LONELINESS AS PREDICTOR OF MENTAL HEALTH COMPONENTS

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Abstract

In different psychological theories and perspectives, mental health or well-being is characterized by a set of major components. Using Ryff's theory of positive psychological well-being, this study focused on the roles of loneliness and some major demographic factors in predicting mental health components as measured by Ryff's Well-Being Scale. One-hundred and eighty Canadian and international students attending Mount Saint Vincent University in Nova Scotia participated in this study. All participants completed two measures of loneliness (R-UCLA Loneliness Scale and Differential Loneliness Scale), Ryff's Well-Being Scale and Demographic Questionnaire. Bivariate correlation, ANOVA and hierarchical linear regression revealed that there was a negative association between loneliness and all well-being components. Findings from the current research demonstrate that individuals who were international or landed immigrant students felt more sense of loneliness and had lower levels of mental health when compared to Canadian students. Using hierarchical linear regression indicated that loneliness in all three models had a high effect size when predicting well-being (mental health).With a .463 effect size in model 3, R-UCLA Loneliness Scale can be used to predict well-being very appropriately.

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Chapter I

Introduction

The number of adolescents and young adults between 10 and 19 years is increasing around the world. In 2005, it was estimated that 20% of the 6.5 billion world population consists of 10 to 19-year-old individuals (Richter, 2006). Currently, it is reported that scientists and researchers focus their research on mental health problems of young adults (Inman, Van Bakergem, LaRosa, & Garr, 2011). The mental health issues of persons between 15 and 34 years of age have also been on the rise over the past few years, with 60% of that age group now identifying as having mental health concerns, especially depression (Kessler et al. 2003 cited in Burns, Durkin and Nicholas, 2009).

In Canada, depression is the "second most cited reason for visits to family doctors" (World Health Organization, cited in Santrock et al., 2005, p. 300). Health Canada (2002) reported that "over 10% of young adults were hospitalized due to one of seven mental illnesses (e.g., anxiety disorders, bipolar disorders, schizophrenia, major depression, personality disorders, eating disorders, and attempted suicide) in general hospitals" (p. 19). A study of six Ontario post-secondary institutions found that approximately 4% of the students had a psychiatric condition, 15% had been treated by a professional for one or more mental health problems, and 53% indicated they felt overwhelmed by anxiety (MacKean, 2011). Results of another Canada-wide survey demonstrated similar findings (MacKean, 2011). WHO also predicts that by 2012 depression will be the second most common mental health disorder placing all adolescents and young adults at risk for developing this and other types of mental health difficulties (Health Canada Report, 2002). Of this percentage, persons 15 to 24 years are at risk of experiencing mental health difficulties.

In view of "languishing", "moderate", and "flourishing" mental health on one spectrum, which was a criterion for mental health, it was found that just 16% of American adults between 25 and 74 years have complete mental health status (Keyes, 2005 cited in Westerhof et al, 2010).

Michaud and Fombonne (2005) reported that in England 11% of adolescents are diagnosed with mental health disorders. The focus on particular illnesses, such as depression and anxiety, revealed that the rate of clinical depression in adolescents is between 4 and 8.3% (Birmaher et al., 1996 cited in Qualter, Brown, Munn, & Rotenberg, 2010). The American National Institute of Mental Health estimated that 10% to 30% of young adults have mental health difficulties. Considering that there are 41 million young adults in the US, it is suggested that up to 12 million young Americans will experience mental health problems at some point in their lives (Eaton et al., 2006 cited in Burns, Durkin & Nicholas, 2009). These statistics raise concerns as to why so many adolescents and young adults are at risk of having mental health difficulties, and what factors can be used to predict the mental health status of young adults.

When considering these concerns, it is necessary to recognize that mental health consists of several main components that promote a person's entire mental health. These components include "self-esteem, happiness, life-satisfaction" (Corsini, 1999, p. 1068), personal growth, self-acceptance, purpose of life, autonomy, positive relation with others, and environmental mastery (Ryff, 1989; Ryff & Singer, 2008; Westerhof & Keyes, 2010; McDowell, 2010). These components can be affected by different factors that cause mental illnesses. For example, the developmental characteristics associated with young adults can make this group more vulnerable to mental illness. Changes in self-esteem, conflict between autonomy and attachment, shifts in relationship with parents, risk taking (sexual or drug experiences), idealistic and abstract thinking, rapid puberty, changes in body-image, change in peer relationships, early maturation, poor socialization, and identity crisis are some of the factors or the major characteristics of adolescents and young adults, which make both of these groups more vulnerable to mental health difficulties (Santrock et al., 2005). Additionally, adolescents and young adults are in the process of transferring from one critical stage – adolescence –to another stage of life – adulthood. Such a transition can create adjustment difficulties or developmental crises. The resulting crisis is related to the "emotional turmoil of adolescents that often accompanies the drive to achieve independence by casting off old emotional ties and developing new

relationships, as well as adapting to changed body" (Corsini, 1999, p. 21). These characteristics and developmental changes can impact mental health components to the same extent as external factors (e.g., poverty, media and other social and cultural factors). Regarding mental health components, Ryff (1989) demonstrated that there are six major components by which individual's mental health will be maintained.

These major components include personal growth, self-acceptance, purpose of life, autonomy, positive relation with others, and environmental mastery (Ryff, 1989; Ryff & Singer, 2008; Westerhof & Keyes, 2010; McDowell, 2010). Acquiring these components will expand the individuals' capacity to meet mental health criteria, but the previously noted factors and developmental characteristics can restrict this capacity. For example, adolescent girls, who tend to internalize emotions, be sensitive to their body-image and ruminate about their sad mood, are more vulnerable to mental health problems such as depression (Santrock et al., 2005). Thapar et al. (2010) demonstrated that depression is more likely to occur in this period of life. With reference to the sense of autonomy, as another example, a crisis or conflict between parents and adolescents on how to be autonomous can restrict a sense of autonomy and create mental health problems for adolescents.

Although young adults' developmental characteristics make them vulnerable to mental health difficulties, these characteristics should not be considered as causal factors. The factors which can affect young adults' mental health (noted in medical or psychological models such as Ryff's) are different with various influential effects. The degree to which these factors influence mental health determines their 'predictive' roles. Some factors can strongly predict adolescents' and young adults' mental health problems, whereas others show a weak association. Since individuals diagnosed with mental health problems exhibit various ranges of symptoms from low (e.g., sadness) to severe (e.g., depression or anorexia nervosa), it is necessary to understand which factors are associated with which conditions and whether these associations are strong enough to predict further illnesses or not.

Generally, these factors are called *predictors*. Predictors are a set of factors which predispose individuals to succumb to illnesses or difficulties, to manifest disorder symptoms, develop illnesses toward chronic condition, to maintain symptoms, and to intervene in the process of mental health achievement, such as components of mental health (Corsini, 1999). Loneliness, poor peer relations, family disturbances, negative body-image, peer rejection, low levels of physical activity (e.g., play, recreational activities and exercise), smoking, and other factors are among those linked to mental health problems, particularly in adolescents and young adults (Van Roekel, Scholte, Verhagen, Goossens, & Engels, 2010; Brage, Meredith, & Woodward, 1993; Berguno, Leroux, McAinsh, & Shaikh, 2004; Santrock et al., 2005; Amaral, Geierstanger, Soleimanpour, & Brindis, 2011). Apart from these factors, many researchers have concluded that demographic and social variables such as age, gender, education, marital status (Ryff, 1989), immigration, and marginalization (Neto, 2010) impact the mental health status of both adolescents and adults. Other researchers stress that both genetic and environmental factors contribute to mental health problems in adolescents such as poor relationships with parents, siblings, peers, and teachers (Van Roekel et al., 2010; Dwairy, Achoui, Filus, Rezvan nia, Casullo, & Vohra, 2010).

Of the above noted predictors, the rate of loneliness as a predictor of mental health concerns has received limited attention. Although in some theories (e.g., Sullivan's theory cited in Berguno et al., 2004; Brage et al., 1993) loneliness is a main factor in mental health problems, and the association between loneliness and mental illnesses has been studied (Brage, Meredith, & Woodward, 1993; Van Roekel et al., 2010); the role of loneliness in positive mental health components, particularly based on Ryff's theory, has not been studied yet. Therefore, its role as a predictor of positive mental health components should be investigated. Based on this necessity, this study is focused on the roles of loneliness in predicting the components of mental health identified in Ryff's theory. In addition, the current study will look at the degree to which loneliness, together with selected demographic and cultural factors, can predict mental health components in young adults.

Chapter II

Literature Review

Mental health is a worldwide utopia that historically goes back to the commencement of human life. Its history shows that philosophers, physicians, psychologists and other scholars have attempted to understand the concepts of normality, autonormal, heteronormal, well-being and mental health in order to differentiate abnormality with normality, and to specify the factors by which mental health is predicted, controlled, and promoted (Sadock & Sadock, 2003). Scrutinizing different perspectives reveals that mental health is considered as a multidimensional phenomenon that consists of different components (Ryff, 1989; Ryff & Singer, 2008; Westerhof & Keyes, 2010; McDowell, 2010). Its components can be affected by many factors causing it declined or promoted. To explain mental health, its components and influential factors, this chapter will focus on related studies through a literature review.

Mental Health and its Components

The simple criteria of mental health, which distinguishes mental health from mental illnesses, is defined by the World Health Organization (WHO) as a "state of well-being whereby individuals recognize their abilities, are able to cope with the normal stresses of life, work productively and fruitfully, and make a contribution to their communities" (Cited in Michaud and Fombonne, 2005, p. 835). In this definition, three components collectively establish a criterion for mental health: well-being, effective individual functioning and efficient functioning within a community (Westerhof & Keyes, 2010). Keyes (2007 cited in Westerhof & Keyes, 2010) used a medical model to illustrate mental health comparing it with mental illnesses. According to this model, the absence of one confirms the presence of the other. The lack of symptoms of mental illnesses (e.g., anxiety and depression) confirms the presence of mental health (Westerhof et al, 2010). This model can be shown on one spectrum with two extremes (Figure 1). On each side, a set of criteria can represent mental health or mental illness.

Figure 1: Psycho-Medical Model of Mental Health

This medical model of mental health represents a general symptomatology approach which is also used in the Diagnostic and Statistical Manual of Mental Disorders (DSM IV TR). Although Keyes used this model to explain mental health, he believes that "hedonic well-being and the psychological and societal aspects of eudaimonic well-being together make up the definition of positive mental health" (2007 cited in Westerhof & Keyes, 2010 p. 111). This approach distances itself from a pure medical model of mental health and stays on the platform of psycho-social perspective of well-being that is related to "subjective evaluation of individual functioning" (Westerhof et al., 2010 p. 111). In this perspective, the psychological feeling of optimal functioning is a main aspect of well-being. Inserting psycho-social domains along with actual subjective evaluation of functioning into the definition of mental health places the terms "well-being" and "mental health" on one axis, with fewer contradictions between them. Corsini (1999) attributed to these words a very common definition. He inserted major components into both to determine one common status in which an individual feels no dysfunctional symptoms, experiences positive social functioning, derives life satisfaction, copes with stresses of life and has a sense of happiness. In this perspective, mental health should be determined not only by the lack of mental disorders, but also by consistent positive psycho-social characteristics that represent the optimum status of well-being. As Ryff and Singer (2008) stressed, the major advantage of this view of mental health is that the status of well-being is seen as "growth and human fulfillment that is influenced by the contexts of people's lives" (p. 15).

Ryff's (1989) Theory of Well-Being

Ryan and Deci (2001, cited in Ahrens & Ryff, 2006) have noted that the definition of mental health (well-being) includes two major aspects which distinguish it from the medical perspective. These aspects are "hedonic well-being (evaluations of happiness and life-satisfaction) and eudaimonic well-being (reaching human potential)" (p. 804). Both are central to Ryff's (1989) theory of well-being. Ryff's theory of well-being is characterized by six major components including purpose in life, self-acceptance, positive relations with others, autonomy, environmental mastery, and personal growth (p. 1071). To the extent that individuals exhibit these components, they are characterized as having positive mental health or well-being.

Purpose in life is characterized by having meaningful aims in life, a crystal-clear understanding of the purposes, a sense of self-oriented and intentionality. No matter what types of goals are selected, these goals, per se, should be chosen realistically and they should motivate, orientate, and sustain individuals' behaviors to reach them. Although in developmental psychology it is argued that individuals change their goals based on developmental stages or trajectories, it is essential to have goals in which these characteristics are embedded. Researchers have shown that after adolescence, during which identity forms, life goals along with commitment will be relatively sustained (Santrock et al., 2005). Ryff and Singer (2008) stated that this component was derived from Frankl's theory of logotherapy, in which people with *purpose of life* attempt to help others and find meaning within their own life. This aspect of well-being or mental health is rooted in the work of existentialist philosophers such as Sartre, Kierkegaard, Heidegger, and Neitzsche, (Corey, 2000, cited in Fitzgerald, 2005). They portrayed purpose of life as an essential factor motivating human growth. Ryff noted that many psychological theories, such as Allport's theory of personality, define purpose of life as a key factor of maturity (Ryff, & Singer, 2008).

Personal growth**,** a main component of mental health, is related to personality development through an individual's involvement in life experiences. According to Ryff (1989), this component refers to the

personal tendency to develop one's potential and to grow as a person. In this regard, individuals should first recognize their weaknesses, strengths and potential as a type of self-knowledge, self-realization or self-comprehension, and then they should attempt to actualize their potential in a positive way. Reaching the optimum personal growth depends on the degree to which individuals feel "open to experience" because "openness to experience is a key characteristic of the fully functioning person" (Ryff, 1989 p. 1071). One of the key factors that brings a sense of personal growth to individuals is their roles (qualitative and quantitative) in personal life. Different personal and social roles will not only give people a sense of having purpose of life, but will promote personal growth. This enhancement occurs when different roles provide people with opportunities to openly experience and be involved in the context of life. Empirical studies uphold the association between multiple roles and personal growth. Moreover, these studies support the idea that a combination of role involvement and a sense of control can increase one's sense of personal growth and consequently well-being (Ahrens & Ryff, 2006).

Ryff (1989) found self-acceptance to be a key component and criterion of well-being. Self-acceptance is seen as a "positive attitude toward the self, acknowledges and accepts multiple aspects of self including good and bad qualities, and [positive feeling] about past life" (p. 1072). This component is related to the "recognition of personal abilities and achievements, together with acknowledgement and acceptance of personal limitation" (Corsini, 1999 p. 875). Other researchers also define self-acceptance in a similar way. For example, Cheng and Chan (2005) also reported that this phenomenon consists of two psychological features. Current positive feelings for oneself and what you have accomplished as well as acceptance of past experiences. Having real and acceptable evaluation of personal history (self-acceptance) is not only a characteristic of well-being, but also it determines the integration of self in many personality theories (Corr & Matthews, 2009). Ryff and Stinger (2008) explained that in many theories self-acceptance is central to mental health. Theorists, such as Maslow (self-actualization), Rogers (optimal functioning), and Allport (maturity) see self-acceptance as central to our sense of well-being. These theorists, like Ryff, consider self-

awareness as a reflective process involving on-going self-evaluation, resulting in an acceptance of personal strengths and weaknesses.

According to Ryff, having positive relationships with others is another major component of mental health. As such, it is one of the criteria for diagnosing mental disorders. For example, this criterion is a main element in almost all reliable diagnostic scales assessing mental health, such as the Global Assessment Scale (GAS), Social and Occupational Functioning Assessment Scale (SOFAS) and Global Assessment of Relational Functioning Scale (GARFS) (DSM IV-TR, 2000). This component is characterized by warm, trustful, mature, close, intimate, generative, satisfied, open and stable interactions with others. As stated by Ryff (1989), individuals who achieve high scores on well-being scale do not show difficulty in keeping their relations open, warm, trusting or in sustaining important ties with others. She explained that developmental theories emphasize positive relationships with others as a main factor of well-being. Hansen et al. (1995 cited in Hall-Lande et al., 2007) demonstrated that close and supportive relationships among adolescents are accompanied with "higher levels of peer acceptance, increased social competence, higher levels of motivation and active school involvement, and lower levels of behavioral problems as well as increased levels of self-worth, social competence, leadership skills, and improved school performance" (p. 266). Additionally, having positive relations with others during childhood and adolescence is a strong predictor of further psychological health (Bukowski & Parker, 1998 cited in Hall-Lande et al., 2007). Regarding self-efficacy and self-esteem as two major components of personality, it is argued that close relationships with others (particularly with peers during adolescence) has been associated with self-concept, personal-identity and emotional well-being (Rubin & Mills, 1988 cited in Hall-Lande et al., 2007).

Ryff (1989) stated that environmental mastery is related to an individual's ability to select or generate suitable environments for her or his psychic conditions. In this view, environmental mastery is characterized as a capacity to manage and manipulate complex environments as well as the ability to plan,

organize and change the environment toward healthy situations. As reported by Ryff and Singer (2008), environmental mastery is positively and highly associated with other mental health components such as positive relationships with others.

The final component in Ryff's theory is autonomy, which can be defined as "a state of independence and self-determinism" (Corsini, 1999, p. 86) or the degree to which individual feels free to act (Prezza, & Giuseppina Pacilli, 2007). With regards to mental health, autonomy can be seen as the degree of freedom by which a person can partake in an activity independently. Autonomy is not only characterized by participation and independence, it also determined by the regulation of behavior (self-regulation), self-determination (Ryff, 1989), self-direction, self-initiative, and self-management (Savicki, 1999). With regard to major features of autonomy including participation and independence and self-regulation, this component is strongly influenced by cultural factors. Autonomy is a type of social phenomenon that different cultures may value differently and in different ways. In this regard, cultures can be placed at different points on one spectrum (see figure 2).

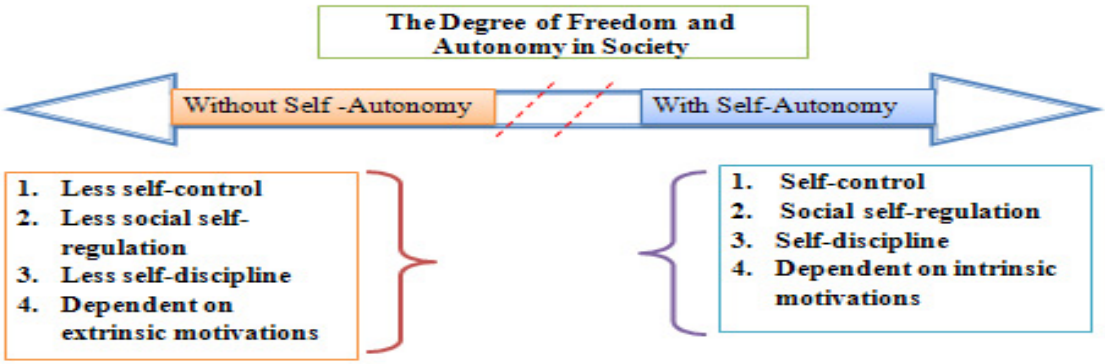

Figure 2: The continuum of freedom and self-autonomy

As Figure 2 shows, some cultures allow people to have considerable freedom (individually or collectively) and others do not. For instance, studies have shown that children in Europe "are less free in their autonomous movements and outdoor play in public places" (Hillman, 1993 cited in Prezza et al. 2007, p. 152). Amongst European countries, Italy is perceived as the least autonomous in outdoor play (Hillman, 1993 cited in Prezza et al. 2007). Although European countries seem to have individualistic cultures in which more emphasis is placed on self-direction and being autonomous, children within the countries have little autonomy. Autonomy is valued in individualistic cultures, and children, adolescents and young adults are encouraged to become independent as an index of mental health. Similarly, in collectivistic cultures, autonomy may be valued, but in the form of group actions, group responsibility, loyalty and commitment among individuals. Yet, less autonomy, particularly in restrictive communities, has two opposite consequences: first, it seemingly prevents individuals from committing outdoor crimes, but it also restricts their mental health improvement and other domains of psychological development (Prezza et al. 2007). Ryff (1989) demonstrated that those individuals who achieve high scores on a well-being scale (subtest autonomy) show self-determination, independence, resistance to social pressure, self-evaluation and self-regulation by personal standards.

Self-regulation, as a feature of autonomy and mental health, is impacted by cultural or social restrictions, making individuals dependent on external regulation and extrinsic motivation (Ryan & Deci, 2000). Since such factors (e.g., extrinsic motivation) are not strong enough to activate, direct and sustain behaviors to reach goals, to enhance environmental mastery or to have positive relations with others, adolescents and young adults become unmotivated in their achievements (Ryan & Deci, 2000). In this regard, Ruini and Fava (2009) compared patients on two levels (impaired and optimal) of the well-being scale in Ryff's model. They found that within the impaired level group "the patient is overly concerned with the expectations and evaluation of others; relies on judgment of others to make important decisions; conforms to social pressures to think or act in certain ways" (p. 511).

In order to assess these mental health components Ryff (1989; Ahrens & Ryff, 2006; Ryff & Singer, 2008) constructed a well-being scale. The current scale is available in two different forms, (long and short). Numerous, in-depth studies were carried out in various countries to establish psychometric properties of the measure and the validity of the theory of well-being (Abbott, Ploubidis, Huppert, Kuh, & Croudace, 2010; Akin, 2008).

The Ryff's scale was also studied to determine the roles of different factors in predicting well-being among various populations (Archontaki, Lewis, & Bates, 2012). Focusing on associated factors with mental health components, it is reported that these factors are numerous in terms of being social, genetic, cultural or physical (Solomon, 2000; Allen-Kosal, 2008; Doster, Mielke, Riley, Toledo, Goven, & Moorefield, 2006; Valentino, Cicchetti, Toth & Rogosch, 2006; Thompson & White, 2010). Among different factors, loneliness as a psycho-social agent has been studied to predict mental disorders such as depression (Qualter et al, 2010), although its role has not been studied in association with mental health components. Since it is assumed that there is a relationship between loneliness and mental health components, its role is central in this study.

Loneliness

Loneliness has been variously defined by different authors. Solomon, (2000) defined loneliness as "an aversive experience and an enduring condition of emotional distress that arises when a person feels estranged from, misunderstood, or rejected by others and/or lacks appropriate social partners for desired activities, particularly activities that provide a sense of social integration and opportunities for emotional intimacy" (p. 161). It is also characterized as an inconsistency between an individual's motives and his or her actual social relationships (Russell, et al., 1980 cited in Masi, Chen, Hawkley, & Cacioppo, 2011).

Historically, perspectives on loneliness theory were presented by Sullivan (1953 cited in Brage, Meredith, & Woodward, 1993) and Winnicott (1957 cited in Buchholz & Catton, 1999). Both perspectives

stress that loneliness, as a core element in psychopathology, is central to the concept of mental health. Winnicott, however distinguished 'capacity to be alone' from pathological loneliness (1957 cited in Buchholz et al. 1999). Such theories resulted in a pathological view of loneliness. Following an extensive review of the literature related to loneliness, Allen-Kosal (2008) described loneliness as a main symptom belonging to different categories of disorders such as depression, anxiety, suicide, and psychosomatic complaints. Loneliness, from this perspective, is characterized either as a result of some specific deficits (Chipuer, 2004) or as a main cause of other mental illnesses (Allen-Kosal, 2008). Across various deficits, researchers emphasize specific symptoms that create a sense of loneliness, such as a lack of positive relationships with others, lack of social partners for desired activities (Brage et al. 1993; Masi et al., 2011), lack of quantity and quality of social interactions (Hawkley & Cacioppo, 2010; Chipuer, 2004; Allen-Kosal, 2008), and lack of social integrations and opportunities for emotional intimacy (Solomon, 2000). Scrutinizing these views reveals that loneliness can be seen as a phenomenon caused by different types of deficits with a social interaction deficits being the most prominent. These definitions of loneliness, however, do not consider the essence of loneliness as a unique phenomenon. While loneliness can be considered in terms of social interaction deficits, non-social deficits, such as emotional or cognitive deficiencies, can also cause loneliness. Since other types of deficits may play a role in generating loneliness, how then do we characterize it as a separate entity?

Since loneliness is associated with social elements instead of non-social elements, and it is very similar to other concepts such as solitude and aloneness, researchers tend to characterize loneliness as a social phenomenon rather than emotional or cognitive state. It seems that solitude is more cognitive phenomenon, in which volition is a determinant, rather than social (Galanaki, 2004). I discussed the differences between solitude and loneliness in the section of differentiating features of loneliness. Furthermore, the methods researchers used to study loneliness, such as interviews, observations or surveys, are rather concentrated on the social features of this phenomenon. For example, the UCLA questionnaire of

loneliness (Hughes, Waite, Hawkley, & Cacioppo, 2005), which is used in numerous studies, has 14 out of 20 questions directly related to social aspects of loneliness and only 4 questions related to the emotional features of loneliness. Fortunately, new trends in the study of loneliness, along with the critical review of current and past findings, has changed most views of loneliness so that it is no longer viewed as being one-dimensional but rather as multidimensional (Qualter & Munn, 2002 cited in Chipuer, 2004, p. 147). This change has allowed researchers to characterize loneliness based on a variety of factors or dimensions including emotional, cognitive and social agents.

Chipuer (2004) demonstrated that three dimensions are involved in loneliness: distressed feelings, social rejection and references to self. Masi et al. (2011), in a meta-analysis of 50 articles, stated that although most qualitative reviews focus on social aspects of loneliness and on social intervention strategies in reducing loneliness, the most successful interventions addressed loneliness as a cognitive and social problem from a multi dimensional view. They stressed that "studies in this meta-analysis did not distinguish between social and emotional loneliness" (p. 259). Additionally, other qualitative and quantitative studies, in which loneliness was analyzed based on children's descriptions of loneliness, emphasize all the above noted dimensions.

In each dimension of loneliness, there are various but integrated components characterizing loneliness as a distinct psycho-social phenomenon. Allen-Kosal (2008) quoted that at least four components have been mentioned as core constituents of loneliness. They include the "intensity and types of missing relationships, rationalization and defensiveness of the feelings of deprivation, time perspective, and perception of personal abilities to change the situation" (p.3). The most reasonable and current classification of the components can be found in Chipuer's (2004) research. He analyzed the meaning of *being lonely* in children and categorized the components of loneliness into three following classes:

a. "[D]eficits in social relationships (e.g., needing someone and no one being there for you, having no one to talk with, being rejected by peers, being left out, having no one to play with, being alone, having no friends)

b. "[D]istressing emotions (e.g., feeling silly, empty, upset, not right, disappointed, depressed, confused, sad, bored)"
c. "[R]eferences to self (e.g., not being taken for who you are, being jealous of others, having no courage to talk about your situation, being in your own world, needing to do more for friends, having nothing to do or no fun, being different)" (p. 149).

In addition to Chipuer's classification, there are differentiating criteria that can be easily used to diagnose loneliness in children, adolescents and young adults. For example, Kochenderfer and Ladd (1996 cited in Shields, Cohen, and Parra, 2011) have demonstrated that "the patterns of change in loneliness [are stable] during kindergarten and from kindergarten to third grade" (p. 26). Similar to adolescents and adults, children may experience a shorter duration of loneliness as a part of normal daily life. If it becomes long-term and chronic, it can influence their social and educational performances or general mental health (Qualter et al. 2010). Therefore, its duration is considered as a determinant in symptomatology and impacts the treatment process.

The emotional features of loneliness are another criterion. As school-age children and adolescents are able to describe their emotions richly, they have reported that loneliness is a painful emotion associated mainly with "sadness and boredom" (Chipuer, 2004 p. 148). This feature is reflected in individuals' expressions like "feeling unneeded, feeling left out, it feels like no one likes you" (Solomon, 2000 p. 161). However, most people experience loneliness at some stage of their life. In some individuals, it happens when they are alone and they want to be with other people; whereas, in the other groups of individuals it occurs

when they are among friends or peers but do not feel connected. Individuals may also express this problem as a feeling of unhappiness or sadness that happens when something is wrong. Thus, these different manifestations can indicate that loneliness has rather an emotional and subjective nature (Chipuer, 2004).

One of the most prominent features of loneliness, that has been documented qualitatively and quantitatively, is limited social interactions, particularly with peers (Renshaw and Brown, 1993 cited in Allen-Kosal, 2008). This characteristic can be diagnosed by investigating the quantity of friends, "the quality of friendship, [inclusion], emotional support, affection, reliable union, enhancement of personal worth, and opportunities for nurturance need" (Galanaki, 2004 p.435). Galanaki (2004) stresses that the way individuals perceive these components reveal the cognitive dimension of loneliness (p.435). Loneliness is also associated with passive social withdrawal (Shields et al., 2011). Even though some people would like to be isolated sometimes, social withdrawal is one of the behaviors which are linked to loneliness, as well as other symptoms (Shields et al. 2011). In addition to all these characteristics, there are some specific features of loneliness that differentiate this phenomenon from other phenomena. These features are discussed as differentiating features in the following.

Differentiating Features of Loneliness: One way to explain various phenomena precisely is to specify differences between the concepts by which phenomena are recognized. Each concept (e.g., loneliness or depression) is assumed to be representative of one specific phenomenon, and then it is presupposed that each concept, per se, has enough differentiating aspects to be distinguished from other concepts, even if they have similar characteristics. To verify the differentiating features of loneliness, it is necessary to compare this concept with seemingly corresponding phenomena such as 'aloneness and solitude'.

When one experiences loneliness, the feelings of "sadness, silly, empty, upset, depressed, bored, hopelessness, and confused" (Buchholz & Catton, 1999 cited in Chipuer, 2004, p. 149) are prominent.

However, there is no link between aloneness and such negative emotions. Although, it seems that a person who is alone can suffer from these negative emotions, Galanaki (2004) stresses that painful loneliness may or may not be rooted from aloneness. Similar to attachment, aloneness is also regarded as essential for human development (Buchholz & Catton, 1999). Winnicott (1957 cited in Buchholz & Catton, 1999) argued that the capacity of being alone provides an opportunity through which children, even infants "can discover [their] own personal [lives]" (p. 205).

Likewise, it is argued that solitude is a positive, self-selected situation in which individuals voluntarily choose to be alone without feelings of sadness or other distressing emotions (Galanaki, 2004). Furthermore, solitude and being alone are effective in personality development and creativity (Galanaki, 2004). Yet loneliness is seen as a negative agent which impairs executive functioning in individuals (Cacioppo & Hawkley, 2009 cited in Masi et al., 2011). Comparing loneliness and being lonesome, it is also noted that "being lonesome is a 'normal' and 'a transient state of mind' resulting from missing somebody specific, but loneliness is an overwhelming and persistent experience […] an 'inner worm' that gnaws at the heart" (Buchholz et al., 1999 p. 205).

Not only psychoanalytic views such as Winnicott's or Sullivan's differentiate loneliness from aloneness and other concepts, but also existentialistic perspectives describe two categories of loneliness: "loneliness anxiety" and "true loneliness" (Moustakas, 1960 cited in Buchholz et al., 1999 p. 205). Loneliness anxiety activates defense mechanisms that divert individuals from real life, enforcing them for not having relationships with others. In contrast, true loneliness originates from the awareness that one is alone, which can be a motive for creativity (Peplau & Perlman, 1982 cited in Buchholz & Catton, 1999 p. 205). To differentiate loneliness from such related concepts, researchers consider other significant features such as frequency, intensity, duration, and consequences. With these criteria, pathological loneliness can be distinguished from normal loneliness, even though other related concepts can be used to explain the normal

conditions of loneliness. The problem with this type of view is its emphasis on a medical model of loneliness, which makes it difficult among the related concepts such as loneliness, social isolation or social rejection. To avoid this problem, researchers need to add etymological and logical discourse to their empirical attempts to recognize the differences between corresponding phenomena.

In this regards, two theories can be utilized, classical theory and prototype theory. Researchers tend to use classical theory unconsciously or on purpose to differentiate phenomena from each other. It is assumed that this theoretical approach can provide researchers with a fundamental way to establish differential diagnosis between similar phenomena, but it is not obvious to what extent this theory can help researchers distinguish loneliness from other similar phenomena. Based on classical theory a "concept C [any type of phenomenon such as loneliness] has definitional structure in that it is composed of simpler concepts that express necessary and sufficient conditions for falling under C" (Margolis & Laurence, 2011 p. 7). For example, the definition of loneliness as a distressing emotion or lack of social relationship is a type of classical definition. These simpler concepts (e.g., distressing emotion or lack of social relationship) not only cannot determine the components of concept C (loneliness), but they hardly differentiate one concept (loneliness) from similar concepts (e.g., aloneness and solitude). In contrast, the prototype theory is capable of distinguishing concepts from each other by focusing on their characteristics. According to this theory, "a lexical concept C doesn't have definitional structure but has probabilistic structure in that something falls under C just in case it satisfies a sufficient number of properties encoded by C's constituents" (Margolis et al., 2011 p. 8). Since aloneness, solitude and other similar concepts cannot satisfy a sufficient number of characteristics embedded in loneliness, they are different from loneliness. As well as looking at the characteristics and components of loneliness, the causes and the consequences of loneliness must be explored.

Causes of Loneliness

Since loneliness influences human behaviors, its causes and consequences have been central to various studies (Galanaki, 2004; Hawkley et al., 2010; Solomon, 2000). Neuropsychologists, biologists and the other experts who have concentrated on the biological factors of loneliness have demonstrated that loneliness is genetically formed or at least genetic factors play a role in its onset. Loneliness is also seen as a major symptom of depression and because depression has genetic roots, it is assumed that loneliness has a genetic foundation (Qualter et al., 2010). This view comes from the fact that loneliness has a "pattern of sequential comorbidity with depression" (Qualter et al. 2010 p. 498). On the basis of depressogenic cognitions in young children, Qualter et al. (2010) pointed out that it is possible these conditions are boosted by loneliness.

Focusing on twins, those researchers who have studied genetic factors of loneliness have demonstrated that loneliness is rooted in genetic conditions. Result of a study on 8000 Dutch twins demonstrated that "genetic factor can contribute 48% of the variance in loneliness for adults (average age 32.7 years) and 50% for children" (Boomsma et al. 2005 cited in Allen-Kosal, 2008 p.12). This range of variance shows the significance of genetic factors in loneliness. It was also noted that the genetic components of loneliness have been estimated between 48% and 55% both in children and adults (Van Roekel et al., 2010 p. 747). Van Roekel's et al. (2010) discovered the exact genes that play the main role in loneliness. In his study, they found that "5-HTTLPR" (a functional polymorphism in the promoter region of the serotonin transporter gene) is highly associated with loneliness in adolescents. This finding supports those views that claim loneliness is created by biological factors or, at the very least, individuals are genetically predisposed to loneliness. Although the roles of genes are significant in predisposing children and adolescents to loneliness, environmental factors have almost an equal role in the development of loneliness.

It has been stressed that the context of the family and the quality of parent-child relationships play powerful roles in the development of children's relations with peers, forming the bases for early socialization (Howell et al. 2007 cited in Allen-Kosal, 2008; Solomon, 2000). Early socialization procedures in families such as "interpersonal relationships, family atmosphere, and parental abilities" gradually shape and construct the child's social skills (Solomon, 2000 p. 162). Since loneliness is characterized by lack of social interaction, it is purported that low or negative parental interactions can cause loneliness. In addition to parental interactions, peer relationships are associated with loneliness (Chipuer, 2004; Shields et al., 2011). Lack of peer acceptance can create, as well, loneliness in both adolescents and young adults. Since all noted factors (e.g., lack of peer relationship, negative family atmosphere and others) can be associated with mental health difficulties, and because they have correlation with loneliness, it is assumed that loneliness can affect mental health as well.

Loneliness and Mental Health

A review of the literature on loneliness reveals that this multidimensional phenomenon is relatively prevalent and has a negative impact on different aspects of mental health. Hawkley et al., (2010) stated that loneliness is a common experience with 80% of individuals under 18 years of age reporting being lonely at least a couple of times. In addition, 40% of adults who are over 65 years have symptoms of loneliness. It has been also found that 15 to 30% of the general American population suffers from chronic loneliness (Theeke et al., 2009 cited in Hawkley & Cacioppo, 2010). Allen-Kosal (2008) estimated that at least 10% of school age children frequently feel lonely. These children experience mental, educational or social difficulties. It has also been suggested that loneliness impairs managerial functioning that is essential for mental health in children (Masi et al., 2011). This emotional distress reduces the amount of psychomotor activities and the efficiency of cognitive abilities in adolescents and young adults. Therefore, vigilance and attention, two important mechanisms in learning, can also be negatively affected by loneliness. All these consequences

influence children's and adolescents' mental health (Hawkley et al., 2010; Berguno et al., 2004), and impact the individual physically, mentally, and socially.

Indeed, it has been demonstrated that loneliness can affect different biological functions in children and adolescents such as "increased vascular resistance in young adults" (Masi et al, 2011 p. 220). Masi et al., (2011) in a meta-analysis study reported that "lonely people are more likely to be hurt from progression of Alzheimer's disease" (p. 220). Furthermore, studies on animals (mice) have shown that loneliness decreases "central anti-inflammatory reactions, and raises infarct size following induction of stroke" (Karelina et al., 2009 cited in Masi et al, 2011 p. 220).

According to Hawkley et al., (2010) loneliness can affect an individual's cognitive and biological systems:

> We have noted that loneliness heightens feelings of vulnerability and unconscious vigilance for social threat, implicit cognitions that are antithetical to relaxation and sound sleep. Indeed, loneliness and poor quality social relationships have been associated with self-reported poor sleep quality and daytime dysfunction (i.e., low energy, fatigue), but not with sleep duration. In young adults, greater daytime dysfunction, a marker of poor sleep quality, was accompanied by more nightly micro-awakenings (p. 221).

Enduring loneliness can also cause interpersonal difficulties including social rejection, lack of social skills, and a low sense of social-competence (Masi et al, 2011; Allen-Kosal, 2008). Childhood loneliness may also be the cause of changed affect in children. Some children react to this phenomenon with 'sad passivity' (Solomon, 2000 p.162). These children manifest symptoms such as "crying, oversleeping, sitting thinking and doing nothing, overreacting, showing aggressive behavior or maladjustment" (Solomon, 2000 p.162).

Loneliness can be an indicator of other disorders throughout adolescence and adulthood. As a predisposing factor, loneliness may predict difficulties in major areas such as physical health, emotional health and social behavior (Allen-Kosal, 2008). Results of a longitudinal study (8 years) of 296 children aged between 5 and 13 revealed that childhood loneliness was a strong predictor of adolescent depression (Qualter et al, 2010). This demonstrates that there is a correlation between being lonely in early childhood and showing depressive symptoms in adolescence. Indeed, loneliness may be considered as a key symptom of depression. Beck (1967 cited in Brage et al., 1993) reported that a feeling of loneliness is associated with depression. This association has been also substantiated with adolescents (Moore & Schultz, 1983 cited in cited in Brage et al., 1993) and college students (Rich & Bonner, 1987 cited in Brage et al., 1993). In addition to this relationship, Allen-Kosal (2008) reported that loneliness is correlated with a failure to complete high school, and with alcoholism, drug use, low self-esteem, and depression. In addition, lonely children reported more experiences of being bullied at school (Berguno et al., 2004).

Although most of the aforementioned effects of loneliness have been negative, some researchers believe that loneliness has positive effects. For example, Berguno et al., (2004) suggested that "even though loneliness could be interpreted as a reaction to interpersonal situations which makes some difficulties, it also becomes an important motivational factor in the child's interpersonal development" (p. 485).

Generally, the noted investigations reveal that researchers have been willing to study the causal relationship between loneliness and mental health problems. Their interest led them to find the association between loneliness and some major mental illnesses such as depression or Alzheimer's disease. Although these relationships were studied precisely, the impact of loneliness on positive mental health components has not been studied yet. Therefore, the purpose of this study is focused on this type of association.

The Purpose of Study

As was previously mentioned, the concept of mental health is multidimensional, and in young adults, its components should be considered discretely. Individual components of mental health include efficient functioning within a community (WHO cited in Michaud & Fombonne, 2005), positive self-esteem, happiness, life-satisfaction (Corsini, 1999, p. 1068), personal growth, self-acceptance, purpose of life, autonomy, positive relations with others, and environmental mastery (Ryff, 1989; Ryff & Singer, 2008; Westerhof & Keyes, 2010; McDowell, 2010). However, factors that can affect a young adult's mental health components vary in intensity and their predictive value. The more influential factors the greater its predictive value. Although these factors, which are recognized as predictors of mental health, are varied, they can be classified into three categories: 1) Developmental characteristics of young adults (e.g., conflict between autonomy and attachment, shifts in relationship with parents, risk taking like sexual or drug experiences, idealistic and abstract thinking, rapid puberty, early maturation, socialization, and identity crisis as well as changes in self-esteem, peer relationships and body-image, (Santrock et al., 2005). 2) Demographic and social variables like age, sex, education, marital status (Ryff, 1989), immigration, and marginalization (Neto, 2010). 3) Social-emotional factors like loneliness (Brage et al., 1993; Berguno et al., 2004), poor peer relations, family disturbances, negative body-image, peer rejection (Solomon, 2000; Allen-Kosal, 2008), low levels of physical activity (Doster et al., 2006; Valentino, Cicchetti, Toth & Rogosch, 2006; Thompson & White, 2010), and smoking (Santrock et al., 2005).

Among all of the above factors, loneliness is central to and a predictor of mental health, despite fewer studies being conducted on its roles as a predictor. Although loneliness and its associations with mental disorders have been studied by many researchers (Brage et al., 1993; Berguno et al., 2004), the roles of loneliness in predicting mental health components based on Ryff's theory have not been studied. Additionally, most investigations, in which loneliness was studied, were focused on its relationship with

physical health (Pellis, Pellis, & Bell, 2010). Since in some theories (e.g., Sullivan's theory cited in Berguno et al., 2004; Brage et al., 1993) loneliness is a main factor in mental health problems, its roles should be central to the analysis of mental health components on a positive well-being spectrum. Therefore, the purpose of this study includes first: determining the roles of loneliness in predicting all components of mental health in Ryff's theory (e.g., personal growth, self-acceptance, purpose of life, autonomy, positive relation with others, and environmental mastery (McDowell, 2010; Ryff, 1989; Westerhof & Keyes, 2010, p. 111), and second: determining the degree to which loneliness together with demographic and cultural factors can predict mental health components in young adults. Based on these purposes and previous studies (discussed in literature review) the following hypotheses and research questions will be tested in this study.

Hypotheses and Research Questions

Hypotheses: In this study the following hypotheses will be examined:

1) On the grounds that loneliness impairs managerial functioning, which is essential for mental health (Masi et al., 2011), and it also impairs the perception of personal abilities to change the situation (Jong- Gierveld 1978 cited in Allen-Kosal, 2008), it is hypothesized that young adults with loneliness will show low scores in *environmental mastery* as a major component of mental health.
2) Since loneliness has negative effects on adolescents' social interactions resulting in social rejection, lack of social skills, and low sense of social-competence (Allen-Kosal, 2008), it is hypothesized that young adults with feeling of loneliness will show low scores in *positive relations with others* as a component of mental health.
3) Since one of the domains of loneliness is "self-domain" (Chipuer, 2004 p. 149) in which individuals attribute their loneliness to themselves negatively, it is assumed that there is a relationship between the degree of *self-acceptance* as a key element of mental health, and the feeling of loneliness.

4) On the grounds that loneliness is characterized by "distressing emotions (e.g., feeling silly, empty, upset, not right, disappointed, depressed, confused, sad, bored)" (Chipuer, 2004 p. 149), and these negative emotions are associated with lack of intentionality and hope (Mascaro, 2006), it is assumed that young adults with loneliness do not have clear *purpose of life,* which reveals their low level of mental health.
5) It is hypothesized that there is a relationship between *autonomy* (as a constituent of mental health) and the feeling of loneliness.
6) Because the "[negative] perception of personal abilities to change the situation" is one of the components of loneliness" (Jong- Gierveld 1978 cited in Allen-Kosal, 2008 p. 3), and lonely persons suffer from "pessimistic views" (Davis et al., 1992 cited in Quadri, 2012 p. 2), it is assumed that individuals with loneliness do not tend to develop their personal abilities or actualize their potentialities in a positive way; therefore, their scores in the subtest of *personal growth* are lower than individuals' scores who do not suffer from loneliness.

Research questions: Regarding demographic and cultural factors, the following questions will be tested in this study:

7) Is there a relationship between the number of siblings and feelings of loneliness as measured by participants' responses on R-UCLA Loneliness Scale?
8) Is there a relationship between living arrangements and loneliness as measured by participants' responses on the R-UCLA Loneliness Scale?
9) Is there a relationship between gender and loneliness, and gender and mental health as measured by participants' responses on R-UCLA Loneliness Scale and Ryff's Scales respectively?
10) Is there a difference between a sense of loneliness (R-UCLA Loneliness Scale) and mental health (Ryff's Scale) in terms of marriage status?

11) Is there any difference between a sense of loneliness and mental health as measured by the R-UCLA Loneliness Scale and Ryff's Scales respectively in terms of citizenship?

Chapter III

Method

This chapter contains a description of the variables, participants in this study and the measures. In addition, the research process is described as well as the data analysis techniques and ethical issues.

Variables and Operational Definitions

Variable has been defined as "an element that varies, that is, takes on different values while the other conditions remain constant" (Corsini, 1999, p. 1045). On the basis of variables' roles, they are classified as independent, dependent, moderator, control, and confounded variables (Wiersma et al., 2009). These categories guide researchers to recognize the mathematical and statistical relations between variables in their research. Based on statistical assumptions, variables should be defined operationally to specify the sequential steps in conducting research. An operational definition is a type of definition that "describes how or by what means we are going to measure the variable" (Wiersma et al., 2009, p. 36). Operational definitions also specify how phenomenon or construct is "*created, determined or measured*" (Corsini, 1999, p. 668). Measurable definitions used in this research include:

1) Mental health, in this study, encompasses the components put forwards by Ryff (1989), which include environmental mastery, purpose of life, positive relations with others, self-acceptance, personal growth, and autonomy. They are all dependent variables that are measured by Ryff's Psychological Well-Being Scale (Ryff, 1989).

2) Loneliness, as an independent variable, is an enduring condition of emotional distress (Solomon, 2000) which was measured by Differential Loneliness Scale, short student version (Schmidt & Sermat, 1983) and R-UCLA Loneliness Scale (Hughes et al., 2004).
3) Young adults, for this research, were undergraduate students between age of 19 and 30. All were enrolled at MSVU located in Halifax, Nova Scotia, Canada.

The other variables such as marriage status, citizenship, number of siblings and living arrangements were controlled by random sampling or entered in the study as moderator variables.

Participants:

One-hundred and ninety-nine students, enrolled at MSVU either in an art, science or professional degree program, participated in this study. Of this group of participants, 19 individuals were excluded because they were under 19 years old. Therefore, data was analyzed using 180 questionnaires related to participants between age 19 and 30 years old. Participants' demographic characteristics are discussed in chapter 4.

Procedure:

Once approval was obtained from the Thesis Committee and the Mount Saint Vincent University Research Ethics Board, faculty members, who were selected randomly in various departments, were contacted by email for permission to distribute the survey in their classes. When permission was granted, a follow-up email was sent to the faculty member, confirming class time, number of students, and location. After receiving the permission, a researcher arrived at the classes, and explained the purpose of the study.

Students were assured that the information provided on their questionnaire was confidential and no identifying information was required. Only my supervisor and I had access to the data. They were also informed that questionnaires would be destroyed after the data were coded and entered on a password

protected computer. Students were given an opportunity to ask questions. Limited to one statistical society such as university (e.g. Mount Saint Vincent University), systematic multistage random sampling was an appropriate sampling design for this study. In this sampling plan the following stages were used:

1.1. Identifying and providing the frame of sampling (on campus classes).

1.2. Identifying a list of all on campus classes in winter term

1.3. Select 17 classes from stage 1.2 randomly (all classes together consisted of 865 students)

1.4. Going to the selected classes based on stage 1.3 with the instructors' permission

1.5. Using simple random ways to choose students in each classes until reaching the expected samples (about 200 samples)

1.6. Describing the goals of research, emphasizing confidentiality of answers and explaining the ethical issues to potential participants (in which there was no need to write any ID information).

1.7. Administrating the scales and questionnaires to the selected students in stage 1.5 and 1.6. and collecting the data

1.8. Coding the surveys and preparing data for next step (statistical analysis).

Measures

Four measures including the Differential Loneliness Scale, R-UCLA Loneliness Scale, Ryff's Well-Being Scale and a Demographic Questionnaire were utilized in this research.

Loneliness measures: To measure loneliness in young adults in this study, two scales were used: Differential Loneliness Scale (DLS) – short student version (Schmidt & Sermat, 1983), and the R-UCLA Loneliness Scale (Hughes et al., 2004). The Differential Loneliness Scale (Appendix A), short student version, is designed particularly to assess loneliness in students (young adults). The scale measures loneliness in four types of relationships, namely romantic/marital (sexual) relationships (R/M), friendships

(Fr), relationships with family (Fam), and relationships with larger groups (Gr). These types of relationships are factors by which the main areas of loneliness can be assessed. This scale has good validity and reliability, making it appropriate for research (Schmidt, & Sermat, 1983). The person completing the measure reads each 20 item stems and then indicates whether it is True or False. The main goal in choosing this scale was to measure the reliability of R-UCLA Loneliness Scale by means of parallel test (the correlation between R-UCLA Loneliness Scale and DLS). Using Cronbach's Alpha by SPSS, the reliability of DLS was 0.72 for standardized items. This reliability coefficient was obtained using 20 items and for 157 valid cases. Twenty-three cases were automatically excluded from reliability analysis by SPSS since participants did not respond to some items. The correlation between DLS and R-UCLA Loneliness Scale was significant ($r=0.494$, $P < 0.000$).

The revised R-UCLA Loneliness Scale was another measure used in this study to analyze the hypotheses and research questions. This measure is a well-known tool that has been used in many studies (Schmidt & Sermat, 1983; Hughes et al., 2004; Davis & Franzoi, 1986 cited in Terrell et al., 2000). This measure had Alpha coefficient of .94 and test-retest reliability of .73 in Russell's (1982 cited in Terrell et al., 2000) study. The scale has two parts, with 20 on part A and 3 items on part B. The 20 items on part A of the R-UCLA Loneliness Scale require Likert format responses (*never- rarely- sometimes- often)* and are scored from 1 to 4. The three items on part B, as shown in the bottom panel of the measure, are coded in different categories but also have a Likert response format with 1 *(hardly ever),* 2 *(some of the time), and* 3 *(often)*. For the R-UCLA, responses to the questions are summed, with higher scores indicating greater loneliness.

In this study, the psychometric properties of the R-UCLA Loneliness Scale (20-items) showed its high reliability with Cronbach's Alpha 0.87. Its Cronbach's Alpha for whole 23 items was 0.89. As shown in Table 1, using parallel reliability method, the correlation between both versions of R-UCLA Loneliness

Scales (20 and 3 items) was significant r=0.79, (P < 0.000). Having high reliability, the R-UCLA Loneliness Scale (20-item version) was used to analyze the hypotheses (Appendix B)

Table 1: The Correlation between Three Loneliness Scales

		Total Score of R-UCLA Loneliness Scale (20 Items)	Total Score of R-UCLA Loneliness Scale (3 Items)	Total Score of Differential Loneliness Scale (Student Version)
Total Score of R-UCLA Loneliness Scale (20 Items)	Pearson Correlation	1	.790**	.494**
	N***	159	158	147
Total Score of R-UCLA Loneliness Scale (3 Items)	Pearson Correlation	.790**	1	.379**
	N***	158	175	155
Total Score of Differential Loneliness Scale (Student Version)	Pearson Correlation	.494**	.379**	1
	N***	147	155	157

** Correlation is significant at the P < 0.000 level (2-tailed).

*** N is different because of excluding the missing values

Mental health measure: As mentioned earlier, Ryff's Psychological Well-Being Scale was used in this study to measure mental health components (the depended variable). Ryff's Psychological Well-Being Scale (PWB) (Appendix C) is a well-known tool to evaluate different dimensions of mental health (Van Dierendonck, 2005). Ryff's (1989) scale provides an effective psychological model to assess well-being or positive mental health (Cheng, & Chan, 2005). This scale is constructed based on clinical and life span developmental theories related to mental health (Van Dierendonck, 2005). The scale measures six major components of mental health status including: "self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life and personal growth" (McDowell, 2010; Ryff, 1989 cited in Westerhof & Keyes, 2010, p. 111). Each of these components has its own subscale. The measure has different versions in terms of the number of items within each subscale, for example there are versions with

14 items, 7 items and 3 items. In this study, the version with 7 items per subscale (42 questions) was used. The validity and reliability of this scale has been examined by many researchers in different societies (Van Dierendonck, 2005; Ryff & Keyes, 1995; Kafka & Kozma 2002; Ryff, 1989; Ryff, & Singer, 2008; McDowell, 2010). Although the validity and reliability of this scale has been examined (McDowell, 2010), all the subscales (components) were analyzed by measurement methods (e.g., split-half and Cronbach's Alpha method) for this study. The Cronbach's Alpha for Ryff's Scale was 0.90, demonstrating that the measure has high internal consistency. As shown in Table 2, each subscales of Ryff's Well-Being Scale had high reliability Using split-half method, the reliability of Ryff's Well-Being scale was high (r = .83, P <.000).

Demographic questionnaire: To assess other variables such as family status, age, gender, living arrangements and other general variables a demographic questionnaire was designed. This questionnaire assesses noted variables based on nominal and ordinal scales (Appendix D).

Table 2: Cronbach's Alpha Reliability of Subscales of Ryff's Well-Being Scale

	*Autonomy	*Positive relations with others	*Environmental mastery	*Personal growth	*Purpose in life	*Self-acceptance	Total Items 42
Cronbach's Alpha	0.71	0.80	070	0.51	0.75	0.74	0.90
Cronbach's Alpha Based on Standardized Items	0.71	0.81	0.71	0.57	0.75	0.74	0.91
Number of items	7	7	7	7	7	7	42
Number of valid cases	172	172	170	171	168	164	148

*Well-Being Components as Measured by Ryff's Scale

Table 3: Cronbach's Alpha Reliability of Ryff's Well-Being Scale Using Split-Half Method

Cronbach's Alpha	Part 1	Value	.837
		N of Items	21[a]
	Part 2	Value	.830
		N of Items	21[b]
	Total N of Items		42
Correlation Between Forms			.746
Spearman-Brown	Equal Length		.855
Coefficient	Unequal Length		.855
Guttman Split-Half Coefficient			.855

Data Analysis

As the purpose, hypotheses and the nature of variables of this study show, the study is a correlational research. Correlational research refers to a type of study that examines possible relationships by observing existing states or situations in the same participants (Wiersma et al., 2009). Using correlational method, researchers attempt to describe the *strength* of relationships or associations between phenomena (variables). Although there is no causal inference in this method, to the extent that two variables are associated or related researchers can predict one event from the other. Since this method provides researchers with the possibility of prediction (Whitley, 2002 cited in Santrock, 2005; Wiersma et al., 2009); most statistical method such as regression may be used to develop a predictive equation (Cohen, 1996). Based on the nature of hypotheses and questions, in which the relationships between mental health components and loneliness along with other moderators are asked, the following statistical methods were used:

First, a statistical descriptive portrayal of all participants in this study was taken to ensure which inferential statistical methods could be used for the hypotheses and research questions. These descriptive

statistics (e.g., mean, standard deviation, variation and others) will help researcher to analyze the primary assumptions of inferential statistics (Cohen, 1996).

Since dependent and independent variables in this study are defined operationally as measurable variables, and the scales of those variables are interval or at least categorical and the sample size was sufficient (N=180), parametric statistics were used to analyze data including correlation and hierarchical linear regression using SPSS version 18.

Ethical considerations

Participants were informed both verbally and in writing in the covering letter of their rights (Appendix E). Personal identifying information was not required on any of the questionnaires. Only statistical data was reported in this thesis and only group statistical data will be noted in future presentations or papers. Students were not required to take part in this study, nor were they required to answer all of the questions. This was mentioned in the verbal instruction, and the covering letter. The potential for emotional harm in this study was very low. However being mindful that completing the questionnaires may resurrect some traumatic memories for some students, the covering letter contained contact information for counseling services. Questionnaires were administrated after receiving approval from the University Research Ethics Committee at MSVU.

Limitation

All participants were MSVU students whose professors had given permission for the researcher to distribute questionnaires in their classes. Therefore, the results of this study can be generalizable to the same population and not to other Canadian population or other international students. In addition to the nature of sample participants, the number of participants limited. However, 180 participants allowed the researcher to meet all assumptions to use the required statistical methods.

Even though questionnaires included simple and reasonable items, some respondents did not answer all questions. This type of responding resulted in missed for some. Generally, missing values produce

different N in statistics. Due to this problem, the probability of obtaining positive results to all hypotheses may have been affected. However, participants were given adequate time to respond, in confidence. The fact that no identifying information was on the survey could have encouraged participants to be truthful. While surveys do not allow for in-depth understand of issues, they do allow access to a greater number of students and reliable answers.

Chapter IV

Results

This chapter contains a summary of the descriptive and inferential statistical analyses related to the demographic characteristics of participants and the research hypotheses/questions. Descriptive measures of mean, variance, standard deviation, range and percentage were calculated to ensure that the chosen inferential statistical methods were appropriate. Based on the nature of the study, bivariate correlation and hierarchical linear regression were used to examine whether there is predictable relations between the independent variables and dependent variable.

Descriptive Characteristics of Participants

One hundred and ninety nine participants from MSVU completed all questionnaires including Ryff's Well-Being Scale, Differential Loneliness Scale, R-UCLA Loneliness Scale and Demographic Questionnaire. Of this number, 19 questionnaires were excluded from the study because the students who completed them were under the age 19 years old. Therefore, 180 questionnaires were scored according to the procedures outlined in their respective manuals and entered into the SPSS program for both descriptive and inferential statistics analysis. Descriptive characteristics of participants are summarized in Table 4. Forty-one percent of participants were aged between 19 and 21 years old, 47% were between 22 and 26, and 11.7% were between 26 and 30 years old. Similar to the characteristics of MSVU population, 71% of participants were female and 29% male. Half of participants were single (50%), and 17.8% of them were married, whereas the rest of them were common law or divorced or they did not specify their marriage status. Approximately, 76.2% of student participants were enrolled in professional programs. While 23.8% were arts/science students. Almost 60% of participants had one or two siblings. Seventy-three percent of participants were Canadian students and 27% were either international or landed immigrant students. Many

students were living with their parents/or siblings (32%), 15% were living with friends, 23% with partners, and 19.4% were living in student residents.

Table 4: Summary of Demographic Information on Participants

		N*	Valid Percent
Age	19-21	74	41.1
	22-26	85	47.2
	Older than 26	21	11.7
Gender	Female	128	71.1
	Male	52	28.9
Marital Status	Single	90	50
	Married	32	17.8
	Common law	21	11.7
	Divorce/Separated	2	1.1
	Others	35	19.4
Program	Professional Programs	128	76.2
	Arts/Science Programs	40	23.8
Number of Siblings	None	22	12.4
	1	64	36
	2	44	24.7
	3	18	10.1
	More than 4	30	16.9
Citizenship Status	Canadian Student	125	72.7
	International Student + Landed Immigrant Student	47	27.3
Living Arrangements	FAMILY +Siblings	55	32.4
	Friends (Roommate)	26	15.4
	Partner	40	23.5
	On Your Own	16	9.4
	Student Residence	23	19.4

*The valid number of participants who characterized their demographic features

After determining the demographic characteristics of participants, all scales were explored to find missing data and they checked for the assumption of normality. The results of exploring data showed that from 3% to 18% of data in all scales were missing (Table 5). That is, the respondent did not answer some questions in each scale. The valid N was different in each variable, but generally the missing data was less and did not violate the primary assumptions of statistical analysis. Since the number of sample for each independent variable should be at least 1/15 for linear regression (Beshlideh, 2012), and because the current research deals with 7 independent variables, the valid sample size is 7 × 15 = 105. However, as is evident in Table 5, the range of N in all scales and variables is between 148 and 175 more than enough for most statistical procedures.

Table 5: Exploring the Valid N in Each Scale

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Total Score of Differential Loneliness Scale (Student Version)	157	87.2%	23	12.8%	180	100.0%
Total Score of UCLA Loneliness Scale (20 Items)	159	88.3%	21	11.7%	180	100.0%
Total Score of UCLA Loneliness Scale (3 Items)	175	97.2%	5	2.8%	180	100.0%
Total Score of Ryff's Scale 42 Items	148	82.2%	32	17.8%	180	100.0%

Exploring normality, in which P should be greater than 0.000 (p >0.000), the Kolmogorov-Smirnova test showed that the R-UCLA Loneliness Scale (20 items) meets the assumption of normality (0.073, df =1159) p > 0.000. Since the other scales (e.g., R-UCLA 3 items for loneliness, and Differential Loneliness) almost violated the assumption of normality for measuring independent variable (loneliness), only the R-UCLA Loneliness Scale 20-items was used to analyze the hypotheses. The test of normality of Ryff's Well-Being Scale revealed appropriate normality (0.69, df=148) P > 0.000 (Table 6).

Table 6: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total Score of Differential Loneliness Scale Student Version	.125	157	.000	.943	157	.000
Total Score of R-UCLA Scale of Loneliness 20 Items	.073	159	.036	.977	159	.009
Total Score of R-UCLA Scale of Loneliness 3 Items	.176	175	.000	.890	175	.000
Total Score of Ryff's Scale 42 Items	.069	148	.081	.982	148	.049

In addition to noted procedures for normality, skewness and kurtosis were minor, and inspection of the Box plot, the Normal Q-Q Plot, the Detrended Normal Q-Q Plot, plus the histograms for R-UCLA Loneliness Scale 20-items and Ryff's Well-Being Scale indicated that data from two scales satisfied normality requirements with regard to N.

Assuring the normality of population led researcher to obtain statistical central values (e.g., mean and standard deviation-SD) for two measures related to independent and dependent variables based on demographic features of participants. As it was noted in Table 7, there are no remarkable differences in mean scores in well-being scale in terms of marital status (single M=184.41, SD=22.806, and for married M=186.65, SD=23.325). Similar results were found for the R-UCLA Loneliness Scale (single M=40.10, SD=7.886, and for married M=41.63, SD=9.668). As the Table 7 shows, the mean scores of both scales for the levels of living arrangements are also close to each other. To determine the differences among demographic factors in terms of loneliness and well-being, T-Tests, and ANOVA were used. Bivariate Correlation and Linear Regression were also used to determine the extent to which loneliness and demographic factors can predict and be associated with well-being components. The results of relationships are presented in the following section.

Table 7: Score Distribution of Participants by Categories of Ryff's Well-Being Scale And R-UCLA Loneliness Scale

		Ryff's Well-Being Scale			UCLA Loneliness Scale		
		N	Mean	SD	N	Mean	SD
Age	19-21	64	187.06	25.509	69	37.94	8.102
	22-26	67	183.73	23.404	72	40.99	9.022
	Older than 26	17	191.88	17.951	18	37.28	7.729
Gender	Female	107	186.63	23.259	116	38.98	8.587
	Male	41	184.76	25.426	43	39.95	8.666
Marital Status	Single	74	184.41	22.806	80	40.10	7.886
	Married	23	186.65	23.325	24	41.63	9.668
	Common law	18	187.44	22.097	20	37.90	8.397
	Divorce/Separated	1	151.00	.	1	43.00	.
	Others	32	190.00	27.295	34	36.24	9.059
Program	Professional Programs	103	185.53	23.860	115	39.01	8.480
	Arts/Science Program	38	190.29	24.909	37	39.41	9.816
	None	13	177.54	21.407	19	42.53	6.527
Number of Siblings	1	59	187.19	21.565	61	36.69	7.258
	2	41	190.51	24.228	41	38.59	10.050
	3	13	193.00	27.489	15	39.40	7.698
	More than 4	21	178.81	22.311	21	43.71	8.696
Citizenship Status	Canadian Student	113	189.19	23.061	116	37.89	8.680
	International Student + Landed Immigrant Student	30	176.27	23.650	37	43.00	7.454
Living Arrangements	FAMILY +Siblings	43	184.77	23.829	52	38.65	9.286
	Friends (Roommate)	25	186.24	25.037	25	40.32	8.270
	Partner	31	189.84	20.136	32	38.97	8.438
	On Your Own	13	180.15	29.334	13	39.15	9.100
	Student Residence	30	186.93	23.414	29	39.97	7.495

The Analysis of Research Hypotheses and Questions

Hypotheses: As seen in Table 8, loneliness is negatively associated with all well-being components in Ryff's Scale, that is, individuals whose scores on the loneliness scale were high, have low scores on the well-being components. This result was significant at P = 0.01 for all components including autonomy and loneliness with r = -.258, p < 0.01, positive relation with others r = -.794, p < 0.01, environmental mastery r = -.516, p < 0.01, personal growth r = -.368, p < 0.01, purpose of life r = -.470, p < 0.01, and self-acceptance r = -.568, p < 0.01. The results of correlations also show that the component of positive relation with others can be determined by 63% covariance of loneliness negatively (R square = $-.794^2 = .630$). The scatter plot in Figure 3 demonstrates this obvious negative correlation. Although similar results were found for other components of well-being, loneliness could determine the component of autonomy by 6.65% covariance of $(-.258)^2 = 0.0665$).

Table 8: Bivariate Correlations between Loneliness and Well-Being Components on Ryff's Scale

		Loneliness	Autonomy	Positive Relation with Others	Environmental Mastery	Personal Growth	Purpose of Life	Self-Acceptance
Loneliness	Pearson Correlation	1	-.258*	-.794**	-.516**	-.368**	-.470**	-.568**
	Sig. (2-tailed)		.001	.000	.000	.000	.000	.000
	N	159	153	156	154	155	153	149

*. Correlations are significant at the P< 0.01

** Correlations are significant at the P< 0.000

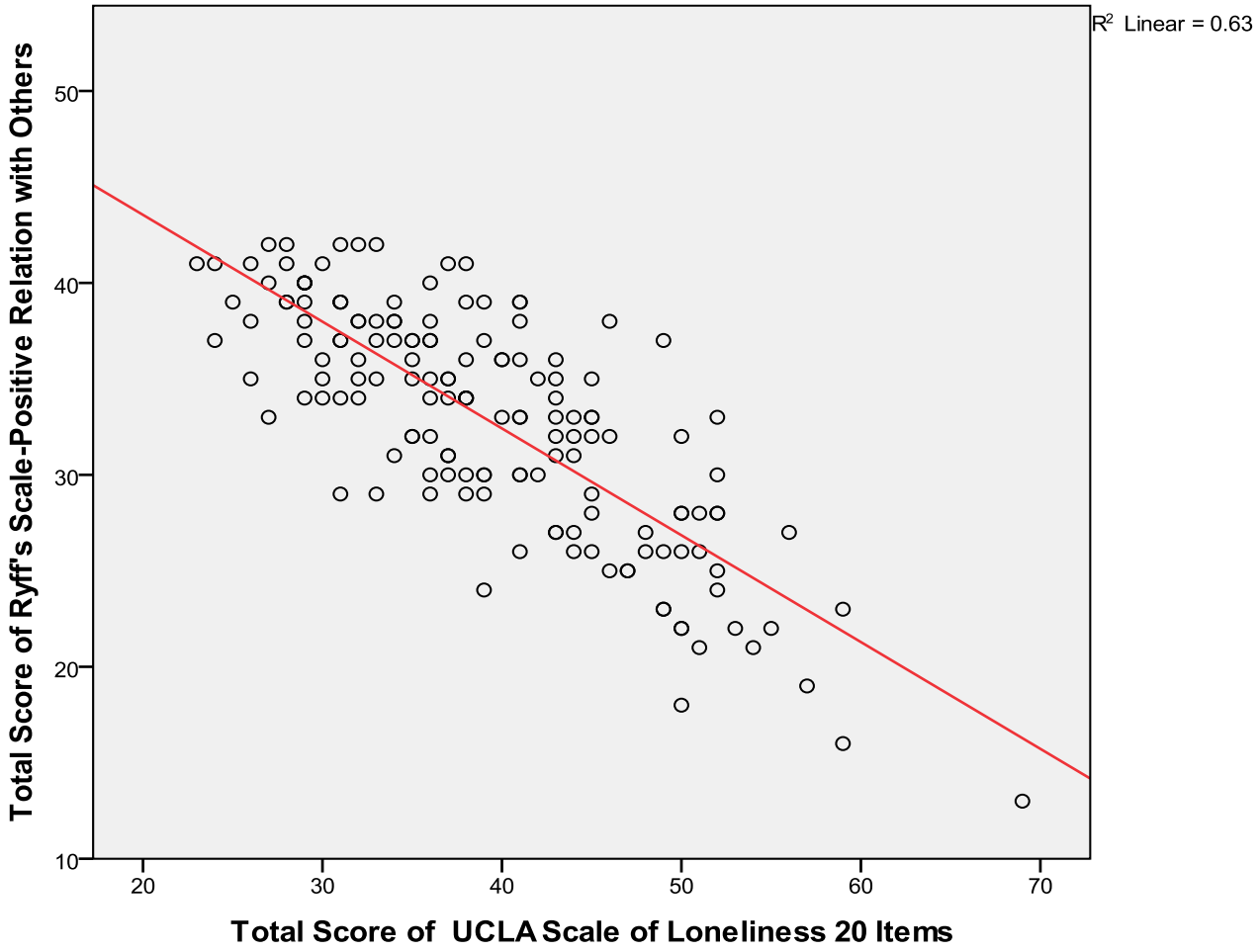

Figure 3: Negative Correlation between Positive Relation with Others and Loneliness

As table 9 shows, the correlation between total scores of loneliness and total score of well-being was negatively significant r = -.674 p < 0.000

Table 9: The Relationship between Loneliness and Well-Being

		Total Score of Ryff's Scale (42 Items)	Total Score of R-UCLA Scale of Loneliness (20 Items)
Total Score of Ryff's Scale (42 Items)	Pearson Correlation	1	-.674**
	Sig. (2-tailed)		.000
	N	148	137
Total Score of R-UCLA Scale of Loneliness (20 Items)	Pearson Correlation	-.674**	1
	Sig. (2-tailed)	.000	
	N	137	159

**. Correlation is significant at the P < 0.000 level (2-tailed).

Research Questions: To analyze the research questions, partial correlation, t-tests, and ANOVA in terms of independent variables were calculated.

1) **Is there a relationship between the number of siblings and feelings of loneliness as measured by participants' responses on R-UCLA?**

The number of siblings was categorized into five categories from *none (without siblings)* to having *more than 4 siblings.* A one-way between subjects ANOVA was conducted to observe whether the mean scores on R-UCLA Loneliness Scale differed according to the number of siblings. The result revealed a significant difference among the loneliness means of siblings categories, F (4, 154) =3.823, P ≤ .05 (Table 10). Post hoc comparisons using the Tukey HSD test indicated that the mean of loneliness for participants who had more than 4 siblings (M=43.71, SD=8.69) was significantly different from the mean of loneliness for participants who had one sibling, P ≤ 0.05. Since the mean difference (M = - 7.026) was negative, it indicated that the sense of loneliness was higher in participants who had more than 4 siblings in comparison with those who had one sibling. The *t-test* for these categories (was also significant at *t* (80) = - 3.633, P < 0.000. For other categories of siblings (none, 2, and 3) no significant value P > 0.05 was found.

Table 10: ANOVA for the Number of Siblings and the Feeling of Loneliness

Number of Siblings	N	Mean	SD		Sum of Squares	df	Mean Square	F**
None	19	42.53	6.527	Between Groups	1037.096	4	259.274	3.823**
1	61	36.69	7.258	Within Groups	10309.656	152	67.827	
2	41	38.59	10.050	Total	11346.752	156		
3	15	39.40	7.698					
More than 4	21	43.71	8.696					
Total	157	39.09	8.529					

** P < 0.05

2) **Is there a relationship between living arrangements and loneliness as measured by participants' responses on the R-UCLA?**

Using the five categories of living arrangements (living with parents/siblings, friends, partners, on your own, and student resident), an ANOVA analysis was performed to test whether means on the R-UCLA are different in terms of living status. The result indicated that there were no significant differences among the categories of living arrangements and the degree of loneliness $F(4, 146) = 0.217$, $P > 0.05$.

3) **Is there a relationship between gender and loneliness, and gender and mental health as measured by participants' responses on R-UCLA and Ryff's Scales respectively?**

To test the relationship between loneliness and mental health according to the gender, two different procedures were used: First, partial correlation were calculated by splitting the gender off to observe whether there were any difference in correlations between loneliness and mental health in terms of gender. Then, a t-test was used to determine whether the levels of loneliness and mental health differed significantly across gender.

Tables 11 shows, the correlation between loneliness and mental health is negative and significant ($r = -0.674$, $p < 0.01$) without controlling for the variable of gender. This means that for both male and female feeling lonely was correlated with a lower sense of well-being. After controlling for gender ($r = -0.674$, $p < 0.01$) and calculating the correlations for males and females separately (Table 12), no significant differences were found ($r = -0.674$, $p < 0.01$). Table 12 shows the association between loneliness and mental health for female ($r = -0.685$, $p < 0.01$), and for male ($r = -0.650$, $p < 0.01$). Results from the t-test indicated that that the mean level of loneliness was $\bar{x} = 38.98$ (SD=8.59) for female and $\bar{x} = 39.95$ (SD= 8.67) for male. The mean level of mental health was $\bar{x} = 186.63$ (SD=23.26) for female and $\bar{x} = 184.76$ (SD= 25.43) for male. Neither of the mean differences was significant. For loneliness, $t(157) = -.632$, $p > 0.05$, and for mental

health: t (146) = 0.426, p > 0.05. Therefore, there was no difference between male and female in both loneliness and mental health.

Table 11: The Correlation between Loneliness and Well-Being without Controlling the Gender Variable

		Total Score of Ryff's Scale (42 Items)
Total Score of R-UCLA	Pearson Correlation	-.674**
Scale of Loneliness 20	Sig. (2-tailed)	.000
Items	N	137

**. Correlation is significant at the P < 0.000 level (2-tailed).

Table 12: The Correlation between Loneliness and Well-Being for Male and Female

Gender			Total Score of Ryff's Scale 42 Items
Female	Total Score of R-UCLA	Pearson Correlation	-.685**
	Scale of Loneliness 20 Items	Sig. (2-tailed)	.000
		N	100
Male	Total Score of R-UCLA	Pearson Correlation	-.650**
	Scale of Loneliness 20 Items	Sig. (2-tailed)	.000
		N	37

**. Correlation is significant at the P < 0.000 level (2-tailed).

4) Is there a difference between a sense of loneliness (R-UCLA) and mental health (Ryff's Scale) in terms of marriage status?

ANOVA was used in order to observe whether loneliness and mental health levels differed according to marriage status. The result (Table 13) showed that neither of mean differences was significant, for loneliness F (4, 154) = 1.915, p > 0.05 or for mental health F (4, 143) = .866, p > 0.05

Table 13: Differences between Participants' Responses on the R-UCLA and Ryff's Scales Marriage Status

		N	Mean	SD	df	F**	Sig.
Loneliness	Single	80	40.10	7.886	BG 4	1.915	.111**
	Married	24	41.63	9.668			
	Common Law	20	37.90	8.397	WG154		
	Divorced/Separated	1	43.00	.			
					N 158		
	Others	34	36.24	9.059			
Mental Health	Single	74	184.41	22.806	BG 4	.866	.486**
	Married	23	186.65	23.325			
	Common Law	18	187.44	22.097	WG143		
	Divorced/Separated	1	151.00	.			
	Others	32	190.00	27.295	N 147		

**P > 0.05

5) Is there any difference between a sense of loneliness and mental health as measured by the R-UCLA and Ryff's Scales respectively in terms of citizenship?

Conducting the test of homogeneity revealed that none of loneliness scale and mental health scale violated the homogeneity (*p*=.297, *p*= .947), p > 0.000. Approving this assumption of ANOVA led the researcher to use ANOVA to determine whether loneliness and mental health differed according to citizenship status. Table 14 reveals the mean of loneliness was $\bar{X}$=37.89 (SD=8.680) for Canadian students and was $\bar{X}$= 43.00 (SD=7.454) for international and landed immigrant students. Likewise, the mean of mental health levels was $\bar{X}$=189.19 for Canadian students (SD=23.061), and was X=176.27 (SD=23.650) for international and landed immigrant students. ANOVA analysis showed that mean differences in both loneliness and mental health were significant at p < 0.01. Based on the differences of means between both groups, this finding indicated that international and landed immigrant students feel higher levels of loneliness and have lower scores on mental health measure in comparison with Canadian students, for loneliness F(1, 151)= 10.981, p < 0.01, and for mental health F(1, 141)= 7.362, P < 0.01

Table 14: Difference between a Sense of Loneliness and Mental Health in terms of Citizenship

		N	Mean	SD	df		F	Sig.*
Loneliness	Canadian Student	116	37.89	8.680				
	International Student + Landed Immigrant Student	37	43.00	7.454	BG	1	10.381*	.002*
					WG	151		
					Total	152		
Mental Health	Canadian Student	113	189.19	23.061				
	International Student + Landed Immigrant Student	30	176.27	23.650	BG	1	7.362*	.007*
					WG	141		
					Total	142		

*P < 0.01

The Predictors of Mental Health (Well-Being)

Since one of the purposes of this study was to investigate the predictive role of loneliness along with other demographic factors in mental health, a linear regression was calculated to determine the portion of each predictor factor in mental health levels. Given that loneliness is a main predictor of depression (Qualter et al. 2010), has a negative correlation with all components of mental health (see Table 8), and is associated with number of siblings and citizenship status, the hierarchical model of linear regression was used to observe the predictive portion of each independent variable in mental health. In this procedure demographic factors-whose correlations with mental health were not significant-were not entered. Therefore, based on the strength of bivariate correlation between loneliness and mental health, loneliness was the first variable to enter the regression model, followed by the number of siblings and the citizenship status. The results of the analysis of model 1, 2 and model 3 were presented in Table 15.

In model 1, after entering loneliness in the equation, R = .674, F(1, 135) = 112.424, p <0.000, loneliness had a high significant (UBeta = -1.868, SBeta = -.674 p < 0.000) unique contribution in predicting mental health among respondents. About 45.4 % of the variability of mental health could be predicted by knowing scores on loneliness (R-UCLA Loneliness Scale).

Table 15: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Mental Health (Well-Being) [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F**	R^2 Change
Model 1	259.406					
(Constant)						
Loneliness	-1.868	-.674	.674[a]	.454	112.424**	.454
Model 2				.		
(Constant)	257.804		.			
Loneliness	-1.898	-.685	.679[b]	.461	57.268**	.006
Number of Siblings	1.522	.081				
Model 3						
(Constant)	259.957					
		-.671	.681[c]	.463	38.291**	.003
Loneliness	-1.860	.079				
	1.491					
Number of siblings	-2.805	-.053				
Citizenship						

** P < .000

a. Predictors: (Constant), R- UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), R- UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), R- UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Ryff's Well-Being Scale 42 Items

After step 2, in model 2, number of siblings added to the prediction of mental health by loneliness, $R^2 = .461$, $F(2, 134) = 57.268$, $p < 0.000$. Thus, the addition of the number of sibling variable in the equation results an increase in R^2 by .007 from .454 to .461. Loneliness and number of siblings jointly accounted for 46.1% of the variance in participants' mental health. Additionally, in model 2, loneliness was also a significant unique predictor of mental health. In model 3, citizenship variable entered in the equation to observe whether differences in citizenship status were related to mental health. The results were significant with $R^2 = .461$, $F(3, 133) = 38.291$, $p < .000$. The addition of the citizenship status variable to the regression equation improved R^2 by .003 from .461 to .463. Although, addition noted variables increased R^2, the strongest predictor of mental health was loneliness in this study. The P.P Scatter plot for loneliness and noted variables in model 2 and 3 (Figure 4) also shows that the relationship between three predictor

variables (loneliness, number of siblings, and citizenship status) and well-being is linear with a linear equation.

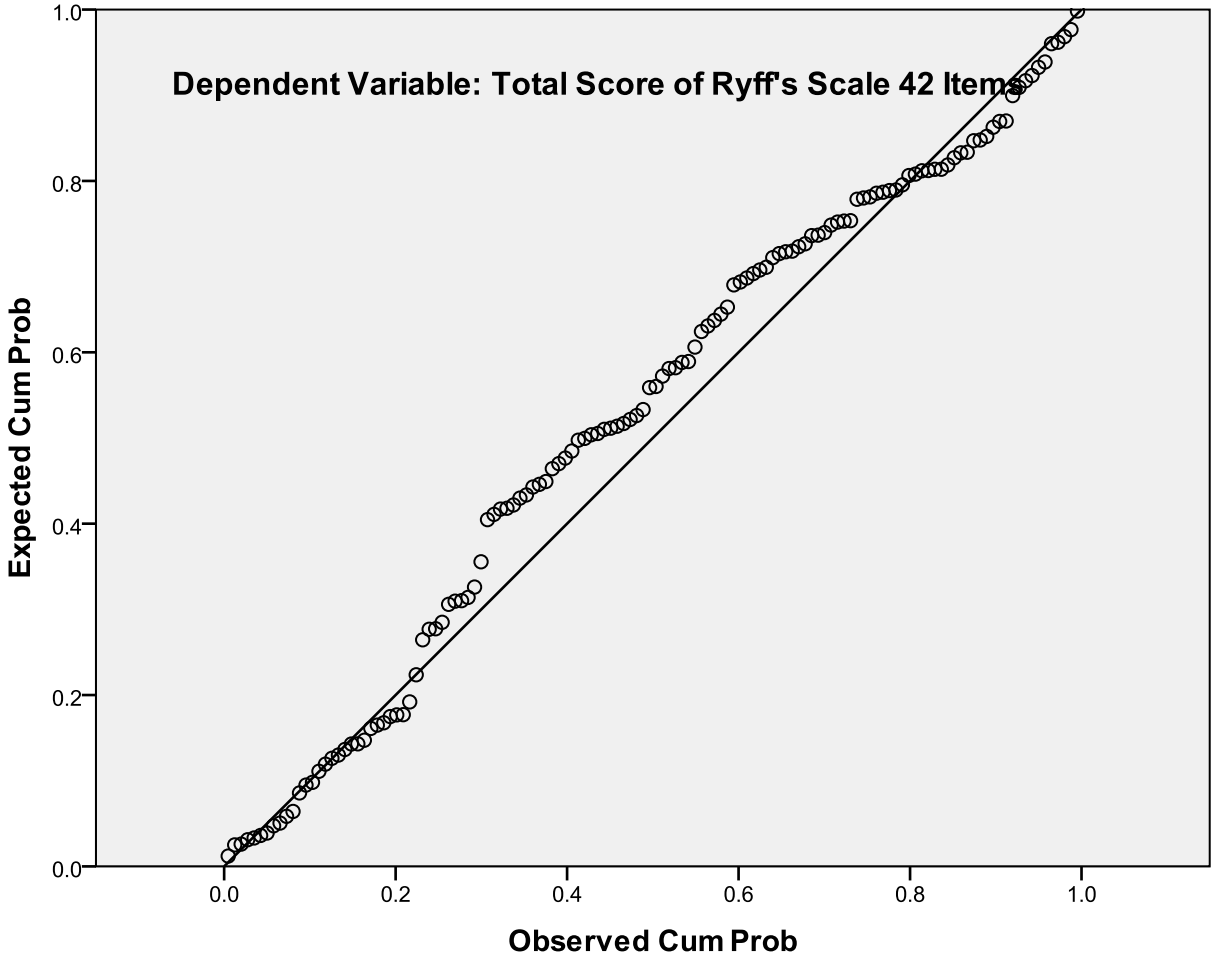

Figure 4: Normal P-P Plot of Regression Standardized Residual

Loneliness and the prediction of each component of mental health

To answer the question which component of well-being (mental health) can be better predicted by loneliness, as it was main question of this research, the hierarchical linear regression was used for each component. In this multi analysis, each predictor (loneliness, number of siblings and citizenship status) was entered into the equation to determine their predictive role in each mental health component.

Loneliness as a predictor of Autonomy: to test the degree to which loneliness predicts autonomy, the hierarchical linear regression was used based on the significant correlation between independent variables and mental health. As Table 16 shows, for loneliness $R = .258$, $F(1. 151) = 10.798$, $p < 0.001$, therefore loneliness had a significant contribution (Beta = - .168, $p < 0.001$) in predicting autonomy (as a mental health component). It is obvious that approximately 6.7% of the variability of autonomy can be predicted by loneliness (Table 16). The important point in this regression analysis is that by adding number of siblings into the model (model 2 and 3), the power of prediction increased. R^2 change shows this increase for the amount about .023 from .067 to .090. By using the third variable, citizenship status, in the model the R^2 change increased .017, from .090 to .107. This finding indicates that adding two other variables in model 2 and 3 increased the power of prediction. The P.P Scatter plot also shows the linear pattern in all models (Figure 5).

Table 16: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Autonomy [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	34.828		.258[a]	.067	10.798**	.067
Loneliness	-.168	-.258				
Model 2 (Constant)	34.117		.300[b]	.090	7.407**	.023
Loneliness	-.181	-.279				
Number of Siblings	.676	.154				
Model 3 (Constant)	35.400		.326[c]	.107	5.925**	.017
Loneliness	-.159	-.244				
Number of siblings	.657	.149				
Citizenship	-1.672	-.134				

** $P < 0.001$

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Autonomy

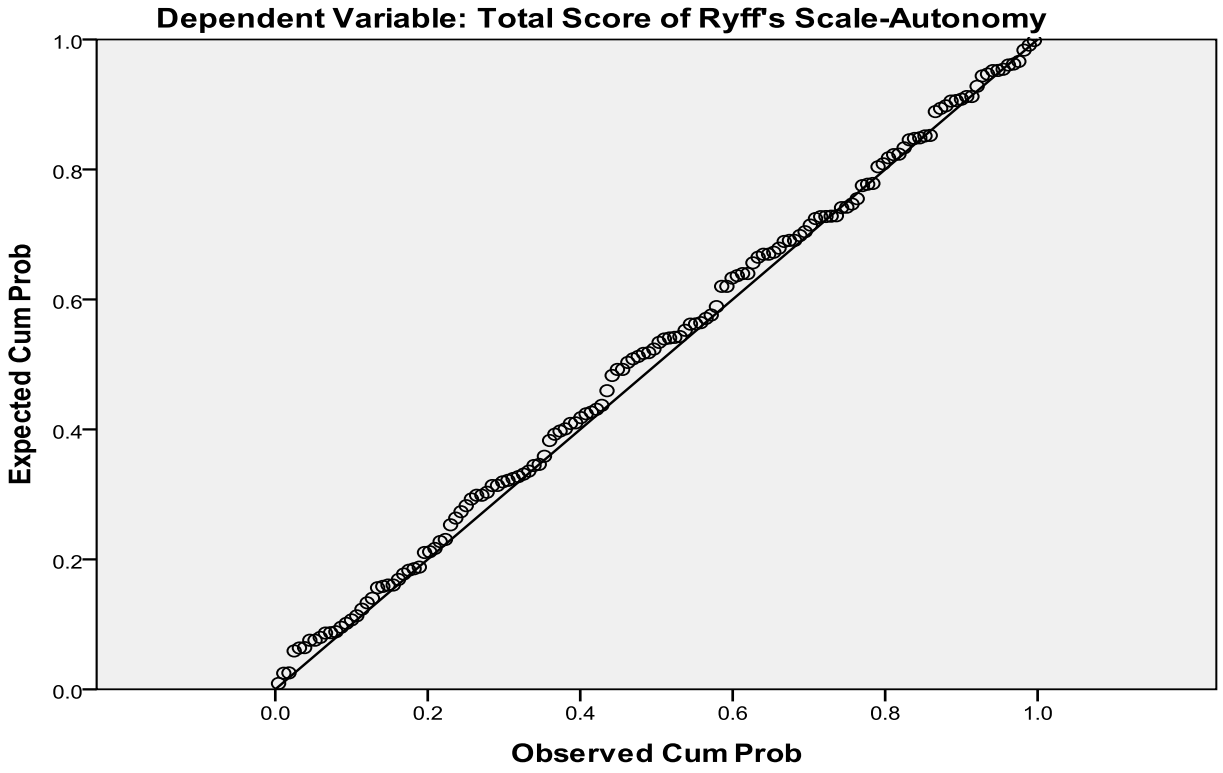

Figure 5: Normal P-P Plot of Regression Standardized Residual- Autonomy

Loneliness as a predictor of positive relation with others: testing the predictive power of loneliness for positive relation with others revealed that loneliness is only unique predictor of positive relation with others, $R = .794$, $F(1, 151) = 257.525$, $p < 0.000$. This unique contribution in predicting positive relation with others Beta = -.794, $p < 0.000$, revealed that 63% of the variability of positive relation with others can be predicted by having loneliness scores. The other variables entered in model 2 and model 3, did not have any significant contribution (Table 17). The P.P Scatter plot also shows the linear pattern between loneliness and positive relation with others (Figure 6).

Table 17: Results of Hierarchical Regression of Loneliness, Number of Siblings, And Citizenship on Positive Relation with Others [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	54.960					
			794[a]	.630	257.525**	.630
Loneliness	-.575	-.794				
Model 2 (Constant)	54.831		.	.		
			794[b]	631	128.249**	.001
Loneliness	-.578	-.797				
Number of Siblings	.123	.025				
Model 3 (Constant)	54.827					
			.794[c]	.631	84.929**	.000
Loneliness	-.578	-.797				
Number of siblings	.123	.025				
Citizenship	.005	.000				

** P < 0.000

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Positive Relation with Others

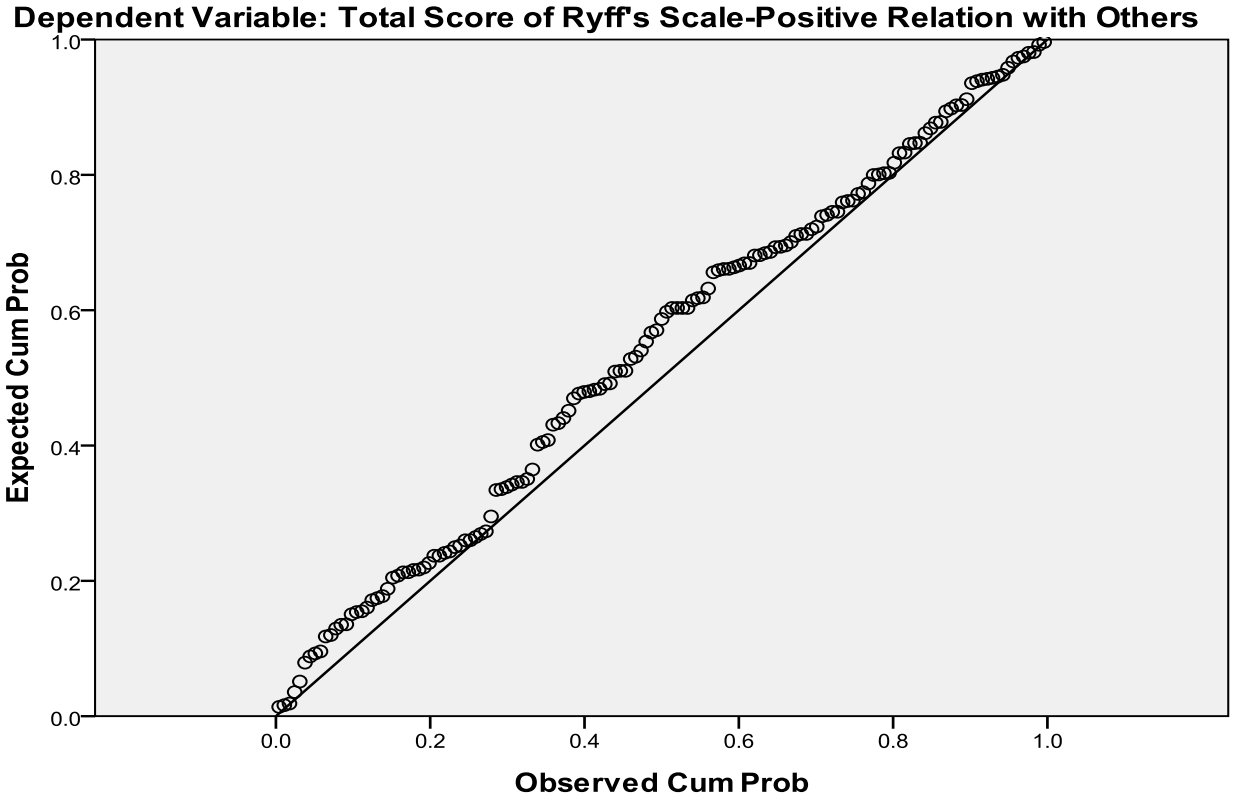

Figure 6: Normal P-P plot of Regression Standardized Residual- Positive Relation with Others

Loneliness as a predictor of environmental mastery*:* the regression analysis showed that only loneliness could predict the variability of environmental mastery with R = .516, F(1, 151) = 54.821, p < 0.000. However, with linear pattern 26.6% of variability of environmental mastery can be predicted by loneliness Beta = -.516, P < 0.000, and the other independent variables did not have a significant weight in this contribution because R^2 change did not show remarkable change in model 2 (0.0) and in model 3 (0.002) (Table 18, and Figure 7).

Table 18: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Environmental Mastery [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	41.912		.516[a]	.266	54.821**	.266
Loneliness	-.328	-.516				
Model 2 (Constant)	41.875		.516[b]	.269	27.238**	.000
Loneliness	-.329	-.517				
Number of Siblings	.035	.008				
Model 3 (Constant)	41.393		.519[c]	.269	18.266**	.002
Loneliness	-.337	-.530				
Number of siblings	.042	.010				
Citizenship	.628	.051				

**P < 0.000

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Environmental Mastery

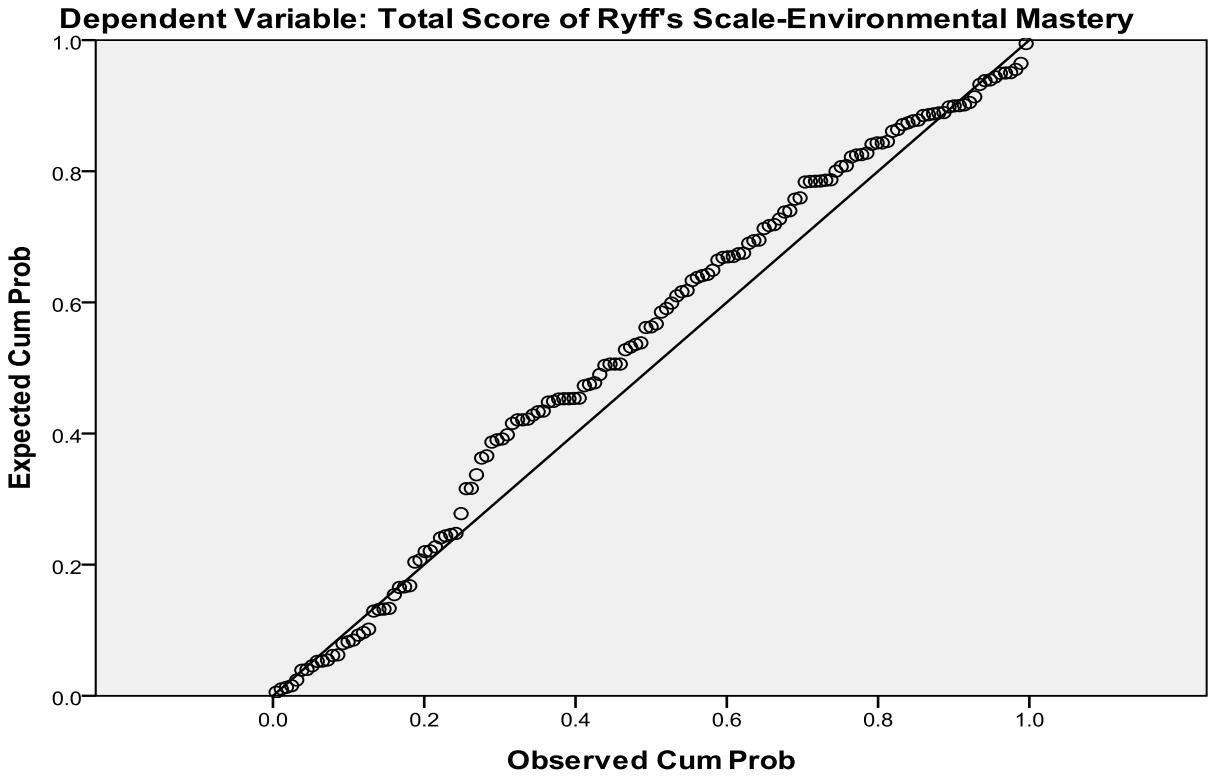

Figure 7: Normal P-P Plot of Regression Standardized Residual- Environmental Mastery

Loneliness as a predictor of personal growth: exploring the predictive role of loneliness, number of siblings and citizenship status in personal growth revealed that all three variables have significant contribution in predicting the personal growth as it was found in first model R = .368, F(1, 151) = 23.716, P < 0.000. From two other variables, citizenship status R = .482, F(3,151) = 15.051, P < 0.000 had more significant role in predicting personal growth than the number of siblings R^2 change = .094, from .139 to .233, Beta = -.317 p < 0.000. The results are shown in Table 19 and Figure 8.

Table 19: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Personal Growth [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	40.245		.368[a]	.136	23.716**	.136
Loneliness	-.193	-.368				
Model 2 (Constant)	40.037		.373[b]	.139	12.087**	.003
Loneliness	-.197	-.376				
Number of Siblings	.198	.056				
Model 3 (Constant)	42.484		.482[c]	.233	15.051**	.094
Loneliness	-.154	-.294				
Number of siblings	.161	.046				
Citizenship	-3.189	-.317				

** P < 0.00

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Personal Growth

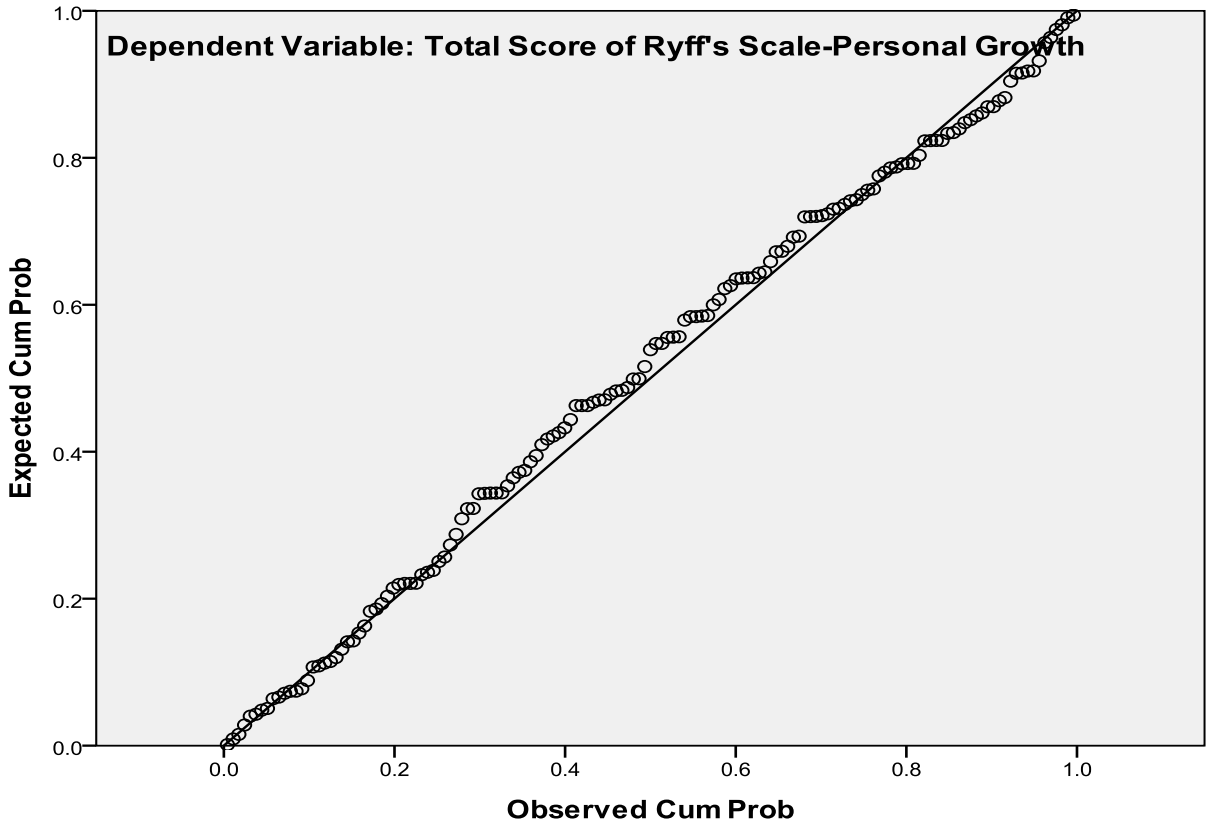

Figure 8: Normal P-P Plot of Regression Standardized Residual – Personal Growth

Loneliness as a predictor of purpose in life: the regression analysis showed that loneliness could predict purpose in life significantly $R = .470$, $F(1, 151) = 42.889$, $p < 0.000$. Considering Beta for model 1 is equal to -.470, it is obvious that 22.1% of the variability of purpose of life can be predicted by loneliness. Based on model 3, citizenship and the number of sibling have also significant weight $R = .525$, $F(3, 151) = 18.909$, $p < 0.000$. By adding these two variables into regression equation, totally 27.6% of variability of purpose in life can be predicted by all loneliness, the number of sibling and citizenship status with regard to negative Beta in both loneliness and citizenship status (Table 20 and Figure 9).

Table 20: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Purpose in Life [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	44.597		.470[a]	.221	42.889**	.221
Loneliness	-.319	-.470				.
Model 2 (Constant)	44.197		. 477[b]	.228	22.140**	.007
Loneliness	-.327	-.481				
Number of Siblings	.380	.083				
Model 3 (Constant)	46.463		.525[c]	.276	18.909**	.048
Loneliness	-.287	-.423				
Number of siblings	.347	.075				
Citizenship	-2.953	-.226				

**** P < 0.000**

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Purpose of Life

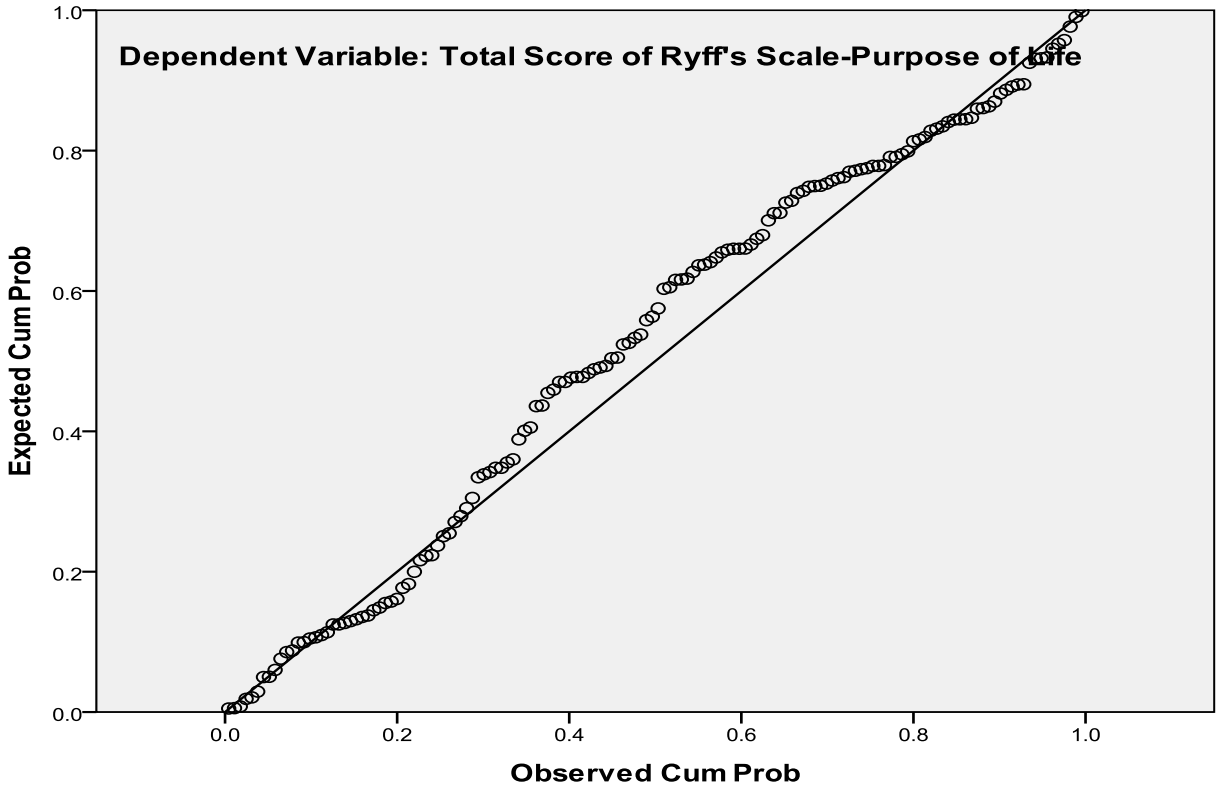

Figure 9: Normal P-P Plot of Regression Standardized Residual – Purpose in Life

Loneliness as a predictor of self-acceptance: the analysis of predictive equation by using hierarchical linear regression to explore the predictive power of loneliness in self-acceptance revealed that loneliness has a significant and unique contribution in predicting self-acceptance $R = .568$, $F(1,151) = 70.078$, $p < 0.000$. Based on R^2 change in Model 2 and 3 (0.008 and 0.002), the predictive role of other variables (the number of sibling and citizenship) is low, although it is significant $R= .333$, $F(3, 151) = 24.106$, $p < 0.000$. Generally, loneliness by itself could predict 32.3% of the variability of self-acceptance (Table 21 and Figure 10).

Table 21: Results of Hierarchical Regression of Loneliness, Number of Siblings, and Citizenship on Self-Acceptance [d]

	Unstandardized Beta	Standardized Beta	R	R^2	F	R^2 Change
Model 1 (Constant)	45.642		.568[a]	.323	70.078**	.323
Loneliness	-.395	-.568				
Model 2 (Constant)	45.204		.575[b]	.	36.037**	..008
Loneliness	-.403	-.580		.330		
Number of Siblings	.416	.088				
Model 3 (Constant)	45.710		.577[c]	.333	24.106**	.002
Loneliness	-.394	-.567				
Number of siblings	.409	.087				
Citizenship	-.660	-.049				

** P < 0.000

a. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items
b. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings
c. Predictors: (Constant), Total Score of UCLA Scale of Loneliness 20 Items, Number of siblings, Citizenship
d. Dependent Variable: Total Score of Ryff's Scale-Self-Acceptance

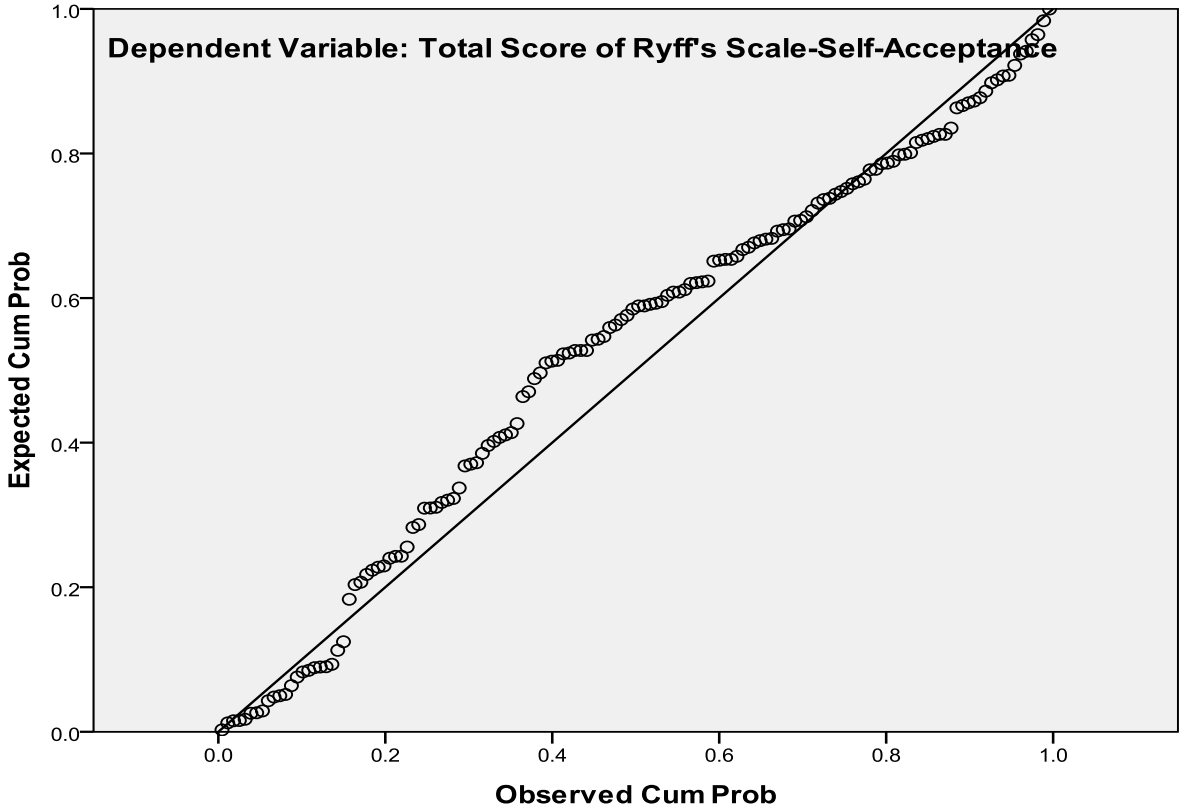

Figure 10: Normal P-P Plot of Regression Standardized Residual – Self-Acceptance

In summary, data from the regression analyses indicated that loneliness, by itself, has a high effect size in predicting the component of positive relation with others as per Ryff's Scale and a low effect size in predicting the autonomy, although all effect sizes were significant, $p < 0.000$) (Table 22).

Table 22: The Predictive Effect Sizes of Loneliness in Each Mental Health Components

	*Autonomy	*Positive Relation with Others	*Environmental Mastery	*Personal Growth	*Purpose in Life	*Self-Acceptance
The Predictive Effect Size of Loneliness	R^2 =.067	R^2=.630	R^2=.266	R^2=.136	R^2=.221	R^2=.323

*Well-Being (Mental Health) Components as Measured by Ryff's Scale

General Predictive Equation

With regard to the negative correlation between loneliness and mental health ($r = -.674$, $p < 0.01$), and the range of scores in R-UCLA Loneliness Scale (from 23 to 69, see Table 23), it is possible to use the predictive regression equation $\acute{Y} = a + (b1 \times X1)$ for the model 1 to predict participants' scores on mental health (Ryff's well-being scale). For example, if somebody has a score of 23 (minimum score) on the R-UCLA Loneliness Scale, his or her score on Ryff's Well-Being Scale will be $\acute{Y} = 259.406 + (-1.868 \times 23) = 216.442$. For a moderate score on R-UCLA Loneliness Scale, such as 39, the result will be $\acute{Y} = 259.406 + (-1.868 \times 39) = 186.554$ on Ryff's Scale. For a severe score of loneliness such as 68, the score on Ryff's Well-Being Scale will be $\acute{Y} = 259.406 + (-1.868 \times 68) = 132.382$. Using these scores, it is possible to draw the regression line of prediction (Figure 11).

Table 23: Descriptive Statistics of Scales

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Total Score of UCLA Scale of Loneliness 20 Items	159	46	**23**	**69**	39.25	8.592
Total Score of Ryff's Scale 42 Items	148	116	**117**	**233**	186.11	23.806
Valid N (listwise)	137					

Figure 11: Regression Line of Well-being Via Loneliness Score

Chapter V

Discussion and Recommendation

As previously noted, many theories and perspectives considered mental health or well-being as a multidimensional phenomenon characterized by a set of major components. These components can include, but are not limited to, self-esteem, happiness, life-satisfaction, personal growth, self-acceptance, purpose of life, autonomy, positive relation with others, and environmental mastery (Corsini, 1999; Ryff, 1989; Ryff & Singer, 2008; Westerhof & Keyes, 2010; McDowell, 2010). Adequate functioning in these components can lead positive mental health for young adults. However, there are many factors that can act as barriers to achieving mental health and often result in mental illnesses in young adults (Santrock et al., 2005; Michaud & Fombonne, 2005; Van Roekel et al., 2010). These influential factors differ in types, effect, and predictive value.

Age, gender, education, marital status (Santrock et al., 2005), immigration and marginalization (Neto, 2010), poor relationships with parents, siblings and peers (Van Roekel et al., 2010; Dwairy et al., 2010) and loneliness (Brage et al., 1993; Van Rocekel et al., 2010) are main factors that have been studied in relation to mental illnesses (e.g., depression) or physical health. Few of these studies have focused on the positive relationship of these factors with mental health components. Additionally, most of these studies, especially those related to loneliness and mental illnesses have used a medical approach highlighting the symptoms of disorders (symptomatic model). Using Ryff's theory of positive psychological well-being (mental health) and a quantitative approach, the current study distanced from the medical (symptomatic) model and focused on the predictive role of specific demographic factors and loneliness on mental health components as measured by Ryff's Well-Being Scale. Canadian and international students (n =180) attending Mount Saint Vincent University in Nova Scotia participated in this study. All participants completed two measures of loneliness (R-UCLA Loneliness Scale and Differential Loneliness Scale), Ryff's Well-Being Scale and Demographic Questionnaire.

Data from 180 student participants on completed measures was analyzed to examine the hypotheses and research questions.

The relationship between loneliness and Ryff's six major components of well-being

Using bivariate correlation method (see Table 8), this study shows a negative association between loneliness and all well-being components. This finding rejects null hypothesis and supports all six hypotheses by which the association between loneliness and each well-being component were assumed to be directed and negative.

Ryff's component of environmental mastery was previously defined as individuals' ability to select or generate suitable environments for their psychic conditions (Ryff, 1989). This ability is related to a type of capacity by which individuals manage and manipulate situations and organize and change the situations toward healthy environment. To have this capacity, the two mechanisms of managerial functioning (Masi et al., 2011) and the perception of personal ability to change the situation (Jong-Gierveld's 1978 cited in Allen-Kosal, 2008) should work properly. Both these mechanisms can be impaired by loneliness as it was demonstrated by Masi et al., (2011) and Jong-Gierveld's (1978 cited in Allen-Kosal, 2008). Thus, individuals with impairments in the noted mechanisms do not have appropriate environmental mastery. In this regard, results from the current study align with those of previous studies and indicate that loneliness is negatively associated with environmental mastery. That is, individuals who have more of a sense of loneliness do not show higher level of environmental mastery.

Based on the results of the current study, individuals, who have high sense of loneliness, have difficulties in their positive relations with others. This finding supports Allen-Kosal's (2008) findings that loneliness had negative effects on individuals' social interactions, resulting in a lack of social skills and a low sense of social competence. In fact, there was a high, negative correlation between loneliness and positive relation with others. With 63% covariance between loneliness and relationship with others, this

research supports Shields et al's (2011) and Solomon's (2000) findings that loneliness is associated with passive social withdrawal and peer rejection.

Findings from the current study also demonstrate that loneliness is negatively associated with self-acceptance. This finding is similar to that of Chipure's (2004) who found that individuals with loneliness attributed their loneliness negatively to themselves. Thus, based on current finding, it would seem that those have high sense of loneliness have a negative self-acceptance. These individuals do not have positive attitude toward themselves and do not acknowledge and accept multiple aspects of themselves.

The current study shows that there is 22% covariance ($r = -.470$, $p < 0.01$) between purpose in life, as a component of mental health, and loneliness. With regard to negative association between loneliness and purpose in life, it can be assumed that individuals who have high scores on R-UCLA Loneliness Scale, have difficulties with intentionality and hope. This finding is in line with the results of Mascaro's (2006) study in which negative emotions (e.g., a sense of loneliness) were reversely associated with intentionality and hope. Intentionality and having meaningful aims in life are two major aspects of purpose in life, as demonstrated in Ryff's (1989). Since having a purpose of life motivates individuals to pursue goals (Ryff & Singer, 2008), and engage people in a social communication, it is suggested those who have difficulty with intentionality and self-orientation have a higher sense of loneliness. The negative association between purpose of life and loneliness supports this deduction.

One of the important findings of this study was the negative association between autonomy and a sense of loneliness. The association is significant with individuals who reported being lonely also noting they have less of a sense of self-autonomy. The low covariance (6.6%, $r = -.258$, $p < 0.01$) between two variables demonstrates that loneliness has less impact on self-autonomy. Since underpinning of self-autonomy is volition, it is suggested that individuals who feel lonely have chosen to be alone voluntarily. Therefore, it is suggested that a common latent trait underpinning both autonomy and loneliness could be volition.

The high negative correlation between personal growth, as a well-being component, and loneliness indicated that individuals with a sense of loneliness do not tend to develop their personal abilities or to actualize their potentialities in a positive ways. Since reaching the optimum personal growth depends on the degree to which individuals feel open to experience (Ryff, 1989), and because of negative association between personal growth and loneliness, one can conclude that individuals with high sense of loneliness avoid open experiences that are necessary for personal growth.

Research questions

The ANOVA calculation to test whether number of siblings can impact loneliness revealed that having more than four siblings can increase one's sense of loneliness. This research also showed that low sense of loneliness can be found in individuals who have one or two siblings, having more than two siblings will increase the sense of loneliness. Although the possible reasons for this finding were not investigated in this research, it is suggested that the quality of the relationships among siblings may be an influential factor in feelings of loneliness. Increasing the number of siblings likely will decrease the quality of relationships among all siblings.

Findings from this research indicate that citizenship status has an impact on both sense of loneliness and mental health. The ANOVA analysis revealed that individuals who are international or landed immigrant students felt more sense of loneliness and had lower levels of mental health when compared to Canadian students. Regarding loneliness and citizenship status, the finding of this study aligns with the results of Kirova-Petrova's (2000) research. While she used qualitative method her study with children, she found that immigrant students were more at risk for feeling lonely than Canadian students. In relation to mental health and citizenship, this research supports Neto's (2010) findings that immigration and marginalization have impact whether an individual will develop positive mental health. In the current study it was found that Canadian students had higher levels of well-being on Ryff's Scale when citizenship was considered and it played a role in predicting well-being.

Both females and males had similar levels of mental health and loneliness. The same result was found for other demographic factors. Therefore, based on this research, there were no significant relationship between the variables gender, marriage status, living arrangements and loneliness and mental health. This response may be because participants are generally in a social environment, living with others, and have career plans.

The Predictive Power of Loneliness

Using hierarchical linear regression shows that loneliness in all three models (see Table 15) had a high effect size when predicting well-being (mental health). Although the number of siblings and the citizenship status were two factors with appropriate effect sizes, loneliness made a unique contribution to predicting mental health among MSVU participants. With a .463 effect size in model 3 (See Table 15), R-UCLA Loneliness Scale can be used to predict well-being very appropriately. In addition to this power of prediction, the regression line of the equation in both Figures 4 and 5 revealed that the relationship between loneliness and well-being (mental health) has a linear pattern. Adding other variables (e.g., the number of sibling and citizenship status) did not change this pattern.

With regard to the main purpose of this study, which is to determine the predictive role of loneliness in all mental health components, it was found that loneliness has different significant effect size to predict each component of mental health. Among all components of mental health, loneliness had the highest effect size ($R^2 = .630$) in the component of positive relation with others and the lowest effect size in autonomy (see Table 22). This finding indicates that the social aspect of loneliness is more protuberant than the other aspects of loneliness (e.g., cognitive or behavioral), and this aspect shows high significant association with all the social components of mental health outlined in Ryff's theory.

Recommendations

Based on the findings and the limitations of current research, the following areas of research are recommended:

Research:

1) The research sample was made up of university students. It would be interesting to look at a general segment of the population to assess their degree of loneliness and whether it impacted their live choices.
2) With regard to the relationship between autonomy, as mental health component, and loneliness, this study showed that there may be a latent common trait that decreases the correlation between loneliness and autonomy. However, this latent common trait, which is suggested as volition, should be studied by using path analysis within Item Response Theory.
3) Since the reverse relationship was found between loneliness and the number of siblings, it is recommended to study this relationship with regard to the quality of relationships. Future research could investigate this issue in more depth.
4) Follow-up studies should assess the relationship between mental health and loneliness in various populations. For example, junior and senior high school students could be surveyed and interviewed to look at the progress of loneliness and how it impacts their decision making/career choices.
5) While not addressed in this study, future research could look at the impact of growing up in an urban versus a rural environment on perceptions of loneliness.
6) One could study the interaction among the variables of loneliness, purpose of life, and career choice.
7) The perceptions of immigrant students regarding loneliness need to be researched further. Qualitative methods could be used to examine the dynamics immigrant students encounter and how they impact their sense of loneliness.
8) Future quantitative and qualitative research studies could address issues such as the impact of loneliness and its relationship to other aspects of social and mental health in depth.

Practice:

9) The information gained from this study could inform university administrators of the issues facing a significant number of students. Administrators need to address these issues, and implement programs/services that promote a sense of belonging and acceptance for all students.
10) Those working with children and youth need to be aware of patterns of loneliness and how it impacts individuals at different ages and stages. Too often, loneliness is ignored or mistaken for a life style choice. Professional need to be aware and work with these children and youth to ensure they develop positively, both socially and mentally.
11) Child and youth care workers must be mindful of the behavior of those in their care. They need to support those who choose to be alone and assist and support those who are lonely.

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Appendixes

Appendix A: Differential Loneliness Scale

Appendix B: R-UCLA Loneliness Scale

Appendix C: Ryff's Well-Being Scale

Appendix D: Demographic Questionnaires

Appendix E: Cover Letter for Professors

Appendix F: Cover Letter for Students

Appendix A:

Differential Loneliness Scale

Differential Loneliness Scale – Short Student Version (Schmidt & Sermat, 1983)

Instructions: For each statement, decide whether it describes you or your situation or not. If it does seem to describe you or your situation, mark it TRUE (T). If not, mark it FALSE (F). If an item is not applicable to you because you are currently not involved in the situation it depicts, e.g., a current romantic or marital relationship, then mark it FALSE (F).

1.	I feel close to members of my family.	T	F
2.	I have a lover or spouse (boyfriend girlfriend husband or wife) with whom I can discuss my important problems and worries.	T	F
3.	I feel I really do not have much in common with the larger community in which I live.	T	F
4.	I have little contact with members of my family.	T	F
5.	I do not get along very well with my family.	T	F
6.	I am now involved in a romantic or marital relationship where both of us are making a genuine effort at co-operation.	T	F
7.	I have a good relationship with most members of my immediate family.	T	F
8.	I do not feel that I can turn to my friends living around me for help when I need it.	T	F
9.	No one in the community where I live seems to care much about me.	T	F
10.	I allow myself to become close to my friends.	T	F
11.	I seldom get the emotional security I need from a good romantic or sexual relationship.	T	F
12.	I feel that I have Aroots@ (a sense of belonging) in the larger community or neighbourhood I live in.	T	F
13.	I do not have many friends in the city where I live.	T	F
14.	I do not have any neighbours who would help me out in a time of need.	T	F
15.	I get plenty of help and support from my friends.	T	F
16.	My family seldom really listens to what I say.	T	F
17.	Few of my friends understand me the way I want to be understood.	T	F
18.	My lover or spouse senses when I am troubled and encourages me.	T	F
19.	I feel valued and respected in my current romantic or marital relationship.	T	F
20	I know people in my community who understand and share my views and beliefs.	T	F

Appendix B:
R-UCLA Loneliness Scale
and
Three-Item Loneliness Scale

R-UCLA Loneliness Scale
and Three-Item Loneliness Scale

Instruction: Please indicate how often you feel the way described in each of the following statements.
Please put X in the box you think it matches your feeling

	Statements	Never	Rarely	Sometimes	Most of time
1	I feel in tune with the people around me.				
2	I lack companionship				
3	There is no one I can turn to.				
4	I do not feel alone.				
5	I feel part of a group of friends.				
6	I have a lot in common with the people around me.				
7	I am no longer close to anyone.				
8	My interests and ideas are not shared by those around me				
9	I am an outgoing person				
10	There are people I feel close to.				
11	I feel left out.				
12	My social relationships are superficial.				
13	No one really knows me well				
14	I feel isolated from others				
15	I can find companionship when I want it.				
16	There are people who really understand me.				
17	I am unhappy being so withdrawn				
18	People are around me but not with me				
19	There are people I can talk to.				
20	There are people I can turn to.				

	Three-Item Loneliness Scale: **The next questions are about how you feel about different aspects of your life.** **For each one, please indicate how often you feel that way.**				
	Questions	**Hardly Ever**	**Some of the Time**	**Often**	
A	How often do you feel that you lack companionship?				
B	How often do you feel left out?				
C	How often do you feel isolated from others?				

Appendix C

Ryff's P. Well-Being Scale

Ryff's P. Well-Being Scale

Instruction

Dear respondent: This questionnaire is organized to evaluate general indexes of mental health (well-being). Please: First, read each question/item carefully. Second, choose the best choice that explains the degree to which you agree with. Third, put (X) into the box you have chosen. Please do not write your name on this scale.

Questions/Items	1= strongly disagree	2= moderately disagree	3= slightly disagree	4= slightly agree	5= moderately agree	6= strongly agree
A1: I am not afraid to voice my opinions even when they are in opposition to the opinions of most people						
A2: My decisions are not usually influenced by what everyone else is doing						
A4: I have confidence in my opinions even if they are contrary to the general consensus						
A6: Being happy with myself is more important than having others approve of me						
A3: I tend to worry what other people think of me						
A5: I often change my mind about decisions if my friends and family disagree						
A7: It is difficult for me to voice my own opinions on controversial matters						
R1: Most people see me as loving and affectionate						
R3: I enjoy personal and mutual conversations with family members or friends						
R6: People would describe me as a giving person, willing to share my time with others						
R7: I know that I can trust my friends and they know that they can trust me						
R2: I often feel lonely because I have few close friends with whom to share my concerns						
R4: I don't have many people who want to listen when I need to talk						
R5: It seems to me that most other people have more						

friends than I do						
E2: I am quite good at managing the many responsibilities of my daily life						
E4: I generally do a good job of taking care of my personal finances and affairs						
E5: I am good at juggling my time so that I can fit everything in that needs to be done						
E7: I have been able to build a home and a lifestyle for myself that is much to my liking						
E1: I do not fit very well with the people and the community around me						
E3: I often feel overwhelmed by my responsibilities						
E6: I have difficulty arranging my life in a way that is satisfying to me						
G3: I think it is important to have new experiences that challenge how you think about the world						
G5: I have the sense that I have developed a lot as a person over time						
G1: I am not interested in activities that will expand my horizons						
G2: I don't want to try new ways of doing things — my life is fine the way it is						
G4: When I think about it, I haven't really improved much as a person over the years						
G6: I do not enjoy being in new situations that require me to change my old familiar ways of doing things						
G7: There is a truth in the saying that you can't teach an old dog new tricks						
P5: I am an active person in carrying out the plans I set for myself						
P7: I enjoy making plans for the future and working to make them a reality						

P1: I tend to focus on the present, because the future nearly always brings me problems						
P2: My daily activities often seem trivial and unimportant to me						
P3: I don't have a good sense of what it is I am trying to accomplish in life						
P4: I used to set goals for myself, but that now seems a waste of time						
P6: I sometime feel I have done all there is to do in life						
S2: I have made some mistakes in the past, but feel that all in all everything has worked out for the best						
S5: The past had its ups and downs, but in general I wouldn't want to change it						
S6: When I compare myself with friends and acquaintances, it makes me feel good about who I am						
S7: In general, I feel confident and positive about myself						
S1: I feel that many of the people I know have got more out of life than I have						
S3: In many ways, I feel disappointed about my achievements in life						
S4: My attitude about myself is probably not as positive as most people feel about themselves						

Appendix D:

Demographic Questionnaire

Demographic Questionnaire

The following information is collected in order to have a better sense of participants. Please answer as many of the questions with which you feel comfortable

Age: < 17 ☐ 17- 20 ☐ 21-24 ☐ > 24 ☐

Gender: Female ☐ Male ☐ Other ☐

Are You Single ☐ Married ☐ Divorced ☐ Separated ☐ Common Law ☐ Other ☐

Degree program in which you currently enrolled: Please indicate it by putting (X) in right box

Program	(X)
Bachelor of Arts	
Bachelor of Child & Youth Studies	
Bachelor of Business Administration	
Bachelor of Tourism & Hospitality	
Bachelor of Public Relations	
Bachelor of Science	
Bachelor of Applied Human Nutrition	
Certificates/Diplomas	
Undeclared degree	
Visiting Students	
Other: please write the name of your program below	

Are you: Canadian student ☐ Landed immigrant student ☐ International student ☐

Are you primary living with:

family members ☐ parent (s) ☐ sibling (s) ☐ relative (s) ☐

non family member ☐ please specify----------

on your own ☐ Student Residence ☐ other ☐ please specify----------

How many siblings do you have? None ☐ 1 ☐ 2 ☐ 3 ☐ >3 ☐

Appendix E:

Cover Letter for Professors

Dear professors,

My name is Mehrdad Shahidi, and I am currently enrolled in the Master of Arts (Child and Youth Study) program at MSVU. As part of my degree requirements, I am conducting research on mental health, specifically the relationship between a sense of loneliness and mental health in young adults. In this regard, I am targeting undergraduate students aged between 19 to 26 years old as it is expected they will represent the range of sample to gather information about their loneliness experiences and how they perceive their mental health status. The goal of this research is to expand our current knowledge regarding young adults' mental health in order to predict the role of influential factors, particularly loneliness, in mental health.

For this, I am seeking your permission to distribute the attached letter of invitation, scales and questionnaires in your class to attract the student's participation in my thesis research.

Participation in this research is completely voluntary. Your students do not have to answer any questions on this survey that causes them discomfort. All information will be confidential and no identifying information will be required on the survey. While quotes from individual surveys may be cited in the thesis and future publications to illustrate a point, there is no way to identify the source of the quote. The focus is on group results. Data from the surveys will be coded and stored on a secure server at MSVU. Hard copies of the surveys will be shredded once the data has been entered. To allow time for dissemination of the information through conference presentations and published articles, electronic data files will be kept for three years following the thesis defense and then deleted from the computer.

The process should take approximately 10 to 20 minutes to complete the scales and questionnaires. If you would like a summary of the research findings, you can contact me at the below email address and a copy will be provided.

Should you have any further questions regarding this study, please contact me, Mehrdad Shahidi at mehrdad.shahidi@msvu.ca or my thesis supervisor, Dr. Carmel French. If you have any questions regarding how this study is being conducted, you may contact the University Research Ethics Board (UREB) c/o MSVU Research and International office at (902) 457-6350 or via e-mail at research@msvu.ca.

I would like to appreciate you for your permission to carry out my research project. It is my hope that this research will result in more effective intervention programs for enhancing young adults' mental health.

Sincerely,

Mehrdad Shahidi
Graduate Student, MSVU
Dr. Carmel French
Dept. of Child and Youth Study, MSVU

Appendix F:

Cover Letter for Students

Dear Student,

My name is Mehrdad Shahidi, and I am currently enrolled in the Master of Arts (Child and Youth Study) program at MSVU. As part of my degree requirements, I am conducting research on mental health specifically the relationship between a sense of loneliness and mental health. I am gathering information and perspectives from people regarding their loneliness experiences and how they perceive their mental health status. The goal of this research is to expand our current knowledge regarding young adults' mental health in order to predict the role of influential factors, particularly loneliness, in mental health.

Participation in this research is completely voluntary. You do not have to answer any questions on this survey that causes you discomfort. All information will be confidential and no identifying information will be required on the survey. While quotes from individual surveys may be cited in the thesis and future publications to illustrate a point, there is no way to identify the source of the quote. The focus is on group results. Data from the surveys will be coded and stored on a secure server at MSVU. Hard copies of the surveys will be shredded once the data has been entered. To allow time for dissemination of the information through conference presentations and published articles, electronic data files will be kept for three years following the thesis defense and then deleted from the computer.

If you choose to participate in this research, please complete Section A of the survey and Sections B, C, and D. Should you need any clarification regarding any of the questions please ask me, I will remain in the room until everyone is finished. You can then place the completed survey in the large envelope at the front of the room. The process should take approximately 10 to 20 minutes depending on how many sections are applicable to you. If you would like a summary of the research findings, you can contact me at the below email address and a copy will be provided.

Should you have any further questions regarding this study, please contact me, Mehrdad Shahidi at mehrdad.shahidi@msvu.ca or my thesis supervisor, Dr. Carmel French. If you have any questions regarding how this study is being conducted, you may contact the University Research Ethics Board (UREB) c/o MSVU Research and International office at (902) 457-6350 or via e-mail at research@msvu.ca.

I would like to thank you for participating in my research project. It is my hope that this research will result in more effective intervention programs to enhance young adults' mental health.

Sincerely,
Mehrdad Shahidi
Graduate Student, MSVU
Dr. Carmel French
Dept. of Child and Youth Study, MSVU