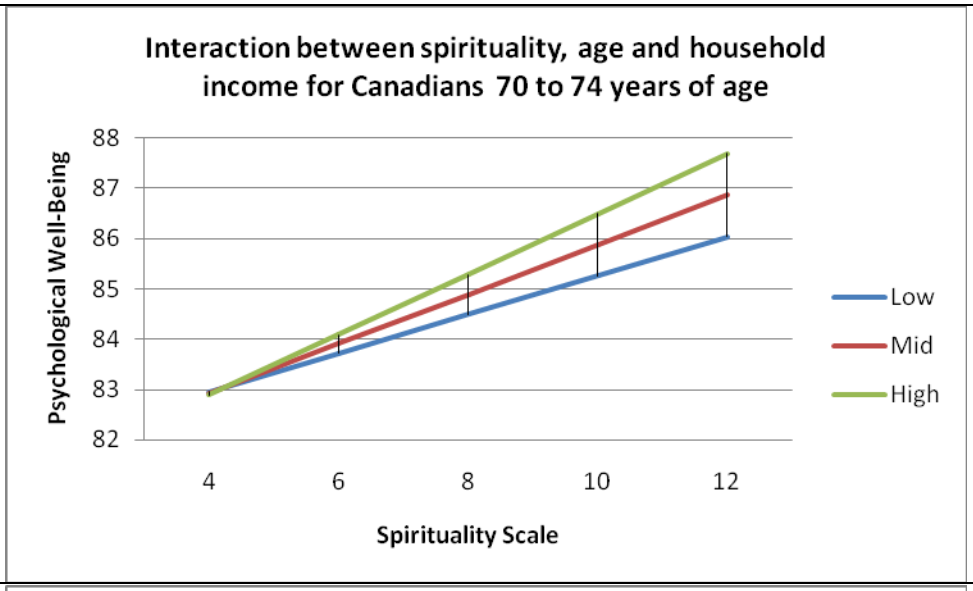
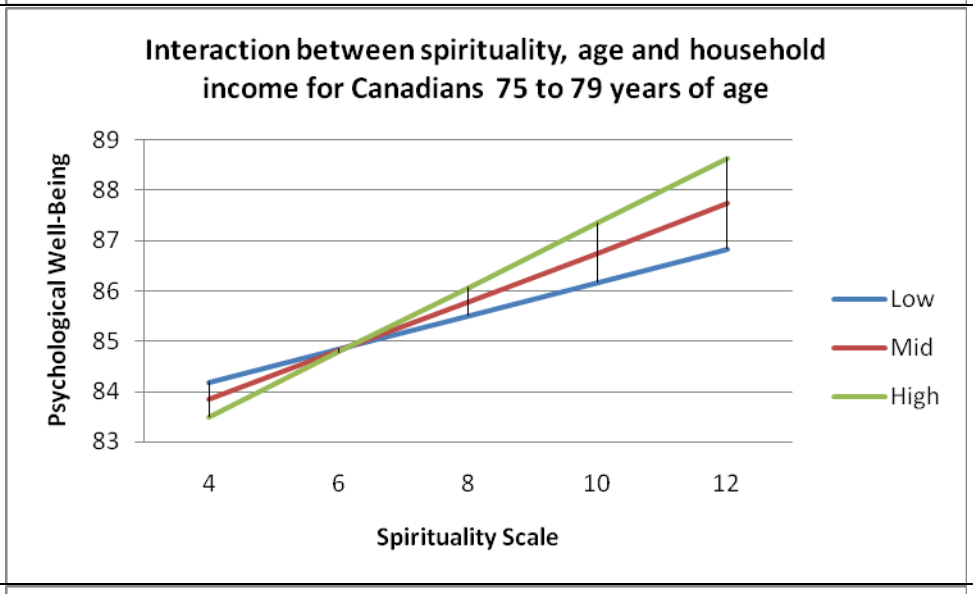
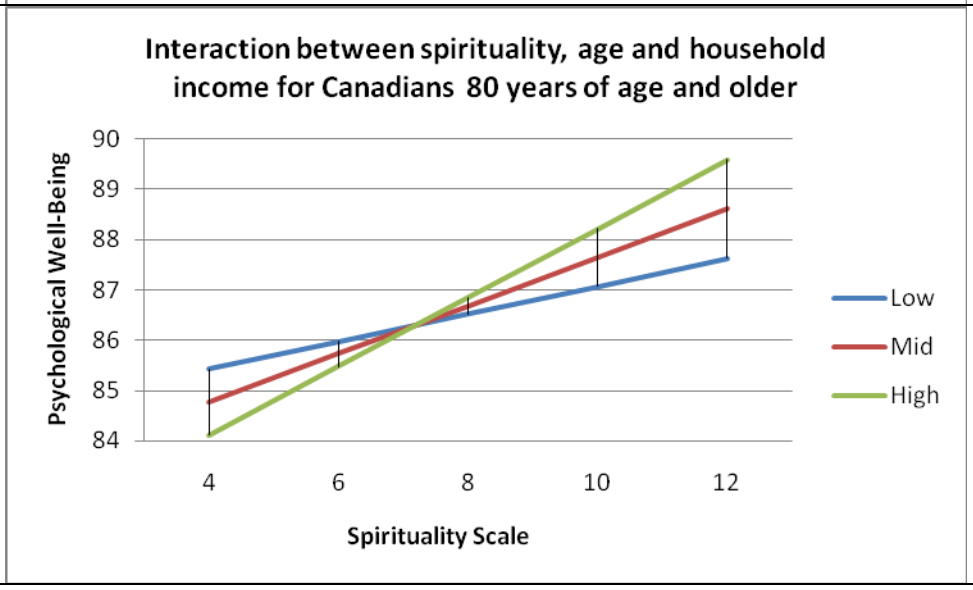
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 70 to 74 years of age
Psychological Well-Being
88
87
86
85
84
83
82
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 75 to 79 years of age
Psychological Well-Being
89
88
87
86
85
84
83
4
6
8
10
12
Spirituality Scale
Low
Mid
High


Interaction between spirituality, age and household income for Canadians 80 years of age and older
Psychological Well-Being
90
89
88
87
86
85
84
4
6
8
10
12
Spirituality Scale
Low
Mid
High

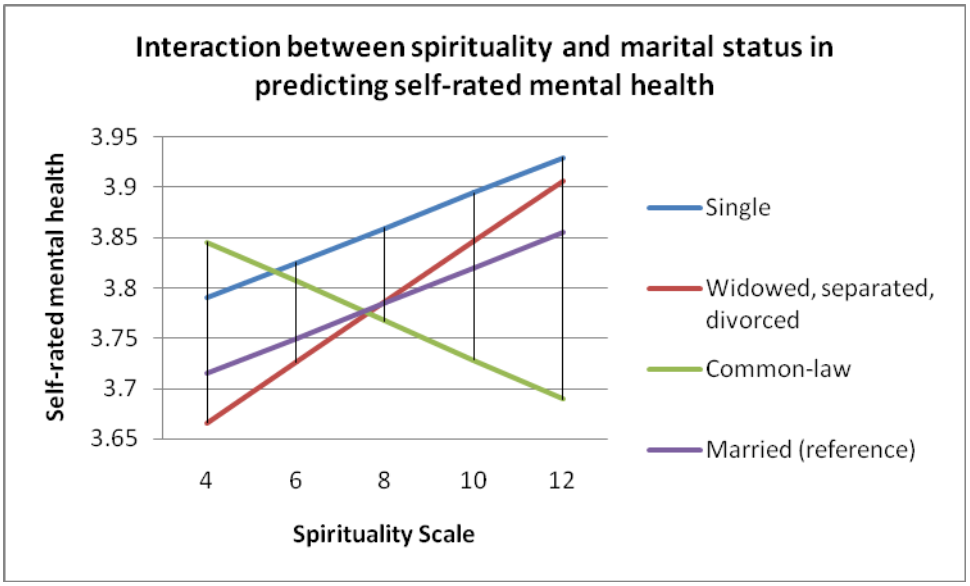
well-being levels for 25 to 59 year old respondents from low income, middle income and high income households is greater at lower levels of spiritual values providing strength, meaning and understanding; and the difference in psychological well-being is smaller at higher levels of spiritual values providing strength, meaning and understanding. The three-way interaction reveals a diverging pattern for the next two age groups. That is, the difference between psychological well-being levels for 60 to 64 year old and 65 to 69 year old respondents from low, middle and high income households is smaller at lower levels of spiritual values providing strength, meaning and understanding; and the difference in psychological well-being is greater at higher levels of spiritual values providing strength, meaning and understanding. Finally, the three-way interaction reveals a cross over pattern for the last three age groups. That is, respondents aged 70 to 80 years and older from high income households exhibit lower levels of psychological well-being than respondents from middle income and low income households at lower levels of spiritual values providing strength, meaning and understanding; and respondents aged 70 to 80 years and older from high income households exhibit higher levels of psychological well-being than respondents from middle income and low income households at higher levels of spiritual values providing strength, meaning and understanding.

4.4.2 Interaction Results in OLS Models for Self-Rated Mental Health

Figure 9 displays interaction results between spiritual values and marital status in predicting self-rated mental health. Respondents in common-law relationships rate their mental health higher than all other marital status categories at low levels of spiritual values providing strength, meaning and understanding in life; but they rate their mental health lower than all other marital status categories, crossing over with all other groups, at higher levels of spiritual values providing strength, meaning and understanding. Single people tend to rate their mental health the

Figure 9. Interaction between spirituality and marital status in predicting self-rated mental health.

	Spirituality Scale				
Marital status	**4**	**6**	**8**	**10**	**12**
Single	3.79	3.83	3.86	3.89	3.93
Widowed, separated, divorced	3.67	3.73	3.79	3.85	3.91
Common-law	3.85	3.81	3.77	3.73	3.69
Married (reference)	3.72	3.75	3.79	3.82	3.86

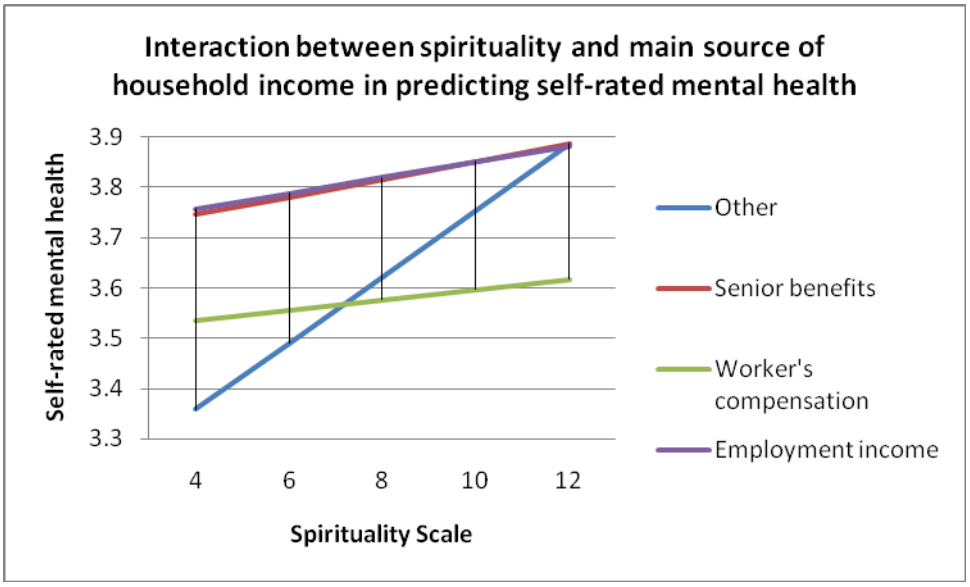


second highest at low levels of spiritual values providing strength, meaning and understanding in life; but they rate their mental health the highest of all at high levels of spiritual values providing strength, meaning and understanding. Married people rate their mental health lower than single people and people in common-law relationships at lower levels of spiritual values providing strength, meaning and understanding; but they rate their mental health higher than people in common-law relationships and lower than widowed, separated and divorced people as well as single people at high levels of spiritual values providing strength, meaning and understanding. Widowed, separated and divorced people rate their mental health the lowest at lower levels of spiritual values providing strength, meaning and understanding in life; and they rate their mental health second highest at higher levels of spiritual values providing strength, meaning and understanding. Widowed, separated and divorced people cross over with married people and people in common-law relationships in terms of how high they rate their mental health at higher levels of spiritual values providing strength, meaning and understanding in life.

Figure 10 displays interaction results between spiritual values and main source of household income in predicting self-rated mental health. Respondents from households where the main source of income is derived from employment income and seniors' benefits are virtually identical. Respondents from households where the main source of income is derived from employment income start with slightly higher self-rated mental health than respondents from households where the main source of income is derived from seniors' benefits at lower levels of spiritual values providing strength, meaning and understanding; and, they wind up with slightly lower self-rated mental health than respondents from households where the main source of income is derived from seniors' benefits at higher levels of spiritual values providing strength, meaning and understanding in life. Respondents from households where the main source of income is derived from sources other than seniors' benefits, worker's compensation and

Figure 10. Interaction between spirituality and main source of household income in predicting self-rated mental health.

	Spirituality Scale				
Source of Household Income	**4**	**6**	**8**	**10**	**12**
Other	3.36	3.49	3.62	3.76	3.89
Senior Benefits	3.75	3.78	3.82	3.85	3.89
Worker's Compensation	3.54	3.56	3.58	3.60	3.62
Employment Income	3.76	3.79	3.82	3.85	3.88

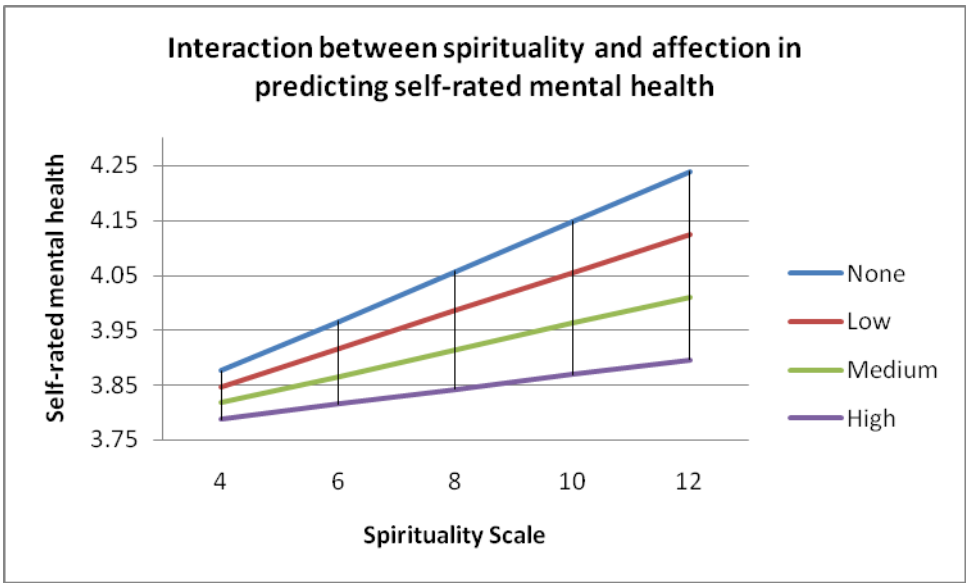


employment income start with the lowest level of self-rated mental health at low levels of spiritual values providing strength, meaning and understanding; and they converge with respondents from households where the main source of income is derived from employment income and seniors benefits to have the highest levels of self-rated mental health along with these two groups. The strength, meaning and understanding that spiritual values provide respondents has the least dramatic effect for respondents from households where the main source of income is derived from worker's compensation. Respondents from households where the main source of income is derived from worker's compensation start with the third lowest level of self-rated mental health at lower levels of spiritual values providing strength, meaning and understanding in life; and, they wind up with the lowest level of self-rated mental health at the highest levels of spiritual values providing strength, meaning and understanding. Self-rated mental health changes the least at different levels of the spirituality scale variable for respondents from households where the main source of income is derived from worker's compensation.

Figure 11 displays the interaction results between spiritual values and affection received in predicting self-rated mental health. The interaction results reveal a diverging pattern for respondents who report receiving different levels of affection. That is, the differences between levels of self-rated mental health are smaller at lower levels of spiritual values providing strength, meaning and understanding in life; and the differences in self-rated mental health are larger at higher levels of spiritual values providing strength, meaning and understanding. Curiously, respondents who report receiving the least amount of affection consistently rate their mental health the highest for all levels of spiritual values providing strength, meaning and understanding in life. However, the strength, meaning and understanding that spiritual values afford respondents in life have the most pronounced effect for respondents who report receiving the least amount of affection. That is, respondents who report receiving the least amount of affection rate their mental

Figure 11. Interaction between spirituality and affection received in predicting self-rated mental health.

	Spirituality Scale				
Affection	**4**	**6**	**8**	**10**	**12**
None	3.88	3.97	4.06	4.15	4.24
Low	3.85	3.92	3.99	4.06	4.12
Medium	3.82	3.87	3.91	3.96	4.01
High	3.79	3.81	3.84	3.87	3.90



health more highly at higher levels of spiritual values providing strength, meaning and understanding in life. The effect of spiritual values is less pronounced for respondents who report receiving more affection.

Figure 12 displays interaction results between spiritual values and tangible social support in predicting self-rated mental health. The interaction results reveal a diverging pattern for respondents who report receiving different levels of tangible social support. Respondents who report receiving the least amount of tangible support rate their mental health slightly higher than all others who report receiving more tangible support at the lowest levels of spiritual values providing strength, meaning and understanding in life but this changes quickly as soon as the strength, meaning and understanding that spiritual values provide respondents starts to increase. At higher levels of spiritual values providing strength, meaning and understanding in life, respondents who report receiving the least amount of tangible support rate their mental health higher than respondents who report receiving more tangible support. That is, the strength, meaning and understanding that spiritual values provide respondents in life have the greatest effect, in terms of self-rated mental health, for respondents who report receiving the least amount of affection.

Figure 13 displays interaction results between spiritual values and positive social contact in predicting self-rated mental health. The interaction results reveal a converging pattern for different levels of positive social contact. That is, differences in self-rated mental health are greater at lower levels of spiritual values providing strength, meaning and understanding in life; and differences are smaller at higher levels of spiritual values providing strength, meaning and understanding in life for all levels of positive social contact reported. Respondents who report the least amount of positive social contact consistently rate their mental health the lowest compared to respondents who report higher levels of positive social contact. However, the strength meaning

Figure 12. Interaction between spirituality and tangible support in predicting self-rated mental health.

	Spirituality Scale				
Tangible Social Support	**4**	**6**	**8**	**10**	**12**
Low	3.644	3.731	3.819	3.906	3.993
Medium low	3.646	3.710	3.775	3.840	3.904
Medium high	3.648	3.690	3.732	3.774	3.816
High	3.649	3.669	3.688	3.708	3.727

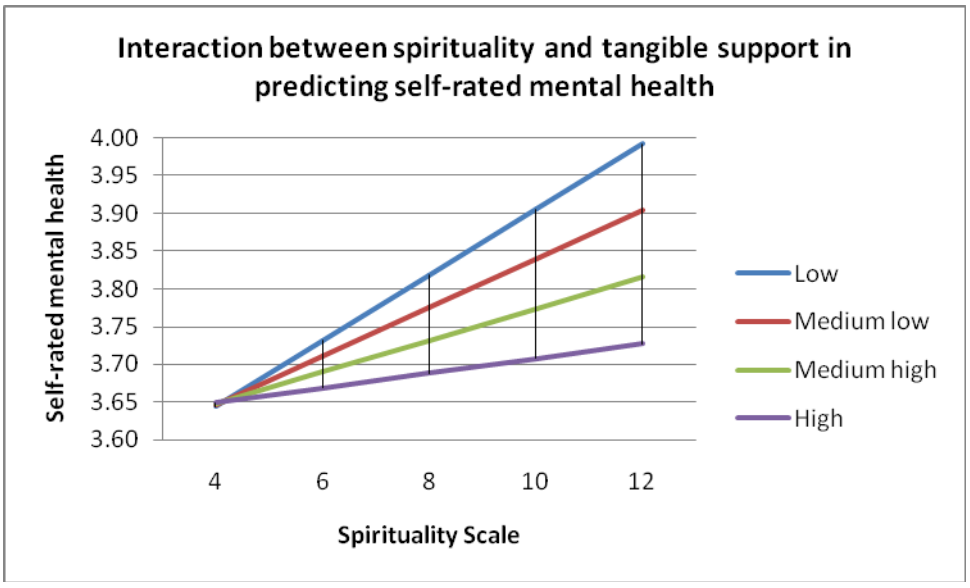
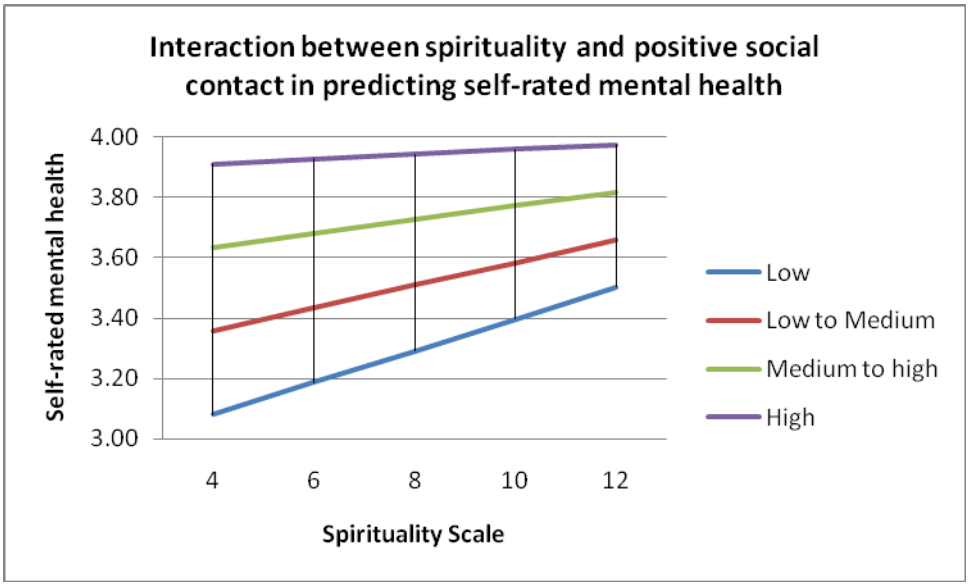


Figure 13. Interaction between spirituality and positive social contact in predicting self-rated mental health.

	Spirituality Scale				
Positive Social Interaction	**4**	**6**	**8**	**10**	**12**
Low	3.08	3.19	3.29	3.40	3.50
Low to Medium	3.36	3.43	3.51	3.59	3.66
Medium to high	3.63	3.68	3.73	3.77	3.82
High	3.91	3.93	3.94	3.96	3.98

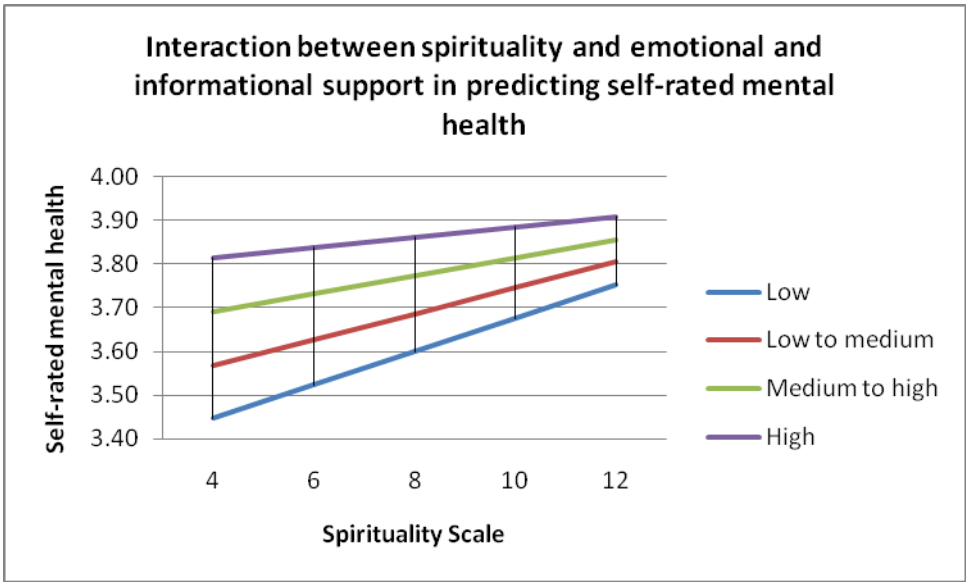


and understanding that spiritual values provide respondents in life have the greatest effect (i.e. increasing more dramatically) for respondents who report receiving the least amount of positive social contact. The strength, meaning and understanding that spiritual values provide respondents in life have a positive effect on self-rated mental health for respondents who report receiving more positive social contact but self-rated mental health does not increase as quickly for respondents who report more positive social contact as it does for respondents who report less positive social contact.

Figure 14 displays interaction results for spiritual values and emotional and informational support in predicting self-rated mental health. The interaction results reveal a converging pattern for different levels of emotional and informational support in predicting self-rated mental health. That is, the difference in self-rated mental health is greater at lower levels of spiritual values providing strength, meaning and understanding in life for all levels of emotional and informational support received; and differences in self-rated mental health are smaller for higher levels of spiritual values providing strength, meaning and understanding. Respondents who report the most amount of emotional and informational support consistently rate their mental health higher than respondents who report less emotional and informational support. However, the strength, meaning and understanding that spiritual values provide respondents in life have the greatest effect, in terms of self-rated mental health, for respondents who report the least amount of emotional and informational support. In other words, the rate of increase for respondents who report the least amount of emotional and informational support is greater for increasing levels of spiritual values providing strength, meaning and understanding than the rate of increase for respondents who report more emotional and informational support.

Figure 14. Interaction between spirituality and emotional and informational support in predicting self-rated mental health.

	Spirituality Scale				
Emotional Support	**4**	**6**	**8**	**10**	**12**
Low	3.45	3.52	3.60	3.67	3.75
Low to medium	3.57	3.63	3.69	3.74	3.80
Medium to high	3.69	3.73	3.77	3.81	3.86
High	3.81	3.84	3.86	3.88	3.91



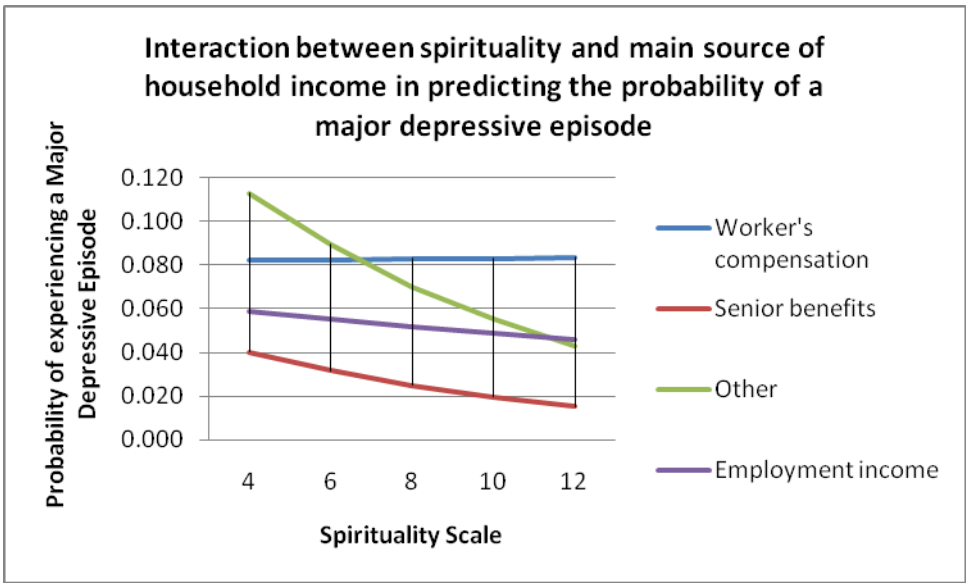
4.4.3 Interaction Results in Binary Logistic Models for Major Depressive Episodes

Figure 15 displays interaction results between spiritual values and main source of household income in predicting the probability of a major depressive episode. The interaction results reveal a cross-over pattern for all groups except respondents who came from households where the main source of income is derived from seniors' benefits. Respondents from households where the main source of income is derived from sources other than employment income, worker's compensation and seniors' benefits start out with the highest probability of having a major depressive episode at lower levels of spiritual values providing strength, meaning and understanding; but they cross over with respondents from households where the main source of income is derived from employment income and worker's compensation to have the second lowest probability of having a major depressive episode at higher levels of spiritual values providing strength, meaning and understanding in life.

Respondents from households where the main source of income is derived from worker's compensation have the second highest probability of experiencing a major depressive episode at lower levels of spiritual values providing strength, meaning and understanding in life; but they cross over with respondents from households where the main source of income is derived from alternative sources to have the highest probability of experiencing a major depressive episode at higher levels of spiritual values providing strength, meaning and understanding. The strength, meaning and understanding that spiritual values afford respondents has the smallest effect, out of all four groups, on the probability of experiencing a major depressive episode for respondents from households where the main source of income is derived from worker's compensation; and it is the only groups for whom the relationship is positive between spiritual values and the probability of experiencing a major depressive episode. That is, respondents from households where the main source of income is worker's compensation have a higher probability of

Figure 15. Interaction between spirituality and main source of household income in predicting the probability of a major depressive episode.

	Spirituality Scale				
Household income main source	**4**	**6**	**8**	**10**	**12**
Worker's Compensation	0.082	0.083	0.083	0.083	0.084
Senior Benefits	0.040	0.032	0.025	0.020	0.015
Other	0.113	0.089	0.070	0.055	0.043
Employment Income	0.059	0.055	0.052	0.049	0.046



experiencing a major depressive episode when they report spiritual values provide them with more strength, meaning and understanding in their lives.

Respondents from households where the main source of income is derived from seniors' benefits have the lowest probability of experiencing a major depressive episode out of all four groups. Respondents from households where the main source of income is derived from seniors' benefits have a higher probability of experiencing a major depressive episode at lower levels of spiritual values providing strength, meaning and understanding in life; and they have a lower probability of experiencing a major depressive episode at higher levels of spiritual values providing strength, meaning and understanding.

CHAPTER 5: Discussion and Conclusion

5.1 Overview of Results

The results found here are largely consistent with results found in much of the literature on spirituality and mental health. Age generally has a protective effect on mental health in the literature on mental health and spirituality (Idler, 1987; Krause et al., 1999; Nicholson et al., 2009; Galek et al., 2007; Greenfield, Vaillant and Marks, 2009; Ellison, Burdette and Hill, 2009). Women generally display lower levels of mental health in the literature on mental health and spirituality (Maselko and Kubzansky, 2006; Greenfield, Vaillant and Marks, 2009; Ellison, Burdette and Hill, 2009). Married people typically display higher levels of positive mental health than their unmarried counterparts in the literature on the relationship between mental health and spirituality (Keyes and Reitzes, 2007; Ellison and Fan, 2008; Ellison, Burdette and Hill, 2009; Tabak and Mickelson, 2009). Respondents with higher incomes generally display higher levels of mental health in the literature (Krause et al., 1999; Keyes and Reitzes, 2007; Ellison and Fan, 2008). People who have chronic conditions or poor health generally display lower levels of positive mental health (Idler, 1987; Krause, 1995; Ellison, Burdette and Hill, 2009; Keyes and Reitzes, 2007); and religious service attendance is widely understood to have a protective effect on mental health outcomes (Krause et al., 1999; Keyes and Reitzes, 2007; Ellison and Fan; 2008; Greenfield, Vaillant and Marks, 2009).

It is more difficult to interpret the interaction results in this study in the context of the existing literature because some of the unique contributions of this study involve the interaction between variables. All of the variables included in the model were tested for interaction effects with spiritual engagement so this research was exploratory in nature. Typically, interactions between gender and spirituality as well as between age and spirituality are tested in the literature on mental health and spirituality (Greenfield, Vaillant and Marks, 2009; Krause, Ingersoll-

Dayton and Liang, 1999; Krause et al., 1999; Ellison, 1991; McCullough and Laurenceau, 2005). The interaction results between gender and spirituality found in this study are largely consistent with results found in much of the literature on spirituality and mental health. Women typically display lower levels of mental health than men but the effects of spiritual engagement are larger for women's well-being so men and women's mental health converge at higher levels of spiritual engagement (Greenfield, Vaillant and Marks, 2009). There was no statistically significant interaction between just age and spiritual engagement in this study. However, a statistically significant three-way interaction between spirituality, age and income was revealed in this study.

The way in which spirituality and mental health are measured influences what we are able to observe about the relationship between the two concepts. For example, whether respondents feel that spiritual values play an important role in their life or not has a statistically significant effect on their psychological well-being when measured on a scale from 0 to 100 based on the 25 questions proposed by Raymond Massé from the University of Laval, but it does not have a statistically significant effect on their self-rated mental health. The interactions between variables differ between models with different measures of mental health as well. Spirituality interacts with sex, region, tangible social support, affection, positive social contact and emotional support when predicting psychological well-being. In addition there are two statistically significant three-way interactions in the models predicting psychological well-being between spirituality, age and sex; and between spirituality, age and household income. Spirituality only interacts with marital status, source of income, affection, tangible support, positive social contact, and emotional support when predicting self-rated mental health. There are no statistically significant three-way interactions in the models predicting self-rated mental health. The only statistically significant interaction term in the binary logistic model predicting whether or not respondents have

experienced a major depressive episode is between spirituality and main source of household income.

The fact that whether respondents feel that spiritual values play an important role in their life or not has a statistically significant effect on their psychological well-being but not self-rated mental health is important because only respondents who felt that spiritual values played an important role in their lives were asked about the strength, meaning and understanding that spiritual values provide them in their lives. Therefore, the findings for the models predicting psychological well-being can be generalized to the Canadian population, but the findings for self-rated mental health only apply to respondents who feel that spiritual values play an important role in their lives.

The variables measuring tangible support, positive social interaction, affection and emotional support were added as control variables to the models in order to determine whether the strength, meaning and understanding that spiritual values provide respondents in life have a statistically significant effect on mental health. That is, these variables were included in the models in order to determine whether they could contribute to the explanation of the relationship between mental health and spirituality. Community does play a major role in the stress process model in explaining the relationship between spirituality and mental health. The relationship between spirituality and mental health does indeed persist when we control for tangible support, positive social interaction, affection and emotional support available. In fact, the strength, meaning and understanding that spiritual values provide respondents in their everyday lives interacts with the tangible support, positive social interaction, affection and emotional support that they have available to them.

Research shows that people with access to larger social networks and networks that offer more social support tend to have better mental health outcomes than people with fewer social

resources (Ellison and Henderson, 2011). Religious congregations and spiritual communities are institutions that are fueled by networks (Ellison and Henderson, 2011). People often join congregations and spiritual communities because of social ties that they already possess (Ellison and Henderson, 2011). In addition, religious congregations and spiritual communities are social environments where friendships are fostered and cultivated because they regularly assemble individuals with similar beliefs, values and interests for worship and ceremonies to which adherents ascribe particular importance (Ellison and Henderson, 2011). In fact, studies have shown that people who attend places of worship regularly have access to larger social networks and interact within those networks more frequently through personal exchanges or by phone than non-churchgoers (Ellison and Henderson, 2011).

It is interesting that respondents who report the lowest levels of tangible support available to them have the lowest level of psychological well-being at the lowest levels of spiritual values providing strength, meaning and understanding in life; but respondents who report the lowest level of tangible support have the highest level of psychological well-being at the highest levels of spiritual values providing strength, meaning and understanding. Thus, for respondents who report the lowest levels of tangible support available to them, the strength, meaning and understanding that spiritual values provide them in their lives represent a greater resource in terms of psychological well-being than tangible support because respondents who report more tangible support and similar levels of spirituality have a lower level of psychological well-being. Conversely, at the highest level of tangible support available, respondents who report the lowest level of spiritual values providing strength, meaning and understanding in life have the highest level of psychological well-being; but respondents who report the highest level of tangible support available to them have the lowest level of psychological well-being at the highest levels of spiritual values providing strength, meaning and understanding in life. Perhaps, the strength,

meaning and understanding that spiritual values provide respondents in life represent a greater resource in terms of bolstering psychological well-being but only for respondents who lack sufficient tangible social support.

Religious congregations and spiritual communities also provide an invaluable setting in which tangible support such as goods, services and information can be exchanged, as well as emotional support like friendship and moral support (Ellison and Henderson, 2011). Some of this kind of support can be found in formal church programs, which are sometimes aimed at helping people with specific needs like poor people, the elderly or people with disabilities (Ellison and Henderson, 2011). Some congregations and spiritual communities even create programs to teach their members about physical health and health behavior (Ellison and Henderson, 2011). Religious groups, in particular, frequently provide pastoral counseling and other forms of support to members of their congregations facing emotional problems, marital or familial strife, or other kinds of issues (Ellison and Henderson, 2011).

However, a large amount of the social support that transpires in congregations and spiritual communities happens through informal networks (Ellison and Henderson, 2011). Being helpful and acts of kindness and love are practices that are encouraged in most religious traditions and spiritual communities (Ellison and Henderson, 2011). Social support through informal networks is facilitated in church-based groups, specifically, because of the density of networks in most congregations, which are typically characterized by enduring relationships (Ellison and Henderson, 2011). This is of particular importance because studies have shown that anticipated support, the belief that one will receive support if it is needed and requested, can be used to predict mental health outcomes better than social integration and enacted social support (Ellison and Henderson, 2011).

The converging pattern between spirituality and affection available to respondents suggests that the strength, meaning and understanding that spiritual values provide respondents represent a greater resource to respondents with lower levels of affection available to them. Psychological well-being increases with the strength, meaning and understanding that spiritual values provide respondents in life for all levels of affection available but psychological well-being increases the most for respondents with the least amount of affection available to them. Therefore, people who benefit the most from the strength, meaning and understanding that spiritual values provide in everyday life are the ones who report the lowest levels of affection available to them despite the fact that respondents who report higher levels of affection available consistently report higher levels of psychological well-being.

The converging pattern between spirituality and positive social contact available similarly suggests that the strength, meaning and understanding that spiritual values provide respondents represents a greater resource to respondents with lower levels of positive social contact available to them. Psychological well-being increases with the strength, meaning and understanding that spiritual values provide respondents in life for all levels of positive social contact available but psychological well-being increases the most for respondents with the least amount of positive social contact available to them. Hence, people who benefit the most from the strength, meaning and understanding that spiritual values provide in life are those who report the lowest levels of positive social contact available to them despite the fact that respondents who report higher levels of affection available consistently report higher levels of psychological well-being.

Similarly, the converging pattern between spirituality and emotional support suggests that the strength, meaning and understanding that spiritual values provide respondents in life represent the greatest resource to respondents who report the least amount of affection available to them. Therefore, people that benefit the most from the strength, meaning and understanding

that spiritual values provide them are the ones who have the fewest resources in terms of emotional support.

The social and emotional support provided through informal and formal networks in church-based groups and spiritual communities may be more beneficial than support attained through other means (Ellison and Henderson, 2011). Research demonstrates that people obtain more benefit from social support when it is given by people with similar status characteristics, especially when the providers and recipients share cultural values and experiences (Ellison and Henderson, 2011). When providers of support share cultural values and experiences with their recipients, they are in a better position to understand why recipients experience circumstances as problematic and this insight may assist providers to tailor their support to the specific needs of the beneficiaries, therefore reducing the potential for failure (Ellison and Henderson, 2011). Religious and spiritual community members typically share sets of values, systems of meaning, and discursive practices surrounding human suffering and the importance of helping others (Ellison and Henderson, 2011).

The three-way interaction between spirituality, age and sex reveals a converging pattern with men consistently reporting higher levels of psychological well-being, on average, until the age of mandatory retirement, at which point women tend to report higher levels of psychological well-being. Levels of psychological well-being still converge for men and women after the age of retirement but women consistently report higher levels of psychological well-being after the age of retirement. Perhaps, the strength, meaning and understanding that spiritual values provide respondents represent a greater resource for men until the age of retirement but represent less of a resource when men are forced to retire and lose a major source of stability and purpose in their definitions of self through retirement. Why women have higher levels of psychological well-

being after age 65 is difficult to explain but perhaps women have more means and multiple sources of defining themselves than simply through employment.

Research demonstrates that religious and spiritual involvement bolsters psychological resources like self-esteem and mastery (Ellison and Henderson, 2011). Religious and spiritual involvement fosters self-esteem through at least two important social-psychological processes: reflected appraisals of the self and social comparisons (Ellison and Henderson, 2011). Briefly, people develop positive self-esteem, and an intrinsic sense of self-worth, if they believe that people they respect have a good opinion of them (Ellison and Henderson, 2011). As previously mentioned, congregations are social environments in which friendships proliferate and supportive social ties can generate quickly. Compared to secular social environments, where people are sometimes evaluated on the basis of their material wealth, possessions, education, physical appearance and other substantive attributes, religious communities may value individuals based on entirely different attributes like the extent of one's spiritual convictions, acts of kindness, positive social influence, helpfulness, service to others, morality, compassion and wisdom (Ellison and Henderson, 2011). Individuals in religious communities with limited secular resources or material possessions can develop a positive sense of self, belonging and importance to others through alternative means (Ellison and Henderson, 2011). A positive sense of self, belonging and importance developed through alternative means can in turn, quite easily, bolster self-esteem (Ellison and Henderson, 2011). Perhaps women are better able to capitalize on the benefits of spiritual and religious involvement after the age of mandatory retirement because they have not defined themselves so narrowly, as men may, through only gainful employment.

The three-way interaction between spirituality, age and household income reveals a converging pattern with respondents from households with higher incomes consistently reporting higher levels of psychological well-being, on average, until the age of mandatory retirement, at

which point levels of psychological well-being start to diverge and then cross over for respondents after 70 years of age and older. At lower levels of spiritual values providing strength, meaning and understanding, respondents from households with the highest level of income tend to have the lowest level of psychological well-being after age 70. At the highest levels of spiritual values providing strength, meaning and understanding, respondents from households with the highest level of income report the highest level of psychological well-being. Hence, after 70 years of age and older, the relationship between spirituality, income and psychological well-being is reversed for respondents who report spiritual values provide them with the least amount of strength, meaning and understanding in life. Perhaps the diverging pattern for 65 to 69 year olds is also a product of the mandatory age of retirement: respondents from higher income households are less likely to experience hardship after age 65 than respondents from lower income households so the strength, meaning and understanding that spiritual values provide them in life will continue to have a positive effect on their psychological well-being; whereas the strength, meaning and understanding that spiritual values provide respondents from low income households may begin to break down after mandatory retirement because they begin to experience hardship when they are forced to retire. In 2002, the average life span was close to 70 in Canada (Statistics Canada, 2002) and so perhaps the relationship between age, household income and the strength, meaning and understanding that spiritual values provide respondents in life is reversed for low levels of spiritual values providing strength, meaning and understanding in life after 70 years of age as people begin to lose their significant others and friends. At high levels of spiritual values providing strength, meaning and understanding, the relationship between age, household income and the strength, meaning and understanding that spiritual values provide respondents in life follows the same diverging pattern after crossing over, where

respondents from high income households consistently report higher levels of psychological well-being than respondents from lower income households.

The strength, meaning and understanding that spiritual values provide respondents in life interacts with marital status when predicting self-rated mental health, whereas it does not when predicting psychological well-being. Respondents in common-law relationships are the only marital status group for whom there is a negative relationship between the strength, meaning and understanding that spiritual values provide and self-rated mental health. Again, at the lowest levels of spiritual values providing strength, meaning and understanding, respondents in common-law relationships report the highest levels of mental health. However, at the highest levels of spiritual values providing strength, meaning and understanding, respondents in common-law relationships report the lowest levels of self-rated mental health crossing over with all other groups. Perhaps at higher levels of spiritual values providing strength, meaning and understanding living in a common-law relationship is antithetical to the spiritual values to which respondents subscribe. This is certainly the case for some religious denominations. In any case, spiritual values do not represent a resource for bolstering mental health for respondents in common-law relationships. The strength, meaning and understanding that spiritual values provide respondents is a detriment to the self-rated mental health of respondents in common-law relationships, whereas they represent a resource for all other marital status categories.

The interaction between main source of household income and the strength, meaning and understanding that spiritual values provide respondents in predicting self-rated mental health reveals why respondents from households where the main source of income comes from senior's benefits did not differ significantly from respondents from households where the main source of income comes from employment income in any of the models in this analysis. The relationship between self-rated mental health and the strength, meaning and understanding that spiritual

values provide respondents in life follows virtually the same pattern for respondents from households where the main source of income comes from senior's benefits and respondents from households where the main source of income is derived from employment income. It is interesting that respondents from households where the main source of income is derived from alternative sources start with the lowest levels of self-rated mental health at the lowest levels of spirituality but converge with respondents from households where the main source of income is derived from employment and senior's benefits at the highest levels of spiritual values providing strength, meaning and understanding. When spiritual values do not provide respondents with much strength, meaning or understanding, coming from a household where the main source of income comes from alternative sources can be understood as a detriment to self-rated mental health. However, at the highest levels of spiritual values providing strength, meaning and understanding, respondents from households with alternative sources of income have similar levels of self-rated mental health to the reference category, respondents from households where the main source of income is employment income, as well as respondents from households where the main source of income is derived from senior's benefits. In short, the strength, meaning and understanding that spiritual values provide respondents represent the greatest resource to respondents from households with alternative sources of income. Spiritual values have the smallest effect on respondents from households where the main source of income is derived from worker's compensation.

The interaction between spirituality and affection available in predicting self-rated mental health reveals a diverging pattern whereas there was a converging pattern between these two variables in the model predicting psychological well-being. Curiously, respondents who report the least amount of affection available to them consistently rate their mental health highest for all levels of spiritual values providing them with strength, meaning and understanding in life.

Spiritual values represent the greatest resource to respondents with the least amount of affection available to them, which is consistent with previous findings, but respondents with more affection available to them consistently rate their mental health lower than respondents who report less affection available. The fact that spiritual values provide the greatest resource to respondents with the least amount of affection available to them has intuitive appeal but the fact that respondents with the most amount of affection available to them rate their mental health the lowest contradicts the results above for the interaction term for spirituality and affection in predicting psychological well-being. Perhaps respondents who report the least amount of affection available to them feel that they have so little affection available because they are more independent and seldom in need of the kinds of affection respondents were asked about (i.e., someone to hug, or love or show affection towards) and respondents who felt they had the most amount of affection available to them are more dependent and in greater need of affection.

Some religious and spiritual people develop and maintain what they deem relationships with deities or the divinity in the same way that they develop friendships with others (Ellison and Henderson, 2011). These relationships are typically developed through prayer, meditation or other rituals (Ellison and Henderson, 2011). Knowing about characteristics or attributes of a deity, deities or the divinity and what that deity or deities expect from religious or spiritual people may emanate from scripture, or religious or spiritual leaders (Ellison and Henderson, 2011). It is not necessary in the study of spirituality and mental health, to assume any position on the ontological reality, or existence, of deities or the divinity (Moreira-Almeida et al., 2006: 243). In addition, whether prayers are answered or whether people feel that deities or the divinity speak back to them might not be of crucial importance here. The reflective practice of asking what is right, what to do in a particular situation or set of circumstances, or simply for help could be

enough of a psychological resource when scripture, or shared norms and values exist and serve as general guidelines to influence behavior, action and decisions.

The results for the interaction between tangible support and spirituality reveal a cross over pattern in predicting self-rated mental health similar to the interaction results reveal a cross over pattern in predicting psychological well-being. Respondents with the highest level of tangible support available to them report the highest level of mental health at the lowest level of spiritual values providing strength, meaning and understanding in life; and they report the lowest level of self-rated mental health at the highest level of spiritual values providing strength, meaning and understanding. The cross over happens very early at the second lowest level of spiritual values providing strength, meaning and understanding in life.

The results for the interaction between positive social contact available and spirituality reveal a converging pattern in predicting self-rated mental health consistent with the interaction between these variables in predicting psychological well-being. The strength, meaning and understanding that spiritual values provide respondents in life have the greatest effect for self-rated mental health for respondents who report the lowest levels of positive social contact available to them.

Similarly, the interaction between emotional and informational support available and spirituality reveals a converging pattern in predicting self-rated mental health consistent with the interaction between these two variables in predicting psychological well-being. The strength, meaning and understanding that spiritual values provide respondents in life have the greatest effect and therefore represent the greatest resource to respondents with the least amount of emotional and informational support available to them.

A sense of control in life, or mastery, may be influenced by religious and spiritual beliefs. In the past, psychological research has assumed that religious beliefs, faith and practice

undermine psychological resources (Ellison and Henderson, 2011: 20). Sigmund Freud, along with many others in the psychiatric community, attempted to pathologize religious subjectivities by labeling religion an obsessional neurosis and emotional disturbance (Aukst-Margetić and Margetić, 2005; Moreira-Almeida et al., 2006). The influence that religious beliefs have over sense of control in life may not necessarily always be deleterious (Ellison and Henderson, 2011). The steadfast conviction that one is completely in control of one's life does not always contribute to favorable outcomes for mental health (Ellison and Henderson, 2011: 22). In addition, faith in divine control or order does not always involve completely relinquishing control of one's affairs or denying one's agency in life. Research suggests that belief in divine control may have a protective effect on mental health (Ellison and Henderson, 2011: 22).

Much of the research in the stress process tradition focuses on psychological resources of self-esteem and mastery. However, some research investigates other resources developed in positive psychology deemed virtues or character strengths. Examples of these virtues of strengths include: "forgiveness, gratitude, and … [a] sense of meaning and purpose" (Ellison and Henderson, 2011: 23). Most religious and spiritual traditions encourage forgiveness. Research shows that forgiveness, and the ability to forgive unconditionally in particular, is associated with positive mental health outcomes (Ellison and Henderson, 2011). In any case, it certainly seems reasonable to assume that individuals who can let go of anger, shame and a sense of betrayal along with other negative emotions should have a lower chance of experiencing distress or depression and other mental health disorders.

The interaction between spirituality and source of income in predicting the probability of major depressive episodes reveals a positive relationship between spirituality and the probability of experiencing a major depressive episode for respondents from households where the main source of income is derived from worker's compensation. This is the only group for whom the

strength, meaning and understanding that spiritual values provide does not have a protective effect against experiencing a major depressive episode. The probability of experiencing a major depressive episode decreases for all other groups with higher levels of spiritual values providing strength, meaning and understanding in life. Perhaps depending on worker's compensation as a main source of income is demoralizing to the extent that spiritual values are an insufficient resource to protect against the chance of experiencing a major depressive episode. People who collect worker's compensation do so because of seriously debilitating accidents. Obtaining worker's compensation for any length of time, especially if respondents are reporting that worker's compensation is the main source of household income, is usually the result of a traumatic incapacitating accident.

Religion and spirituality may also have a protective effect on mental health by providing coping mechanisms for dealing effectively with stressful events and circumstances. Coping again refers to the ability to mediate social demands that tax or exceed an individual's resources (Pearlin and Schooler, 1978). In the past, research involving coping assumed religion has a detrimental effect on mental health (Ellison and Henderson, 2011). More recently, research shows religious coping has a beneficial effect for mental health when it comes to a number of stressors including: "bereavement, natural disasters, and unexpected tragedies that challenge everyday assumptions about the fairness of life" (Ellison and Henderson, 2011: 24).

As previously mentioned in the theoretical framework of this study, the stress process model involves the interaction between stressors, social resources and mental health outcomes (Pearlin, 1999). Stressors are events or circumstances that compel individuals to change their relationships with their environment as well as to make substantial adjustments in their lifestyle, behavior, or attitude, which taxes their capacity to respond (Lazarus and Launier, 1978). There are three types of stressors in the stress process model: "(a) acute stressors, or major traumas or

life events (e.g., job loss, bereavement); (b) chronic strains (e.g., poverty, disablement, marital conflict, neighborhood deterioration); and (c) daily hassles (e.g., traffic congestion, long lines for services)" (Ellison and Henderson, 2011: 14). There is considerable evidence that connects each of these types of stressors with a deleterious effect on mental health over time (Ellison and Henderson, 2011).

Research shows that the deleterious effects of stressors on mental health can be mediated by the types of resources that individuals have for dealing with problems when they arise (Wheaton, 1985; Lin and Ensel, 1989; Ellison and Henderson, 2011). The two most important kinds of resources in the stress process model are psychological and social resources. In the stress process model, psychological resources include self-esteem and personal efficacy. Self-esteem is the overall sense of one's inherent moral self-worth and personal efficacy involves a sense of control in one's social environment and the perceived ability to affect one's circumstances in life and interact with one's social environment in order to achieve daily objectives. Social resources include social integration, enacted social support, and anticipated support. Social integration refers to the size of one's social networks and the frequency with which one interacts in those networks. Enacted social support refers to receiving or providing assistance in the form of goods and services, information, or emotional support like companionship or moral support. Anticipated support involves being able to rely on the members of one's network should the need arise and if one requests support regardless of whether one has asked for support from this network before. Furthermore, some researchers working within the stress process model have invoked additional resources including: positive psychological attributes like optimism, gratitude and forgiveness; and coping techniques, which allow individuals to mobilize personal resources in order to help them deal with stressful circumstances and events (Ellison and Henderson, 2011). Religious and spiritual involvement bolsters psychological and social resources like self-esteem, personal

efficacy, mastery, social integration, enacted social support, and anticipated social support. In addition, religious and spiritual involvement promotes the development of additional resources like optimism, gratitude and forgiveness; and coping techniques, which allow individuals to mediate stressful circumstances.

Religious and spiritual involvement also reduces the number of risk factors and stressful life events for individuals by attempting to influence their behavior and actions in a manner that conforms to shared norms and values that originate from theological tenets (Ellison and Henderson, 2011). These attempts vary widely in their success but they do deter adherents from unhealthy, immoral and problematic conduct that can undermine familial solidarity as well as social order in general. The influence of religion can operate through: formal statements from leaders; informal sanctions against deviants like disproval, gossip and ostracism; role modeling; the threat and fear of punishment from the divine; and the promotion of habits and behavior that make deviant action unappealing and therefore less likely (Hoffmann and Bahr, 2005).

The strength, meaning and understanding that spiritual values provide respondents in their lives are thus framed as psychological and social resources that have a protective effect on mental health outcomes in this analysis. The way in which we measure mental health and spirituality influences what we are able to observe about the relationship between the two concepts. However, the strength, meaning and understanding that spiritual values provide respondents in their everyday lives consistently had a positive effect on mental health in this analysis for all three measures of mental health. This enables us to conceptualize spirituality as a psychological and social resource capable of mediating the harmful effects of stressors in the stress process model.

5.2 Limitations of the Study

Threats to external validity include the extent to which research findings can be generalized to the Canadian population and the degree to which research findings can be generalized due to the different ways of measuring each of the constructs in the models. Results from the CCHS can be generalized to the Canadian population with a high degree of external validity because of the complex sampling strategies employed to ensure representation. The degree to which research findings can be generalized due to the different ways of measuring each of the constructs in the CCHS is a limitation of using cross-sectional survey data after it has been collected. Quantitative research involving nationally representative surveys is often simply limited to the questions asked on those surveys. Cycle 1.2 of the CCHS was selected for this study primarily due to the relevance of the five spirituality questions asked in the survey to the research questions in the study. The questions corresponding to the five independent variables in this analysis are questions that have not been asked in former or subsequent surveys.

Ultimately, it would be ideal to have longitudinal data to assess the etiological process of stressors and mediators in the stress process model but conducting longitudinal research for the purposes of this analysis is not feasible. The cross-sectional data gleaned from the CCHS provides us with a good snap shot of mental health and spiritual engagement for adult Canadians in 2002 but it cannot reveal anything about causation between the two concepts.

5.3 Recommendations and Conclusions

Few studies have interrogated alternative means of being spiritually engaged like the strength, meaning and understanding that spiritual values provide people in their everyday lives and the consequences that has for mental health outcomes. Further research investigating the effects of alternative means of being spiritually engaged on mental health are needed in order to

disambiguate the relationship between mental health and different means of being spiritually engaged. Research surrounding spiritual engagement and mental health outcomes should not be judged on the basis of the problems that it solves, if indeed mental health outcomes have solutions, but should be judged on the basis of the questions that arise from research.

The unique contributions of this research stem from the unique questions about the strength, meaning and understanding that spiritual values provide respondents in their everyday lives. These questions allow us to conceptualize the strength, meaning and understanding that spiritual values afford respondents as a psychological and social resource capable of mediating the negative effects of stressful circumstances through the stress process model. The positive relationship between increasing spiritual engagement and positive mental health outcomes in each of the models specified is what ultimately allows us to conceptualize spiritual engagement as a psychological and social resource.

The questions measuring the strength, meaning and understanding of spiritual values were dropped from the next wave of the mental health module of the CCHS set to be released in 2013. Alternative means of interrogating different aspects of spiritual engagement are crucial for research surrounding the relationship between mental health and spirituality. If we are going to unpack and unfold the relationship between mental health and spiritual engagement further, questions like those concerning the strength, meaning and understanding of spiritual values must be included in surveys of nationally representative samples.

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Appendix A

Statistics Canada Codebook for Spiritual Values Questions

Canadian Community Health Survey – Cycle 1.2 - Mental Health and Well-Being

SPIRITUAL VALUES

SPR_QINT **I now have a few questions about spiritual values in your life.**
INTERVIEWER:

SPR_Q1 **Do spiritual values play an important role in your life?**
SPVB_1

1 Yes
2 No (Go to SPR_Q5)
DK, R (Go to SPR_END)

SPR_Q2 **To what extent do your spiritual values help you to find meaning in your**
SPVB_2 **life?**

INTERVIEWER: Read categories to respondent.
1 **A lot**
2 **Some**
3 **A little**
4 **Not at all**
DK, R

SPR_Q3 **To what extent do your spiritual values give you the strength to face**
SPVB_3 **everyday difficulties?**

1 A lot
2 Some
3 A little
4 Not at all
DK, R

SPR_Q4 **To what extent do your spiritual values help you to understand the**
SPVB_4 **difficulties of life?**

1 A lot
2 Some
3 A little
4 Not at all
DK, R

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EDUCATION

University of Victoria
Master of Arts (2012).
Courses: Linear Models; Classical Sociological Theory; Categorical Data Analysis; Research Design; Gender, Power and Social Justice; Sociology of Health.
Computer Skills: SPSS, SAS, STATA, Excel, Word and Outlook.
Languages: English and French.

University of Victoria
Bachelor of Arts (2006).
Major: Sociology Minor: Mathematics
Courses: Advanced Statistical Methods in Sociology; Sociological Explanations; Sociology of Gender; Quantitative and Qualitative Research Methods; Statistical Analysis in Sociology; Racialization and Ethnicity; Social Movements; Issues in the Sociology of Equity and Diversity; Modern Social Theory.

Camosun College
Associate of Arts Degree in Sociology (2004).
Courses: Social Science Research Methods; First Nations in Contemporary Canadian Society; Minority Relations in Canadian Society; Social Problems.

Camosun College
Associate of Science Degree in Mathematics (2004).
Courses: Calculus; Linear Algebra; Discrete Mathematics; Probability and Statistics; Multivariate Calculus; Elementary Differential Equations.

EMPLOYMENT EXPERIENCE

Analyst, Statistics Canada (2010 – 2011).
Facilitated research for academic researchers at the Research Data Centre at the University of British Columbia. This position required working closely with academic researchers to give them access to specific data sets and ensuring that their research did not breach confidentiality agreements between Statistics Canada and their respondents.

Lab Instructor, University of Victoria (2007 – 2009).
Taught PhD, masters and undergraduate students how to manage large data sets in SPSS, SAS and STATA while pursuing graduate studies in the Sociology Department at the University of Victoria. This position required working independently on material that was later presented to classes with as few as 7 students and as many as 46 students.

Foreman, Nature's Treasures (2007).

Supervised between six and twelve tree planters in isolated regions of the Interior of British Columbia. Explained the specifications of each job to the tree planters being supervised and then checked to see if those specifications were being met.

Tutor, Tutorfind Learning Centre (2006 - 2007).
Tutored high school students in Mathematics.

Tutor, Vanguard Educational Group (2006 - 2007).
Tutored middle school students in Mathematics.

Consultant, Career Management Association of British Columbia (2006).
Consulted in the creation of a survey that was administered during a five day conference. Administered the survey and assisted in presentations. Collected qualitative information during the conference. Collected the surveys, entered the quantitative data into a statistical software package (SPSS) and wrote a twenty page report including diagrams and tables.

Working Foreman and Supervisor, Seymour Crews Contracting (2005).
Supervised twelve labourers brushing and weeding planted trees in isolated regions of the Interior of British Columbia. Trained every person on the crew and checked the quality of work done on a daily basis. Motivated workers by working with them and tried to create a sense of team work.

Treeplanter, Canyon Contracting (2004).
Planted trees in and around Logan Lake, Lillooet, Gold River and Kamloops B.C.

Tutor, Target Tutors (2003).
Tutored High School and College Students in Mathematics and Physics.

Peer Help and Work Study, Camosun College (2002).
Tutored engineering students in Mathematics and Physics while attending college.

Treeplanter, Arland Reforestation (2000 - 2003).
Planted trees in and around Kamloops and Logan Lake B.C.

Treeplanter, Nature's Treasures (1997-1999).
Planted trees in and around Salmon Arm B.C.

ACADEMIC REFERENCES

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EMPLOYMENT REFERENCES

Lee Grenon, Statistics Canada: (604)-822-0263.
Susan Everett, Nature's Treasures: (250)-558-8732.
Denise Lloyd, Career Management Association of BC: (250)-385-7784.