

A DESCRIPTIVE ANALYSIS OF PERCEIVED STRESS AND SEXUAL FUNCTION
AMONG COMMUNITY-DWELLING OLDER ADULT MALES

by

Cheryl A. Maes

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DEDICATION

This dissertation is dedicated to my mother who passed away after a two year courageous battle with cancer. I am so grateful she knew I had advanced to PhD Candidacy prior to the end of her life. Her words of encouragement and reassurance as well as her bravery prior to her demise inspired me to keep moving forward to get this dissertation done. I know you are still here mom in spirit; continue to believe, be strong, and rest in peace.

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ABSTRACT

Background: A critical component of sexual health is healthy sexual functioning; being able to experience sexual enjoyment and satisfaction when desired. Sexual difficulties are not unusual and can have either physical or psychological causes. An estimated 100 million males worldwide suffer from erectile dysfunction (ED), with the expectation that this sexual problem will increase to 322 million cases by the year 2025 (Bacon, Mittleman, Kawachi, Giovannicci, Glasser, & Rimm, 2003). The prevalence of ED greatly escalates in older males and those with Cardiovascular Disease, Hyperlipidemia, and Diabetes due to related endothelial dysfunction (Bivalacqua, Usta, Champion, Kadowitz, & Hellstrom, 2003). Sexual dysfunction is a concern for all males, including those over the age of 65. Because sexual function or sexuality is a critical factor contributing to the quality of life among older adults (Gelfand, 2000; Robinson & Molzahn, 2007), attention to sexual dysfunction is needed to ensure a high quality of life among older adult males (Vincent & Velkoff, 2010). Furthermore, psychological and emotional stress have been associated with sexual dysfunction among males; both as a cause and a result of this condition.

Purpose: The purpose of this study was to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships.

Study Aims: The study aims are to 1) describe perceived stress and sexual function in a community-dwelling older adult male population, 2) describe the relationship between perceived stress and sexual function, and 3) describe the relationship between perceived stress and sexual function while controlling for individual characteristics of the sample.

Methods: A descriptive, cross-sectional research design was used. The sampling technique was a convenience sample of males aged 65 and older enrolled in a university affiliated lifelong learning institute in the southwestern United States. Inclusion criterion consisted of independent, active males aged 65 and older, in addition to being able to speak and read English.

Exclusionary criterion comprised of those who have cognitive impairment determined by an Abbreviated Mental Test Score (AMTS) of six or less.

Results: The majority of the 92 participants were between the ages of 65-70 and Caucasian.

Overall, the sample was highly educated with most holding an Associate college degree or more advanced degree, was married, in age-related retirement, currently not working, and considered them self financially within the middle to higher middle-income level. Over half declared they have had sexual activity in the last month with an average level of sexual functioning and above average level of sexual satisfaction. In general, the participants indicated they are not stressed.

There is a significant and negative correlation between perceived stress and sexual function (satisfaction). There is a significant relationship between perceived stress and Obesity with sexual function (erection, ejaculation, and satisfaction). Significant univariate effects were found on age with sexual function (erection, ejaculation, and satisfaction). Furthermore, significant univariate effects were found on Obesity with sexual function (ejaculation and satisfaction). Subsequently, a significant univariate effect was found on Cancer with sexual function (satisfaction).

Significance: These study findings may serve as a foundation for enhancing sexual function; thus, establishing improved sexual health and quality of life among older adult males.

CHAPTER I: INTRODUCTION

A critical component of sexual health is healthy sexual functioning; being able to experience sexual enjoyment and satisfaction when desired. Sexual difficulties are not unusual and can have either physical or psychological causes. An estimated 100 million males worldwide suffer from erectile dysfunction (ED), with the expectation that this sexual problem will increase to 322 million cases by the year 2025 (Bacon, Mittleman, Kawachi, Giovannicci, Glasser, & Rimm, 2003). The prevalence of ED greatly escalates in older males but also in males who suffer from Cardiovascular Disease, Hyperlipidemia as well as Diabetes. Subsequently, ED develops due to reduction of endothelium integrity resulting in endothelial dysfunction (Bivalacqua, Usta, Champion, Kadowitz, & Hellstrom, 2003). Sexual dysfunction is a concern for all males, particularly those over the age of 65. Because sexual function or sexuality is a critical factor contributing to the quality of life among older adults (Gelfand, 2000; Robinson & Molzahn, 2007), attention to sexual dysfunction is needed to ensure a high quality of life among older adult males (Vincent & Velkoff, 2010). Furthermore, psychological and emotional stress have been associated with sexual dysfunction among males; both as a cause and a result of this condition.

Stressful life events can lead to chronic psychological stress surpassing an individual's capacity to cope, weakens body systems, and brings about behavioral or physical problems (Salleh, 2008). Older adults experience stressful life events, such as financial hardship, a new physical illness or disability among a family member or self, and changes in living situations to name a few (Fiske, Wetherell, & Gatz, 2009). The economy remains a prominent stressor for older adults. According to Long (2010), greater sources of stress among older adults are money (62 percent) and the economy (69 percent) versus personal and family health issues; 57% and

59% respectively. Another presumption is stress could be a source to overall sexual function among older adult males.

Problem Statement

Sexual problems among older adults are not a result of aging; nevertheless are responses to the existence of stressors in various life domains (Laumann, Das, & Waite, 2008). A connection between sexual dysfunction and diminished quality of life has been suggested necessitating awareness of this problem as a vital public health concern (Laumann, Paik, & Rosen, 1999). Even sustained psychological stress inducing chronic low-grade inflammation has been reported (Hansel et al., 2010). As an illustration, Ghiadoni and colleagues (2000) reported episodes of mental stress, similar to those encountered in everyday life, cause transient endothelial dysfunction in healthy young adults. Therefore, the possibility exists that this same mechanism occurs in older adults. However, to date, the association between psychological stress and sexual function in older adult males has not been examined.

Study Purpose and Aims

The purpose of this study was to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. The study aims are to 1) describe perceived stress and sexual function in a community-dwelling older adult male population, 2) describe the relationship between perceived stress and sexual function, and 3) describe the relationship between perceived stress and sexual function while controlling for individual characteristics of the sample.

Study Significance

Sexual health is one aspect of quality of life, encompassing physical, mental, social, and spiritual well-being (Ferrell, 1995). Unfortunately, this is an under investigated area of research within the older adult population. Long-term enhancement of health, in addition to quality of life, among the middle-to-older aged population has generated attention in topics of sexual health globally (Nicolosi et al., 2004; Gott & Hinchliff, 2003). With the number of adults aged 65 and older anticipated to increase from 40.2 to 88.5 million by 2050 in the United States (Vincent & Velkoff, 2010), attention to promotion of sexual health cannot be overemphasized among this population. Even though the advantages of sexual activity are well-established (Westheimer, 2005), appropriately warranted is the investigation of circumstances influencing sexual function among older adults since this area is a substantial aspect partly responsible to their quality of life. Therefore, the study findings may serve as a foundation for enhancing sexual function; thus, establishing improved sexual health and quality of life among older adult males.

One aspect needing further inquiry, linked with sexual health, is to recognize factors relevant with sexual functioning in older adults. An understanding of sexual function among this age group is essential from many angles. DeLamater and Karraker (2009) suggested sexual functioning may be affected by circumstances exhibiting four dimensions: biologic, psychological, social context, and interactions. Unsatisfactory sexual function can be an indicator for major health conditions (DeLamater & Karraker, 2009). As an illustration, males with erectile dysfunction (ED) may be a signal of impaired endothelial function, in addition to asymptomatic coronary artery disease (Basson, 2007). As mentioned earlier with the growing number of older adults, recognizing sexual function and activity being connected with overall

health among this vulnerable population is crucial from a healthcare provider's point of view. Beyond any doubt, sexual health cannot be assumed without a comprehensive examination of sexuality which guides behaviors and outcomes related to sexual function. Accordingly, sexual health necessitates a positive means of arriving to sexuality (World Health Organization [WHO], 2006).

Conceptual Framework of Symptom Sexual Dysfunction

The revised Theory of Unpleasant Symptoms (TOUS) was chosen to guide the development of this study's conceptual framework. The main concepts of this study include perceived stress and sexual function. Based on this theory's focus on the symptom experience, it is projected that influential factors including the *psychological response to stress* (degree of perceived stress), *physiological factors* (coexisting comorbidities and age) as well as *situational factors* (socioeconomic status, marital status, and social support) may affect one's susceptibility of experiencing a symptom; in this case sexual dysfunction leading to an outcome/consequence of diminished quality of life.

The conceptual framework for this study is comprised of three key components: 1) Influential factors (*physiological factors* to include coexisting comorbidities and age, *psychological factors* to include degree of perceived stress, and *situational factors* to include socioeconomic status, marital status and social support); 2) Symptom (sexual dysfunction); and 3) Outcome/consequence (diminished quality of life). Figure 1 depicts the conceptual framework of the relationships among the aforementioned key components. For the purpose of this study, only the influential factors and symptom were investigated.

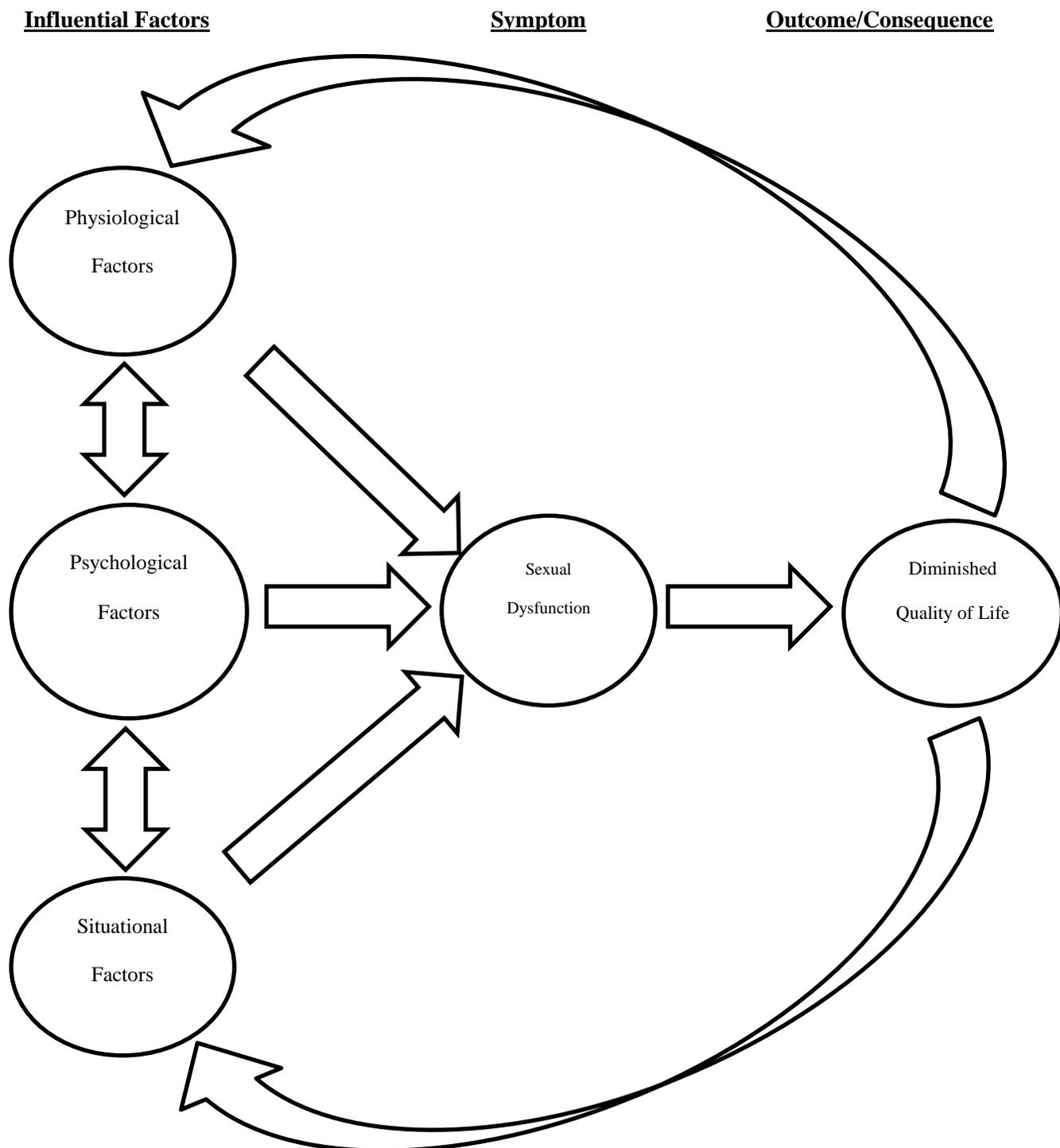


Figure 1. Conceptual Framework of Symptom Sexual Dysfunction

Theoretical Framework: The Theory of Unpleasant Symptoms

A health promotion/risk reduction theory utilized to guide this study was the Theory of Unpleasant Symptoms (TOUS). The following will be an explanation of the major tenants of the theory as well as how it relates to this study.

The TOUS (see Figure 2) was first introduced in 1995 suggesting symptom clusters have an effect on patient outcomes such as quality of life (Lenz, Pugh, Milligan, Gift, & Suppe, 1997).

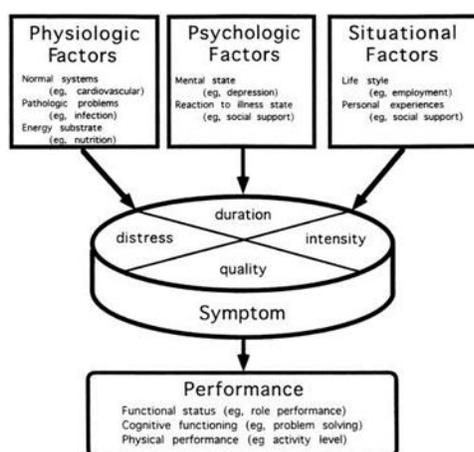


Figure 2. The Theory of Unpleasant Symptoms (Original)

This assumption is further supported by Kim and colleagues (2005) who report patients with the presence of two or more symptoms related to Cancer and its treatments results in poorer physical health status and emotional distress to name a few.

In 1997, TOUS (see Figure 3) was revised leading to a more versatile and accepted theory (Lenz et al., 1997).

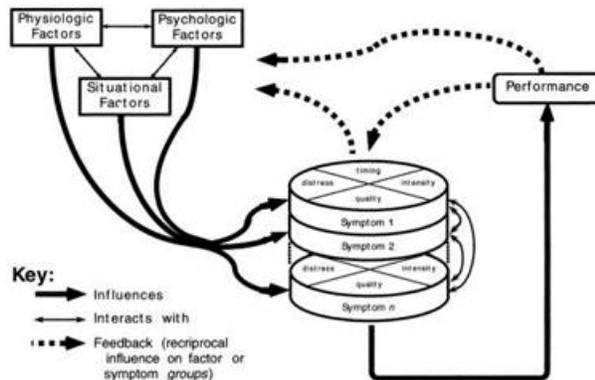


Figure 3. The Theory of Unpleasant Symptoms (Updated)

The overall purpose of this theory is to appreciate an individual's experience of a symptom(s) in varied situations as well as present facts beneficial for designing methods to prevent, lessen, or maintain an unpleasant symptom(s) and their negative effects (Lenz & Pugh, 2008).

All individuals identify similar symptoms differently which can be observable, physiological, psychological, and situational (McCaffrey, 2010). With this said, these factors may act jointly or individually to create an unpleasant symptom(s). The TOUS suggests that alternative factors which increase an unpleasant symptom(s) are identified, and multiple interventions are attempted. Although the concepts and propositions of TOUS seem relatively more common sense versus theoretical (Pesut, 2009), experiences with an unpleasant symptom(s) remains problematic with designing and delivering healthcare solutions.

The TOUS has three major concepts: 1) the symptom(s), 2) influencing factors, and 3) performance outcomes. Influencing factors are further designated by three types of variables: 1) *psychological factors*, 2) *physiological factors*, and 3) *situational factors* (Dyess, 2011). All three of the aforementioned factors together impact susceptibility to and manifestation of a given

symptom or multiple symptoms as well as the kind of symptom experience (Lenz & Pugh, 2008). As a result, the symptom experience affects the individual's performance which encompasses social, cognitive as well as physical functioning (Lenz & Pugh, 2008). The following will be a further description of the three major concepts of this theory.

The Symptom(s)

The symptom(s) are considered the central concept of TOUS. Symptoms are defined as "The perceived indicators of change in normal functioning as experienced by patients" (Rhodes & Watson, 1987, p. 242). Therefore, the symptom(s) can only be described by the individual experiencing it; being subjective not objective.

Influencing Factors

Influencing factors involve three categories (*psychological, physiological, and situational*) which affect the symptom experience. *Psychological factors* include affective and cognitive variables. Affective variables which can help to aggravate the symptom(s) include mood at or following the time of the symptom experience, and the individual's affective reaction to the symptom itself including but are not limited to anxiety, uneasiness, or anger (Lenz & Pugh, 2008). *Physiological factors* include but are not limited to the existence of structural anomalies, presence of disease, inflammation secondary to injury, and age (Lenz & Pugh, 2008). Lastly, *situational factors* comprise the individual's social and physical environment which includes socioeconomic status, marital status, and availability of social support to name a few (Lenz & Pugh, 2008).

Performance Outcomes

Performance outcomes represent the results of the symptom experience. The TOUS claims the symptom experience can have an effect on the individual's ability to function. Accordingly, performance outcomes has various likely components including but are not limited to physical activity and impairment, in addition to functional role performance including activities of daily living as well as social interaction.

Definition of Study Variables

The main variables of this study include perceived stress and sexual function. The following are the theoretical definition of each of these variables.

Perceived Stress

Perceived stress is defined as the degree to which situations in one's life are appraised as stressful (Cohen & Williamson, 1988).

Sexual Function

Sexual function is defined as how the body responds in different phases of the sexual response cycle or the emergence of sexual dysfunction. The aspects of sexual function defined as being relevant includes sexual desire, erection, orgasm, and ejaculation (Masters & Johnson, 1966).

Summary

With the current information in support of prevailing growth among older adults, it is essential to recognize this vulnerable population having expanded healthcare needs while reiterating a balance in health (Shi & Stevens, 2010). With this said, reducing healthcare differences suffered by vulnerable populations is essential; comprising of older adults (Shi &

Stevens, 2010). Older adults' health needs will put expanding stress on present medical and social support if this does not become first in order (Shi & Stevens, 2010). Therefore, a long-term goal of this investigator is to generate meaningful and essential insights for research on circumstances influencing older adults' sexual health, in addition to supplying improved recognition of sexual health among this population. Beyond any doubt, if healthcare providers do not begin talking about sexual health problems among this growing population, extensive public and global health consequences will surface.

CHAPTER II: LITERATURE REVIEW

There continues to be a societal misinterpretation that people over the age of 65 are no longer sexually active. In fact, it is repeatedly assumed elder persons lose their desire for sexual activity or that they are physically unable to perform (Kalra, Subramanyam, & Pinto, 2011). However, sexual interest as well as activity remains at stable to climbing numbers among adults aged 70-90 (DeLamater & Sill, 2005; Gott & Hinchliff, 2003). This results in healthcare providers often not considering or discussing sexual behaviors as well as sexually transmitted infections (STIs) among this age group. Furthermore, there is belief that older adults are not inclined to discuss sexuality concerns with their healthcare provider like younger adults due to deficiency in knowledge of STIs or out of shame (National Institute on Aging, 2009). There is even evidence that improved well-being, in addition to physical health is associated with later life sexual activity (Brody, 2010). Although the literature presents these facts, the objective of this chapter is to establish the significance for this study.

Sexual Health

Sexual health is a state of well-being while arriving to a satisfied sexual relationship without worry or embarrassment; it is not completely sexual dysfunction or absence of disease (Rheaume & Mitty, 2008). The World Health Organization (WHO, 2006, p. 10) has identified sexual health as a state of physical, emotional, mental, and social well-being related to sexuality. As one ages, there are physical and mental changes which can disrupt sexual integrity advancing in a variety of sexual frustrations (Levine, 1992). Essentially, sexual functioning and relationship characteristics impact aging (Kingsberg, 2000). Furthermore, affecting fulfillment

of sexual balance as well as attainment of sexual awareness with couples is exacerbated by the ability to control stress and intrusion by outside sources (Kingsberg, 2000).

In addition to aging influencing sexual functioning, there is probability of older adults developing health problems influencing relationships and sexuality (Kingsberg, 2000).

Specifically, Addis and colleagues (2006) note middle-older aged women who reported frequent sex were in good to excellent health compared to those in fair to poor health. In addition, a study completed on 156 married elderly, with an average age of 71 years, revealed those who were currently sexually active were very satisfied as well as had greater self-esteem distinguished from those who were not currently sexually active (Choi et al., 2011). Accordingly, there is a connection among extreme quality of life, satisfying health, and a gratifying sex life. Further information on the prevalence and factors influencing sexual health among older adults are outlined in Table 1.

TABLE 1. *Prevalence and Factors Influencing Sexual Health*

Study and Setting	Sample Size, Race, and Age (Years)	Design	Results
Agunbiade & Ayotunde, 2011, Nigeria	N = 64; Nigeria, age = 50-75	Qualitative study	Sexuality is important in old age. Non-availability of partner, poverty & ill health affects sexual desire.
Huang et al., 2009, Integrated healthcare delivery system	N = 1,977 women (876 White, 388 African American, 347 Latina, 351 Asian age 45-80)	Cross-sectional cohort study	Sexual satisfaction is moderate-high among sexually active participants. Lack of interest, lack of partner, physical problem of partner & lack of interest by partner causes sexual inactivity.
Lindau & Gavrilova, 2010, 2 representative US population samples (MIDUS -national survey of midlife development in the U.S., 1995-1996 and NSHAP-national social life, health, and ageing project, 2005-	N = 3032 (1561 women and 1471 men from MIDUS age 25-74 White, African American, and other) and N = 3005 (1550 women and 1455 men from NSHAP age 57-85 White, African American, and other)	Cross-sectional study	Men > women interested in sex report good quality sex life & are sexually active. Gender differences increase with age. Interest in sex, quality of sex life & sexual activity positive association with health among middle-

2006)			older age. Good-excellent health more likely to be sexually active versus fair-poor health.
Thompson et al., 2011, community dwelling in San Diego	N = 1,235 (postmenopausal women age 60-89 predominantly White)	Cross-sectional study	Positive association with sexual measures (self-rated quality of life & sexual satisfaction) were successful aging measures. Negative association with age (sexual activity & functioning, and mental & physical health).
Santosa et al., 2011, Central Java, Indonesia	N = 11, 538 (Indonesia women and men age over 50)	Cross-sectional study	Older men reported sexual activity. Older women reported more sexual problems. Majority reported good quality of life. Poor quality of life in men associated with presence of sexual problems, dissatisfaction in sexual life, & lack of sexual activity. Poor quality of life in women associated with presence of sexual problems.

Sexual Dysfunction

While the acknowledgment of sexuality persists with aging, a fall in sexual activity is typically seen with and can be associated to general health problems and sexual dysfunction. In a study conducted in the United States, the proportion of males who were sexually active declined from 83.7% in the 57-64 year age group to 38.5% in the 75-85 age group (Lindau et al., 2007). Moreover, in a pilot study conducted among males 50 years and older, with an average age of 81 years, the main reported reason for being sexually inactive was erectile dysfunction (Smith, Mulhall, Deveci, Monnaghan, & Reid, 2007).

While it is known that sexual activity remains with advancing age, sexual dysfunction typically occurs. Furthermore, erectile dysfunction is likely the most studied area of sexual dysfunction among males, in addition to the most common sexual complaint of males presenting

to their healthcare provider (Uckert, Mayer, Stief, & Jonas, 2007). As a result, numerous medical problems can be addressed by healthcare providers of older patients with sexual dysfunction aiming attention at modifiable risk factors with attempts to lead to improved sexual function.

Physiological Changes with Aging

A known fact is normal aging affects all physiological processes (Boss & Seegmiller, 1981). Additionally with age, a gradual decline in function of most organs commonly occurs by the third or fourth decade (Boss & Seegmiller, 1981). Physiological changes with aging include but are not limited in the endocrine, gastrointestinal, respiratory, and cardiovascular systems. For the purpose of this study, aging changes involving the vasculature will be discussed.

The Effects of Endothelial Dysfunction on Atherosclerosis

Fundamental to the body is the delivery of oxygen and nutrients from the elasticity and flexibility of healthy arteries (Yue & Ke-ji, 2012). Over time, the arterial walls become thickened and stiff restricting blood supply to tissues and organs; this process of hardening of the arteries is called arteriosclerosis (Yue & Ke-ji, 2012). Moreover, when substances along with cholesterol and fat builds up inside arteries leading to the formation of plaque, narrowing of the lumen, arterial wall hardening, sequentially blocking blood flow is atherosclerosis (Yue & Ke-ji, 2012).

Cardiovascular complications such as Stroke, Ischemic Heart Failure, and Myocardial Infarction, in addition to atherosclerosis are major causes of death in the Western World (Wang & Bennett, 2012). Risk factors for the development of atherosclerosis include but are not limited to smoking, Diabetes, elevated total low-density lipoprotein, Hypertension as well as aging (Wang & Bennett, 2012). Evidence illustrates having cardiovascular risk factors promotes

accelerated or premature aging of the vasculature (Farhat et al., 2008; Niemann et al., 2011). Also observed in atherosclerosis is cellular senescence (Bolton & Rajkumar, 2010) which refers to the permanent interruption of cell growth that occurs when cells experience oncogenic stress (Campisi & d'Adda di Fagagna, 2007). Lastly, mechanisms such as infectious etiologies, vascular inflammation, apoptosis, oxidative stress, and endothelial dysfunction are involved in the progression of atherosclerosis (Wang & Bennett, 2012).

The Atherosclerotic Plaque

Atherosclerosis is presently recognized as an inflammatory reaction to the presence of oxidized low-density lipoproteins within the arterial wall (Bui, Prempeh, & Wilensky, 2009). The stability of atherosclerotic plaque depends on fibrous cap thickness, in addition to the degree of inflammation (Wang & Bennett, 2012). The accumulation of vascular smooth muscle cells and the secretion of elastin and collagen, intracellular and extracellular lipid and debris, in addition to inflammatory cells (T lymphocytes, macrophages, dendritic cells, and mast cells) are present in the mature atherosclerotic plaque (Wang & Bennett, 2012). The interaction of macrophages, T lymphocytes, and mast cells play a fundamental role in both the development as well as the advancement of Coronary and Carotid Artery Disease (Bui, Prempeh, & Wilensky, 2009).

The progression to high-risk lesions secondary to fibrous cap thinning promoted by death of vascular smooth muscle cells, in addition to the breakdown of the extracellular matrix and collagen results in plaque rupture leading to an elevated risk of Stroke, Myocardial Infarction, and even sudden death (Bui, Prempeh, & Wilensky, 2009). In an effort to prevent rupture of a plaque, vascular smooth muscle cells attempt to repair and reorganize associated thrombus by

proliferating and synthesizing the extracellular matrix (Wang & Bennett, 2012). Multiple ruptures and repairs are evident with complicated plaques resulting in luminal narrowing, in addition to alterations in plaque repair are affected by cellular senescence (Wang & Bennett, 2012).

Premature versus Normal Vascular Aging

An aging vessel displays several processes which are also seen in atherosclerosis (O' Rourke & Hashimoto, 2007). Even without evidence of atherosclerosis, an aging vessel leads to vascular stiffness from vascular remodeling, in addition to loss of arterial elasticity (Bolton & Rajkumar, 2010). An early sign of arterial aging is insufficient endothelial vasodilation which occurs years prior to the clinical manifestations of vascular dysfunction; the first step to Cardiovascular Disease and affecting vascular events in the elderly (Seals, Moreau, Gates, & Eskurza, 2006). Furthermore, reduced numbers of vascular smooth muscle cells, increased deposition of collagen, and elastin lamellae fractures leading to dilation of vessels and lumen size enlargement are present in aged vessels (Zieman & Kass, 2004). Besides alterations in the cell composition and extracellular matrix, an increase of pro-inflammatory molecules (Wang et al., 2007) and increased uptake of plasma lipoproteins (Hashimoto et al., 1991) are seen in aged vessels. As a result, promotion of atherosclerosis is due to increased leukocyte adhesion molecules on endothelial cells in aged vessels triggered by monocyte migration and increased uptake of atherogenic lipoproteins leading to inflammation (Wang & Bennett, 2012).

Persistent vascular inflammation is caused by aged endothelial cells and vascular smooth muscle cells due to increased secretion of pro-inflammatory cytokines (Wang & Bennett, 2012). Hence, the development of atherosclerosis extends along normal aging of the vessel (Wang &

Bennett, 2012). Several characteristics are shared between natural and premature aged cells including changes in potential cell proliferation, cell senescence markers, cell death increase, elevated damage to DNA, in addition to shortening and dysfunction of telomere detected in cells from atherosclerotic plaques (Wang & Bennett, 2012). Thus, all of these produce additional features of cell senescence defined as “the irreversible loss of the ability of cells to divide” (Wang & Bennett, 2012, p. 248).

The Association of Endothelial Dysfunction to Atherosclerosis

Endothelial dysfunction is characterized by “the loss or dysregulation of the homeostatic mechanisms that operate in healthy endothelial cells” (Sitia et al., 2010, p. 831). This condition is associated with escalated oxidative stress, vascular tone modulation abnormality, adhesion molecule expression elevation, and heightened synthesis of pro-thrombotic and pro-inflammatory factors inducing impaired vasodilation of the endothelium (Tritto & Ambrosio, 2004). An increase in the degradation of nitric oxide (NO) by oxidative stress, or even a decrease in NO, will lead to reduction in NO dependent vasodilatation (Landmesser, Harrison, & Drexler, 2006). Reduced NO and other endothelium dependent vasodilators, in addition to altered anti-inflammatory and anticoagulant functions of the endothelium is suggested with endothelial dysfunction (Bonetti, Lerman, & Lerman, 2003; Gokce et al., 2003). Both endothelial dysfunction and oxidative stress often are evident in individuals with atherosclerosis although the association between endothelial dysfunction and oxidative stress is not well known (Lavi et al., 2008). According to Davignon & Ganz (2009), an early marker for the development of atherosclerosis is endothelial dysfunction; representing a central phase to involvement in plaque progression and occurrence of atherosclerotic complications (Kinlay & Ganz, 1997).

Erectile Dysfunction

Erectile dysfunction is the failure to develop and maintain an erection for satisfactory sexual intercourse or an ejaculatory disorder such as premature ejaculation (National Institutes of Health [NIH], 1993). The association or link between Coronary Artery Disease (CAD) and erectile dysfunction (ED) is reported in the current literature and has raised discussion of ED being an early marker of CAD. Dong and colleagues (2011) indicate an increase of uncontrolled expected risk factors to ED notably increases the risk of CAD, Cardiovascular Disease, and Stroke. In addition, abdominal obesity, Hypertension, Diabetes, excessive alcohol intake, smoking, and diminished antioxidant defenses leading to reduction in nitric oxide production are correlated along with ED (Meldrum et al., 2011). Furthermore, an additional cause of ED is Hypogonadism or hormone deficiency; however, is less often the cause of ED than Cardiovascular Disease or Diabetes (Lakin, 1994). The prevalence of ED induced by Hypogonadism remains questionable, yet estimates of nearly 5% of cases are probable (Lakin, 1994). Definitely, illicit drugs in addition to certain prescription medications can also cause ED by various poorly understood means (Lakin, 1994).

There is individual variation with regard to physiological changes which occur with age affecting sexual functioning (Meston, 1997). An estimated 55% of males experience the inability to attain or sustain an erection by age 75 (Kinsey, Pomeroy, & Martin, 1948). In fact, the Massachusetts Male Aging Study reported 34.8% of mainly Caucasian males aged 40-70 reported some degree of erectile problems in which the prevalence increased with age; 40% by age 40 and 70% by age 70 (Feldman, Goldstein, Hatzichristou, Krane, & McKinlay, 1994).

Furthermore, Blanker and colleagues (2001) noted 26% of elderly men indicated having ED from additional national and international studies.

Erectile dysfunction is greatly correlated with advancing age; among older adult males (Albersen, Shindel, & Lue, 2009). With the aging population increasing, a rise in ED is expected in the future. Actually, 9.5% of the worldwide population of men is predicted to be 65 years and older by the year 2025 (Ayta, McKinlay, & Krane, 1999). Furthermore, the connection between age and ED rises steadily as male's age. To illustrate, a study conducted by Bacon and colleagues (2003) report the prevalence of ED occurred as well as sexual function decreased sharply by 50 years of age. In addition, modifiable risk factors including physical activity was associated with a lower risk of ED; whereas, Obesity was associated with a higher risk. Moreover, smoking, consumption of alcohol, and viewing television were associated with increased ED prevalence. Ultimately, a man who has no chronic medical conditions and is engaged in healthy behaviors has the lowest prevalence of ED (Bacon et al., 2003).

Psychological Effects of Stress and Aging

There are misinterpretations that older individuals are isolated, helpless, and unhappy. Although older individuals do face chronic diseases, heightened dependency, social losses, and psychological stress, the majority of older individuals are well adapted emotionally (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000). However, life events and individuals' management of such events, to name a few, can influence whether well-being improves or deteriorates with age (Scheibe & Carstensen, 2010).

Short-term exposure to stress can be beneficial; however, prolonged exposure to stress can negatively affect an individual's health and well-being. Stressful life events can lead to

chronic psychological stress surpassing an individual's capacity to cope, weakens body systems, and brings about behavioral or physical problems (Salleh, 2008). Older adults experience stressful life events including but are not limited to financial hardship, a new physical illness or disability among a family member or self, and changes in living situations (Fiske, Wetherell, & Gatz, 2009). The economy remains a prominent stressor for older adults. According to Long (2010), greater sources of stress among older adults are money (62 percent) and the economy (69 percent) versus personal and family health issues; 57% and 59% respectively. Another presumption is stress could be an additional source to overall sexual function among this population.

Stress is considered a major health issue and unfortunately the American population has seen an increased significance of this problem in recent years (American Psychological Association, 2007). Stress is also very common among the older adult population. In fact, stress plays a major role in the development of sleep disorders (Jean-Louis et al., 2001), cognitive decline (Dickinson et al., 2011) as well as Anxiety and Depression (Fiske, Wetherell, & Gatz, 2009; Kogan, Edelstein, & McKee, 2000). Through the stress process, there are stressors entrenched in imperative social relationships which are thought of as essential sources of obstacles which altogether reduce well-being (Pearlin, 1999). Stress plays an imperative role in the aging process. Furthermore, stress may age the immune system too soon and could intensify the risk of illness as well as age-related diseases (Djuric et al., 2008; Geronimus et al., 2010).

While the literature reports a relationship between heightened stress with diminished sexual function in adults (Bodenmann, Ledermann, & Bradbury, 2007), limited information is known about the impact of stress on sexual function among males aged 65 and older. What is

known includes stressors are a consequence of aging not sexual problems, sexual activity is associated with lowered levels of stress, and aging in addition to physical issues account for only a portion of sexual dysfunction. Additional information on the influences of stress on sexual health among older adults is outlined in Table 2.

Table 2. *Influence of Stress on Sexual Health*

Study and Setting	Sample Size, Race, and Age (Years)	Design	Results
Wight et al., 2012, University of California, Los Angeles	N =202 HIV +/- gay-identified men, majority Non-Hispanic White age 44-75 (mean 56.91)	Self-administered questionnaires completed by subsample from the Multicenter AIDS Cohort Study	Sexual minority stress & aging-related stress detrimental to mental health.
Lee et al., 2010, community dwelling in Hong Kong	N = 311 Chinese men age 40-80 (mean 58.88)	Cross-sectional study	Androgen deficiency men have higher anxiety & depression scores, higher stress level, higher psychiatric morbidity & poorer mental and physical quality of life.
Laumann, Das, & Waite, 2008, United States	N = 3,005 (1,550 women and 1,455 men age 57-85; White, African American, Hispanic/other)	Statistical analysis of interview data from 2005-2006 National Social Life, Health and Aging Project	Sexual problems are responses to presence of stressors in multiple life domains; not a consequence of aging. Poor mental health & relationship dissatisfaction most likely linking life stress to sexual problems.
Wang, Lu, Chen, & Yu, 2008, Taiwan	N = 616 (412 men and 204 women) over age 65; Chinese and/or Taiwanese	Retrospective epidemiological study	Sexual activity associated with higher education levels, lower stress & more self-reported daily activities. Five predictors of sexual activity: gender, age, being with spouse, sexual knowledge & sexual attitudes.
Parish, Laumann, Pan, & Hao, 2007, China	N = 2,478 sexually active (1,217 women and 1,261 men) age 20-64; Chinese (excluding Tibet & Hong Kong)	Qualitative study	Aging & physical issues account for only a portion of total set of mental health, stress, relationship & values/knowledge issues related to reports of sexual dysfunction.

Sexual problems among older adults are not a result of aging, nevertheless are responses to the existence of stressors in various life domains (Laumann, Das, & Waite, 2008). A connection between sexual dysfunction and diminished quality of life has been suggested necessitating awareness of this problem as a vital public health concern (Laumann, Paik, & Rosen, 1999). Even sustained psychological stress inducing chronic low-grade inflammation has been reported (Hansel, Hong, Camara, et al., 2010). As an illustration, Ghiadoni and colleagues (2000) reported episodes of mental stress, similar to those encountered in everyday life, cause transient endothelial dysfunction in healthy young adults. Therefore, the possibility exists that this same mechanism occurs in older adults. However, to date, the association between psychological stress and sexual function in older adult males has not been examined.

CHAPTER III: METHODOLOGY

The association between psychological stress and sexual function in older adult males has not been explored even though there is support sexual problems are responses to the presence of stressors (Laumann, Das, & White, 2008). Accordingly, this study's purpose will determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. The study aims are to 1) describe perceived stress and sexual function in a community-dwelling older adult male population, 2) describe the relationship between perceived stress and sexual function, and 3) describe the relationship between perceived stress and sexual function while controlling for individual characteristics of the sample. This chapter describes the study design as well as identifies data requirements including the sample, in addition to the approach data was gathered and analyzed.

Study Design

A nonexperimental design was used for the purpose of this study. Since there are no established studies which have examined the association between perceived stress and sexual function among older adult males, a descriptive design which is beneficial in reporting a pattern or linkage between variables without making inferences or casual statements (Shadish, Cook, & Campbell, 2002) was appropriate to investigate this study's purpose.

Sample and Setting

The target population was males aged 65 and older. A convenience sample of males aged 65 and older enrolled in the Osher Lifelong Learning Institute (OLLI) at the University of Nevada, Las Vegas (UNLV) was used. The mission of OLLI is to challenge individuals interested in continuing their education as well as having the opportunity to meet new people. There is no age, gender, or educational restrictions to become an OLLI member; the majority of those enrolled are Caucasian and female with a minimum high school education. In addition, those enrolled are independent, active, and retired or semi-retired interested in continuing to grow socially, intellectually, and physically. Inclusion criterion for this study consisted of independent, active males who were 65 years of age or older, in addition to being able to speak and read English. Exclusionary criterion comprised of those who have a cognitive impairment determined by an Abbreviated Mental Test Score (AMTS) of six or less.

Recruitment Procedure

Recruitment flyers were placed at OLLI located on UNLV Paradise Campus (see Appendix C). Potential participants were identified by the OLLI's Director and a total of three meetings were scheduled for the survey to be administered. During each meeting, the investigator did read a survey script to recruit as well as screened for prospective participants for the study. The survey script explained the purpose of the study as well as what participation entailed (see Appendix D). In addition, those who met the inclusion criteria and willing to participate in the study were provided an informed consent (see Appendix E). The informed consent assured voluntary participation and privacy of participation. Once the participant agreed to participate in the study, he was provided a survey to complete then returned the survey back to

the investigator. The survey consisted of questions including demographic information, perceptions of stress, in addition to sexual function and satisfaction (see Appendix F, G, and H).

No personal identifiable data was collected through the survey. Any surveys that included names or identifying information were immediately destroyed. Once data analysis was complete, the original survey forms were destroyed by a device used for shredding documents along with any information linking the electronic data with the original survey.

Sample Size

Essential with survey research is dealing with response bias as well as a common goal is to collect data representative of a population while determining sample size (Bartlett II, Kotrlik, & Higgins, 2001). One component of a study design which can affect the discovery of significant relationships or differences is the sample size (Peers, 1996). There are several approaches to determine sample size; however, the investigator used a free software program called G* Power. This software is limited to the capabilities of power and sample size calculations (Faul, Erdfelder, Buchner, & Lang, 2009).

Statistical significance tells the investigator there is a variation between two groups or more based on some treatment or arranging of variables while the effect size is the intensity or size of an effect (Cohen, 1988). The effect size is an accepted measure which can be calculated from any number of statistical outputs and the significance varies by context. However, the standard effect sizes include 0.2 being small, 0.5 being moderate, and 0.8 being large (Cohen, 1988). The following will describe a priori power analysis for the projected sample size required for study aims two and three as well as a post hoc power analysis based on this study's total sample size of 92.

Study Aim Two

A priori power analysis was conducted using the software package G*Power (Faul et al., 2009). With a point biserial correlation two tailed test, a medium effect size of 0.3, a significance of 0.05, and statistical power of 0.95, a sample size of 134 was recommended; whereas, with a point biserial correlation two tailed test, a large effect size of 0.5, a significance of 0.05, and statistical power of 0.95, a sample size of 42 was recommended.

A post hoc power analysis was conducted using the same software package. The sample size of 92 was used for the statistical power analyses, the effect size used was medium (0.3) and large (0.5), and the alpha level used was $p < .05$. The post hoc analyses revealed the statistical power for this study was 0.85 for detecting a medium effect; whereas, the power exceeded 0.99 for the detection of a large effect size. Therefore, there was more than adequate power at the medium to large effect size level.

Study Aim Three

A priori power analysis was conducted using the software package G*Power (Faul et al., 2009). With an ANCOVA, a medium effect size of 0.25, a significance of 0.05, and statistical power of 0.95, a sample size of 400 was recommended; whereas, with a large effect size 0.4, a significance of 0.05, and statistical power of 0.95, a sample size of 162 was recommended.

A post hoc power analysis was conducted using the same software package. The sample size of 92 was used for the statistical power analyses, the effect size used was medium (0.25) and large (0.4), and the alpha level used was $p < .05$. The post hoc analyses revealed the statistical power for this study was 0.28 for detecting a medium effect; whereas, the power was 0.69 for the

detection of a large effect size. Therefore, there was more than adequate power at the medium to large effect size level.

Human Subjects Rights

Data collection was for the exclusive purpose of this study, in addition to protection of human subjects rights was enforced throughout the study. All participants received the same informed consent while there was no receipt of reimbursement and no cost to the participant. Participation in the study was voluntary and anyone could have withdrawn from the study at any time. No reference was made in writing linking the participant to the study while information gathered was kept confidential at all times. Identifying information was not used in the reporting of data. The investigator recorded all study data identified only with a sequential code number to ensure participant confidentiality. In the end, only the investigator had access to the study data.

Protection of Potential Risks

Prior to conducting this study, Institutional Review Board (IRB) approval was obtained from the University of Arizona (see Appendix A). Acknowledgement of approval from the University of Arizona was conveyed to the University of Nevada, Las Vegas IRB since OLLI is an outreach program offered through this university. Potential risks included but were not limited to participants may have been bothered disclosing information about their sexuality. Moreover, participants potentially may have felt bothered responding to the questions asked as well as disclosing their responses which are personal in nature. These risks were clearly identified to participants so that they could have made an informed choice about whether or not to participate in this study. In the case where the participant was bothered by the aforementioned potential risks, a list of no to little cost community resources would be provided which can be helpful

should counseling be needed. However, this was not needed during the course of data collection. This study had no claim of direct potential benefit to any one individual participant. Moreover, the information gained from this study should lead to better theoretical understanding of factors influencing sexual function among males aged 65 and older.

Measures

Demographic Variables

Demographic variables were used to describe characteristics of the study sample (see Appendix F). These variables were included in the survey for participants to complete. Demographic variables which describe characteristics of the study sample included: 1) participant's age range, 2) race (American Indian or Alaskan Native, Asian, African American, Native Hawaiian, Caucasian), 3) ethnic background (Hispanic or Not Hispanic), 4) marital status, 5) highest level of education, 6) socioeconomic status, 7) social support, and 8) medical history (Type 2 Diabetes, Hypertension, Hyperlipidemia, Coronary Artery Disease, Benign Prostatic Hyperplasia, Cancer, and Obesity). The aforementioned coexisting comorbidities were selected because they are known risk factors for ED.

The Perceived Stress Scale

The Perceived Stress Scale (PSS) is a widely utilized psychological instrument for measuring the perception of stress (see Appendix G). This scale is designed to measure the degree to which situations in one's life are appraised as stressful during the last month (Cohen, Kamarck, & Mermelstein, 1983). There are several versions of the PSS (14-items, 10-items, and 4-items) and all have shown to be one of the more accepted measures of subjective stress in psychological health research (Sharp, Kimmel, Kee, Saltoun, & Chang, 2007). The 4-item and

10-item versions are subsets from the 14-item PSS. All three versions of the PSS are among the most widely used measures of stress including adolescents (Martin et al., 1995) to community-dwelling adults (Cohen & Williamson, 1988). Even the PSS revealed acceptable psychometric properties in non-demented older adults; the 14-item and 10-item versions have been found acceptable to use among older adults (Ezzati et al., 2014).

The 10-item PSS was used for this study. There are a total of 10-items rated on a 5-point Likert scale ranging from never (0) to almost always (4); positively worded items are reverse scores and the ratings are summed, in which higher scores indicate more perceived stress. Items 4, 5, 7, and 8 are the positively stated items. Scoring is obtained by reversing the scores on the four positive items (0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0) and then summing across all 10-items. The range of scores is between 0 and 40 with a higher score indicating more stress (Cohen, Kamarck, & Mermelstein, 1983).

In order to figure out whether the questions in this questionnaire were internally consistent, a Cronbach's alpha was run. The scale had a high level of internal consistency, as determined by a Cronbach's alpha of 0.84. Furthermore, the 10-item PSS has been proven to possess substantial reliability and validity. Reliability has been reported with a Cronbach's alpha between 0.84-0.86 with a test-retest reliability of 0.85; whereas, validity of the PSS to other measures of similar symptoms ranges between 0.52-0.76 (Cohen, Kamarck, & Mermelstein, 1983).

The Male Sexual Health Questionnaire

Several self-administered questionnaires have been developed to assess sexual function. Besides the domains of sexual desire and erection, a questionnaire which also assesses various

components of ejaculation and sexual satisfaction is the Male Sexual Health Questionnaire (see Appendix H). The Male Sexual Health Questionnaire (MSHQ) was used for this study which assesses relevant domains of sexual function and satisfaction in older men in the last one month. This 25-item questionnaire rated on a 5-point Likert scale assesses relevant domains of sexual function and satisfaction in older men specifically erection, ejaculation, and sexual satisfaction.

In order to find out whether the questions in this questionnaire were internally consistent, a Cronbach's alpha was run. The MSHQ comprises of three subscales (erection, ejaculation, and satisfaction). Cronbach's alphas for the 3 erection, 7 ejaculation, and 6 satisfaction items were 0.91, 0.93, and 0.93 respectively; indicating a high level of internal consistency. Moreover, this questionnaire has been proven to possess internal consistency of 0.81 to 0.90 as well as test-retest reliability ranging from 0.84 to 0.94 for domains erection, ejaculation, and sexual satisfaction (Rosen, Catania, Pollack, Althof, O'Leary, & Seftel, 2004).

Data Collection Procedure

Study participants were recruited from OLLI at UNLV via posting of recruitment flyers (see Appendix C). Three meetings were scheduled at OLLI located on UNLV Paradise Campus for the investigator to read a survey script to recruit as well as screen for prospective participants for the study. The survey script explained the purpose of the study as well as what participation entailed (see Appendix D). During each of the three meetings, those who met inclusion criteria and willing to participate in the study were provided an informed consent (see Appendix E). The informed consent assured voluntary participation, in addition to addressed ethical considerations such as respect, lack of pressure to participate, and privacy of participation being enforced at all times. Once the participant agreed to participate in the study, he was provided a survey to

complete and returned the survey to the investigator. Furthermore, the investigator retained completed surveys.

Data Analysis

The investigator performed all data entry. Data entry and analysis was done using the Statistical Package for Social Services (SPSS) version 24 (IBM Corp, 2016). All data entry was checked for accuracy by comparing data entries immediately with completed surveys. The following will detail the analysis of the data collected for each study aim.

Study Aim One

Descriptive statistics including frequencies and percentages was used for study aim one to describe perceived stress and sexual function in a community-dwelling older adult male population.

Study Aim Two

Pearson's correlation coefficient was utilized for study aim two to describe the relationship between perceived stress and sexual function. Caution needs to be taken when interpreting correlation coefficients because they give no indication of the direction of causality (Field, 2009). This parametric statistical test is an example of a bivariate correlation coefficient which looks at the relationship between two variables (Field, 2009). An assumption needing to be met in order to use this data analysis test requires interval data for both variables, and for the test statistic to be valid the sampling distribution has to be normally distributed (Field, 2009). A statistical significant level (p value) of < 0.05 was chosen prior to data collection which indicates a relationship between the variables.

Study Aim Three

Study aim three describes the relationship between perceived stress and sexual function while controlling for individual characteristics of the sample. Multivariate analysis of covariance (MANCOVA) is a statistical test used to predict the value of a variable based on the value of two or more other variables. Specifically, MANCOVA is utilized to assess for statistical differences on multiple continuous outcome variables (erection, ejaculation, and satisfaction entailing sexual function) by predictor variables while controlling for a third variable called the covariate (Field, 2009). A p value of <0.05 was considered statistically significant indicating a relationship between the variables.

Limitations

A limitation of the measures is regarding the demographic variables specifically coexisting comorbidities (Type 2 Diabetes, Hypertension, Hyperlipidemia, Coronary Artery/Heart Disease, Benign Prostatic Hyperplasia, Cancer, and Obesity). These coexisting comorbidities identified as *physiological factors* within the conceptual framework will be self-reported. Therefore, the validity of this data is dependent on the participant's accurate knowledge and reporting of these coexisting comorbidities.

Summary

The following will be a synopsis of the study's methodology. The purpose of this study was to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. The study aims are to 1) describe perceived stress and sexual function in a community-dwelling older adult male population, 2) describe the relationship between perceived stress and sexual function, and 3) describe the

relationship between perceived stress and sexual function while controlling for individual characteristics of the sample. A descriptive, cross-sectional research design was utilized. The sampling technique was a convenience sample of males aged 65 and older enrolled in OLLI at UNLV. Data collection methods included demographic variables, the PSS to measure perception of stress, and the MSHQ to measure sexual function. A written survey included questions from these measures which was administered by the investigator and completed by participants during three meetings at OLLI located on UNLV Paradise Campus. Finally, data analysis was done using SPSS version 24 utilizing descriptive statistics for study aim one, Pearson's correlation coefficient for study aim two, and a one-way multivariate analysis of covariance (MANCOVA) for study aim three.

CHAPTER IV: RESULTS

The purpose of this study was to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. The following chapter summarizes the results of this study including a description of the sample as well as the outcome of study aims one-three.

Sample Description

A total of 113 participants agreed to be in this study; however, only 92 returned their survey. No participant was excluded since they scored greater than six on the Abbreviated Mental Test Score (AMTS) indicating no cognitive impairment. Descriptive statistics including frequencies and percentages were used to describe participants' characteristics (see Table 3).

TABLE 3. *Frequencies and Percentages for Participants' Characteristics (N = 92)*

Variable	<i>n</i>	%
Age		
65-70 years old	36	39.1
71-75 years old	27	29.3
76-80 years old	14	15.2
81-85 years old	11	12.0
86 years and older	4	4.3
Race		
Asian	8	8.7
African American	2	2.2
Caucasian	82	89.1
Marital Status		
Single	7	7.6
Married	65	70.7
Divorced	12	13.0
Widowed	7	7.6
Separated	1	1.1
Education		
High school graduate	3	3.3
Some college	8	8.7

Associate degree	5	5.4
Bachelor's degree	36	39.1
Master's degree	19	20.7
Doctorate degree	10	10.9
Professional degree (MD, JD)	11	12.0
Socioeconomic Status		
Poor	3	3.3
Lower middle income level	13	14.1
Middle income level	39	42.4
Higher middle income level	31	33.7
Rich	4	4.3
Very rich	2	2.2

The majority of the participants were between the ages of 65-70 (39.1%, n = 36). Also, the majority of the sample were Caucasian (89.1%, n = 82); whereas, 8.7% (n = 8) were Asian and 2.2% (n = 2) were African American. Overall, the sample was highly educated with most holding an Associate college degree or more advanced degree (88%, n = 81). Furthermore, greater than half of the sample was married (71%, n = 65), in age-related retirement (66%, n = 61), currently not working (92%, n = 85), and considered them self financially within the middle to higher middle-income level (76%, n =70).

Study Aim One

Study aim one will describe perceived stress and sexual function in a community-dwelling older adult male population. This study aim was answered by collecting data using the 10-item Perceived Stress Scale (PSS) and the 25-item Male Sexual Health Questionnaire (MSHQ). The PSS has a total of 10 questions and the score is calculated by summing the ten items. The range of scores is between 0-40 and which a higher score indicates more stress (see Table 4).

TABLE 4. *Descriptive Statistics for the Perceived Stress Scale (N = 92)*

Scale	Perceived Stress Scale
Mean	10.40
SD	5.97
Median	9.00
Mode	8.00
Range	30

The MSHQ has a total of 25 questions which comprises of three subscales; erection scale (3 items), ejaculation scale (7 items), and satisfaction scale (6 items). The subscale scores are calculated by adding the scores of each item of the dimension. Furthermore, there is no global score. The range of scores for the erection scale is 0-15 in which a higher score indicates higher sexual functioning, for the ejaculation scale the range is 1-35 with a higher score indicating higher sexual functioning, and finally the satisfaction scale range is 6-30 with a higher score indicating higher level of sexual satisfaction (see Table 5).

TABLE 5. *Descriptive Statistics for the Male Sexual Health Questionnaire Subscales*

Subscale	Erection	Ejaculation	Satisfaction
N	91	89	89
Mean	8.54	21.64	19.94
SD	4.19	9.81	6.55
Median	9.00	25.00	20.57

Mode	3.00	1.00	24.00
Range	15	33	28

Furthermore, the MSHQ contains 9 additional questions asking about sexual activity, level and alterations in sexual activity, as well as bother correlated with sexual dysfunction in the last one month. There is no direction for items sexual activity and desire; however, the erectile dysfunction bother question and ejaculation dysfunction bother question score ranges from 1-5 with a higher score indicating a lower level of bother (see Table 6).

TABLE 6. *Descriptive Statistics for the Male Sexual Health Questionnaire: Sexual Activity and Desire, Erectile Dysfunction Bother, and Ejaculation Dysfunction Bother*

Items	<i>n</i>	%
Sexual Activity (last one month)		
Daily or almost daily	4	4.4
More than 6 times per month	17	18.7
4-6 times per month	24	26.4
1-3 times per month	29	31.9
Zero (0) times per month	17	18.7
Change Sexual Activity Frequency Bother		
Not at all bothered	39	48.1
A little bit bothered	21	25.9
Moderately bothered	14	17.3
Very bothered	6	7.4
Extremely bothered	1	1.2
Sexual Desire		
All of the time	6	6.5
Most of the time	21	26.6
About half of the time	24	30.4
Less than half of the time	16	20.3
None of the time	12	15.2

Erectile Dysfunction Bother		
Not at all bothered (5)	25	28.4
A little bit bothered (4)	30	34.1
Moderately bothered (3)	24	27.3
Very bothered (2)	7	7.6
Extremely bothered (1)	1	1.1
Ejaculation Dysfunction Bother		
Not at all bothered (5)	37	45.7
A little bit bothered (4)	23	28.4
Moderately bothered (3)	15	18.5
Very bothered (2)	5	6.2
Extremely bothered (1)	1	1.2

In summary of study aim one, the mean score on the PSS was 10.40 ($N = 92$, $SD = 5.97$) indicating the sample over the last one month was not stressed. The erection scale mean score was 8.54 ($N = 91$, $SD = 4.19$) and the ejaculation mean score was 21.64 ($N = 89$, $SD = 9.81$) indicating an average level of sexual functioning. Furthermore, the satisfaction scale mean score was 19.94 ($N = 89$, $SD = 6.55$) indicating above average level of sexual satisfaction.

Over half of the participants indicated they have had sexual activity, including but not limited to intercourse and masturbating, in the last month 1-3 times (31.9%, $n = 29$) and 4-6 times (26.4%, $n = 24$). For the most part, the participants are not bothered (48.1%, $n = 39$) or a little bit bothered (25.9%, $n = 21$) by the change in the number of times they have had sexual activity in the last month. Furthermore, most of the time (26.6%, $n = 21$) and about half of the time (30.4%, $n = 24$) the participants have felt an urge or desire to have sex with their main partner rating this as moderate (47.6%, $n = 39$) and high (20.7%, $n = 17$). Finally, half of the participants were a little bit bothered (34.1%, $n = 30$) and moderately bothered (27.3%, $n = 24$) with erections; whereas, almost half were a little bit bothered (28.4%, $n = 23$) and moderately bothered (18.5%, $n = 15$) with ejaculation.

Study Aim Two

Study aim two will describe the relationship between perceived stress and sexual function. A Pearson's correlation coefficient was calculated to assess the intercorrelation among the outcome variables (see Table 7); indicating a relationship among the erection, ejaculation, and satisfaction subscales of sexual function.

TABLE 7. *Correlations between Erection, Ejaculation, and Satisfaction Subscales*

		Erection	Ejaculation	Satisfaction
Erection	Pearson's	1	.773**	.556**
	N	91	89	88
Ejaculation	Pearson's	.773**	1	.560**
	N	89	89	88
Satisfaction	Pearson's	.556**	.560**	1
	N	88	88	89

Note. **indicated the correlation is significant at the 0.001 level (2-tailed).

In order to determine a relationship between perceived stress (total PSS) and sexual function (erection, ejaculation, and satisfaction subscales), a Pearson's correlation coefficient was computed. As shown in Table 8, there is not a significant correlation between perceived

stress with erection and ejaculation; however, there is a significant and negative correlation between perceived stress and satisfaction ($r = -.284$, $n = 89$, $p = .007$).

TABLE 8. *Correlations between Perceived Stress and Erection, Ejaculation, and Satisfaction*

		Erection	Ejaculation	Satisfaction
Total PSS	Pearson's	-.150	.000	-.284**
	N	91	89	89

Note. **indicated the correlation is significant at the 0.01 level (2-tailed).

In summary of study aim two, there is a significant and negative correlation between perceived stress and satisfaction ($r = -.284$, $n = 89$, $p = .007$). Therefore, as the level of stress increases the level of sexual satisfaction decreases.

Study Aim Three

Study aim three will describe the relationship between perceived stress and sexual function after controlling for individual characteristics of the sample. A one-way multivariate analysis of covariance (MANCOVA) was calculated to analyze the relationship among demographic characteristics (age, marital status, socioeconomic status, social support, and coexisting comorbidities including Type 2 Diabetes, Hypertension, Hyperlipidemia, Coronary Artery Disease (CAD), Benign Prostatic Hyperplasia (BPH), Cancer, and Obesity) as predictor variables, perceived stress as a covariate, and the three subscales of sexual function (erection, ejaculation, and satisfaction) as outcome variables.

Multivariate Effects

With the use of Wilk's Lambda criterion, Table 9 indicates there is a significant relationship between perceived stress ($F = 4.511$, $df = 3.00$, $p = .006$) and Obesity ($F = 3.206$, $df = 3.00$, $p = .028$) with sexual function (erection, ejaculation, and satisfaction). However, there were no significant effects of age, marital status, socioeconomic status, social support, Type 2 Diabetes, Hypertension, Hyperlipidemia, CAD, BPH, and Cancer.

TABLE 9. *Effects of Perceived Stress and Obesity on Outcome Variables ($p < 0.05$)*

Variables	Wilk's Lambda	F	Df	Error df	Sig.	Partial eta squared
Perceived Stress	.852	4.511	3.00	78.00	.006	.121
Obesity	.890	3.206	3.00	78.00	.028	.129

Univariate Effects

Age, marital status, socioeconomic status, social support, Type 2 Diabetes, Hypertension, Hyperlipidemia, CAD, BPH, Cancer, and Obesity were entered into an ANCOVA with each outcome variable (erection, ejaculation, and satisfaction) separately while controlling for perceived stress. There were no significant univariate effects found with marital status, socioeconomic status, social support, Type 2 Diabetes, Hypertension, Hyperlipidemia, CAD, and BPH with each of the outcome variables. The following will describe significant relationships found with each of the outcome variables.

Age. Age was entered into an ANCOVA with the additional aforementioned predictor variables with each outcome variable separately. As shown in Table 10, significant univariate effects were found on age with erection ($F = 5.591$, $df = 2$, $p = .006$) with a large effect size (partial eta squared = .136), ejaculation ($F = 5.076$, $df = 2$, $p = .009$) with a large effect size (partial eta squared = .128), and satisfaction ($F = 3.270$, $df = 2$, $p = .044$) with a medium effect size (partial eta squared = .087) after controlling for perceived stress. Therefore, there is a significant relationship between age and sexual function; specifically erection, ejaculation, and satisfaction.

TABLE 10. *Significant Univariate Effects for Age ($p < 0.05$)*

Dependent Variable	<i>Df</i>	Mean Square	<i>F</i>	Sig.	Partial eta squared
Erection	2	85.620	5.591	.006	.136
Ejaculation	2	419.389	5.076	.009	.128
Satisfaction	2	111.876	3.270	.044	.087

Obesity. Obesity was entered into an ANCOVA with the additional aforementioned predictor variables with each outcome variable separately. As shown in Table 11, significant univariate effects were found on Obesity with ejaculation ($F = 6.495$, $df = 1$, $p = .013$) with a medium effect size (partial eta squared = .086) and satisfaction ($F = 8.385$, $df = 1$, $p = .005$) with a large effect size (partial eta squared = .108) after controlling for perceived stress. Therefore, there is a significant relationship between Obesity and sexual function; specifically ejaculation and satisfaction.

TABLE 11. *Significant Univariate Effects for Obesity ($p < 0.05$)*

Dependent Variable	<i>Df</i>	Mean Square	<i>F</i>	Sig.	Partial eta squared
Erection	1	52.037	3.398	.069	.046
Ejaculation	1	536.563	6.495	.013	.086
Satisfaction	1	286.908	8.385	.005	.108

Cancer. Cancer was entered into an ANCOVA with the additional aforementioned predictor variables with each outcome variable separately. Table 12 reveals a significant univariate effect was found on Cancer with satisfaction ($F = 7.029$, $df = 1$, $p = .010$) with a medium effect size (partial eta squared = .092) after controlling for perceived stress. Therefore, there is a significant relationship between Cancer and sexual function; specifically, satisfaction.

TABLE 12. *Significant Univariate Effects for Cancer ($p < 0.05$)*

Dependent Variable	<i>Df</i>	Mean Square	<i>F</i>	Sig.	Partial eta squared
Erection	1	20.842	1.361	.247	.019
Ejaculation	1	192.840	2.334	.131	.033
Satisfaction	1	240.512	7.029	.010	.092

In summary of study aim three, there is a significant relationship between perceived stress ($F = 4.511$, $df = 3.00$, $p = .006$) and Obesity ($F = 3.206$, $df = 3.00$, $p = .028$) with sexual

function (erection, ejaculation, and satisfaction). Significant univariate effects were found on age with erection ($F = 5.591$, $df = 2$, $p = .006$), ejaculation ($F = 5.076$, $df = 2$, $p = .009$), and satisfaction ($F = 3.270$, $df = 2$, $p = .044$); therefore, there is a significant relationship between age and sexual function (erection, ejaculation, and satisfaction). Furthermore, significant univariate effects were found on Obesity with ejaculation ($F = 6.495$, $df = 1$, $p = .013$) and satisfaction ($F = 8.385$, $df = 1$, $p = .005$); as a result, there is a significant relationship between Obesity and sexual function (ejaculation and satisfaction). Subsequently, a significant univariate effect was found on Cancer with satisfaction ($F = 7.029$, $df = 1$, $p = .010$); accordingly, there is a significant relationship between Cancer and sexual function (satisfaction).

CHAPTER V: DISCUSSION

The following chapter will offer interpretations and conclusions of the investigator, make clear the meaning of the study findings as well as recommendations for future research. Findings from this study of perceived stress and sexual function among community-dwelling older adult males will be discussed. The discussion will include: 1) demographic characteristics of the sample, 2) the measures used, and 3) the study findings organized by the study aims. Finally, the study's strengths and limitations as well as study implications will be presented, in addition to recommendations for future research will be suggested.

Discussion of Sample Characteristics

According to the 2011-2015 American Community Survey 5-year estimates for Las Vegas, Nevada there is an estimated 82,160 adults aged 65 and older living in Las Vegas, Nevada (United States Census Bureau, 2017). Among this estimated total, 46% are males, 76% are Caucasian, and 54% have an Associate college degree or greater education attainment. Considering the 92 participants in this study, their overall characteristics are not similar to other males who reside in Las Vegas, Nevada. Specifically, these participants were highly educated and considered them self financially stable.

Discussion of Study Measures

The Perceived Stress Scale

Perceived stress was measured utilizing a well approved scale appropriate to use among young and older adults (Cohen & Janicki-Deverts, 2012; Cohen, Kamarck, & Mermelstein, 1983). In general, this measure seemed to be easy for the participants to understand and did not take long for them to complete. This finding was similar to Ezzati and colleagues (2014)

reporting the 10-item PSS is acceptable to utilize among non-demented older adults. In addition, with the study participants being highly educated could also have led to this conclusion.

The Male Sexual Health Questionnaire

Sexual function was measured utilizing a scale which not only assesses sexual desire and erections, yet also ejaculation and sexual satisfaction. The development and validation of this questionnaire involved several stages including a pilot phase, a qualitative phase, a psychometric phase, and a clinical trial phase (Rosen, 2006). Furthermore, this scale includes items to assess sexual satisfaction and function among ageing males while being appropriate to use in research settings (Rosen, 2006).

Overall, this measure seemed to be easy for participants to understand and did not take long for them to complete. In addition, with the study participants being highly educated could also have led to this conclusion. This finding is similar to Rosen and colleagues (2004) who claim the advantages of using this questionnaire includes but are not limited to being culturally sensitive, in addition to being easy to comprehend. However, several of the returned surveys did not have all of the questions completed even though the investigator explained to the participants why it is important to collect answers in order to reduce the number of missing data; therefore, maximizing the quality of data collected. Accordingly, the several participants who did not complete the entire measure may have been bothered by disclosing information about their sexual function, activity, etc. as well as disclosing their answers which are personal in nature.

Discussion of Study Findings Related to Study Aims

Study Aim One

Study aim one described perceived stress and sexual function in a community-dwelling older adult male population. Perceived stress was measured utilizing the 10-item Perceived Stress Scale (PSS) revealing a mean score of 10.40 out of 40 ($N = 92$, $SD = 5.97$) indicating the sample over the last one month was not stressed. This could be due to several of the participants' demographic characteristics including but are not limited to considering them self financially stable and being well educated. This study's findings regarding perceived stress were consistent with a study completed on adults aged 18-79 reporting a decreased level of stress with increasing age; however, the authors categorized older adults as age 55 and older and out of the sample only 40% participated which may have omitted older adults with less optimal health (Nordin & Nordin, 2013).

In contrast, this study's findings were not consistent with Osmanovic-Thunstrom and colleagues (2015) study of 1,656 men and women aged 66-97 evaluating levels of perceived stress using the 10-item PSS. The results from this study found levels of perceived stress rise with increasing age and were the highest among the oldest old (Osmanovic-Thunstrom, Mossello, Akerstedt, Fratiglioni, & Wang, 2015). Furthermore, the heightened levels of perceived stress in advanced age can be made clear by health-related factors such as physical disability especially while occurring with depressive symptoms. An additional conclusion from Osmanovic-Thunstrom and colleagues (2015) study is health-related stress is highly prevalent in older adults and seems to play an important role in the association between levels of perceived stress and age in older adults.

Findings regarding sexual function from this study were for the most part consistent with other studies. The Massachusetts Male Aging Study found 34.8% of men had some amount of erectile problems which heightened with age while declined with emotional and physical health (Laumann, Paik, & Rosen, 1999; Feldman, Goldstein, Hatzichristou, Krane, & McKinlay, 1994). Additionally, there is evidence of an elevated prevalence for a lack of sex drive (26%) and erectile dysfunction (26%) among older adult males (Panser, Rhodes, Girman, Guess, Chute, Oesterling, Lieber, & Jacobsen, 1995; Blanker, Bosch, Groeneveld, Bohnen, Prims, Thomas, & Hop, 2001). Furthermore, with increasing age among men and women there is a little increase in sexual problems; however, with the exception of men who reported erectile problems, in addition to an inability to achieve orgasm are positively associated with age (Laumann, Das, & Waite, 2008).

Study Aim Two

To the investigator's knowledge, this is the first study describing the relationship between perceived stress and sexual function among community-dwelling older adult males. One study which evaluated the relationship between stress and different aspects of female sexual function and satisfaction was conducted on 228 reproductive-age women. There was a significant relationship between stress and sexual function, sexual desire, arousal, and frequency of sexual intercourse. In addition, there is a significant relationship between stress and satisfaction (Abedi, Afrazeh, Javadifar, & Saki, 2015) which is consistent with this study's findings. The investigator was not surprised of this study's results given the results of Abedi and colleagues (2015) study.

Study Aim Three

This study's findings in comparison to other studies suggest as one ages, in addition to having comorbidities, a decline in sexual functioning occurs. Clearly, the Massachusetts Male Aging Study comprising 1,085 participants, aged 40-70 years old, describe the frequency of desire, erections, and sexual intercourse or activity decreased over the course of the study's nine year period (Araujo, Mohr, & McKinlay, 2004). Moreover, the National Social Life, Health, and Aging Project, including 57-85 year old men and women, reported a decline in sexual activity frequency with age (Bancroft, 2007). Additionally, having chronic medical conditions are correlated with diminished sexual activity; however, the existence of a chronic medical condition is not an acceptable reason for age-related decline in sexual activity (Bancroft, 2007). Furthermore, Lindau and colleagues (2007) established physical health is more imperative with foreseeing sexual dysfunction than chronological age alone, indicating measurement of "biologic age" may be more beneficial for examining aspects of sexual function and managing sexual dysfunction in late life. This study's findings also advocates further attention needs to be made when examining life course developments accompanying with increasing age.

Conceptual Framework of Symptom Sexual Dysfunction

The revised Theory of Unpleasant Symptoms (TOUS) was chosen to guide the development of this study's conceptual framework. The main concepts of this study included perceived stress and sexual function. Based on this theory's focus on the symptom experience, it was projected influential factors including the *psychological response to stress* (degree of perceived stress), *physiological factors* (coexisting comorbidities and age), as well as *situational factors* (including but are not limited to social support) may affect one's susceptibility of

experiencing a symptom; in this case sexual dysfunction leading to an outcome/consequence of diminished quality of life. As previously shown in Figure 1, the conceptual framework for this study comprised of three key components: 1) Influential factors (*physiological factors* to include coexisting comorbidities and age, *psychological factors* to include degree of perceived stress, and *situational factors* to include socioeconomic status, marital status, and social support); 2) Symptom (sexual dysfunction); and 3) Outcome/consequence (diminished quality of life).

Based on this study's purpose, only the influential factors and symptom were examined. Findings from this study suggest that *physiological factors* (age and coexisting comorbidities Obesity and Cancer), as well as *psychological factors* (degree of perceived stress) has a direct effect on experiencing the symptom (sexual dysfunction). However, *physiological factors* of other coexisting comorbidities (Type 2 Diabetes, HTN, Hyperlipidemia, CAD, and BPH) and *situational factors* (socioeconomic status, marital status, and social support) do not have a direct effect on experiencing the symptom (sexual dysfunction). Therefore, the conceptual framework offers partial established foundation from which to readily identify factors and their effect on sexual function. Furthermore, it provides ways of understanding interactions among factors affecting sexual function as well as interpreting this study's findings.

Study Strengths and Limitations

There are strengths and limitations for every study. The following strengths and limitations are acknowledged and described for this study.

Strengths

This study has several strengths. To the investigator's knowledge, this is the first study to investigate the relationship between perceived stress and sexual function among community-dwelling older adult males. The second strength is this study used valid and reliable scales to measure the concepts perceived stress and sexual function. The third strength is this study described influential factors which may affect one's susceptibility of experiencing a symptom; in this case sexual dysfunction leading to an outcome/consequence of diminished quality of life. According to Laumann and colleagues (2008) sexual problems among older adults are not a result of aging but are responses to the existence of stressors in various life domains; therefore, sexual function is an important aspect of quality of life necessitating awareness of this problem among healthcare providers. Lastly, the investigator inputted all of the data and double checked for transcription errors so incorrect analysis of the study findings would not occur.

Limitations

A study's limitations should also and will be recognized. One limitation is restriction of the generalizability of the study findings. Specifically, the convenience sample was limited to 92 males who were highly educated as well as considered them self financially stable. Therefore, the study results could only be possibly generalized to other older adult males with similar demographic characteristics. A second limitation is the use of a descriptive design in which results can only be interpreted as associations versus cause and effect. An additional limitation is the use of self-administered questionnaires. There are several concerns related to self-report measures including but are not limited to interpretation of questions, recalling pertinent information, and constructing an opinion may threaten the validity of a self-administered

measure (Williamson, 2007). Also, asking about disclosing information about a sensitive subject matter such as sexuality may present concerns with the participant answering the questions honestly or at all. Furthermore, the measures regarding demographic characteristics, specifically coexisting comorbidities Type 2 Diabetes, Hypertension, Hyperlipidemia, CAD, BPH, Obesity, and Cancer, identified as *physiological factors* within the conceptual framework were self-reported. Therefore, the validity of this data was dependent on the participant's accurate knowledge and reporting of these coexisting comorbidities.

Study Implications

In this study, the investigator sought to address the lack of evidence on the association among perceived stress and sexual function among community-dwelling older adult males. The recommendations for this study will be discussed under three headings: clinical implications, theoretical implications, and implications for nursing research.

Clinical Implications

This study's results reveal several clinical implications worthy of future study. The first major contribution of this study is that it provides much needed empirical data about how stress and other influential factors affect sexual health among older adult males. Specifically, this study indicates that stress affects sexual function; specifically sexual satisfaction is impacted. This information is important given that there are no comparable studies; therefore, the investigator believes this study is especially timely with the growing number of older adults.

The finding that perceived stress has a significant and negative relationship with sexual function, specifically sexual satisfaction, indicates a need of ongoing educational support while promoting overall sexual health. The conclusions have valuable suggestions for the design of

educational programs geared at supporting improved quality of life. This message should be distributed to many different sources including healthcare providers as well as other groups in the community. Modifying how healthcare messages are arranged beforehand could help support society's belief and manner of conducting oneself towards their health. Moreover, educational programs need to be adapted to the characteristics of the population while program composition and depth will need to be diverse depending on the participant's age to name a few. In addition, an area that deserves immediate attention is the opportunities that exist for older adult males to become more educated about their health and healthy lifestyles. In the end, this study's findings suggest that these programs should include an assessment of the participant's stress level while also discussing and determining its effect on overall sexual function.

Theoretical Implications

When applying this study's conceptual framework to the data, there is several helpful outcomes. The results of this study partially prove the Theory of Unpleasant Symptoms (TOUS) which was chosen to guide this study's conceptual framework. The TOUS focuses on the symptom experience in which influential factors affect an individual's susceptibility of experiencing a symptom. With this study's conceptual framework, it was proposed that influential factors including the *psychological response to stress* (degree of perceived stress), *physiological factors* (coexisting comorbidities and age), as well as *situational factors* (socioeconomic status, marital status, and social support) may affect one's susceptibility of experiencing a symptom; in this case sexual dysfunction leading to an outcome/consequence of diminished quality of life. The findings from this study suggest age, certain comorbidities, and stress has an effect on sexual function; however, situational factors do not. Nevertheless, future

research needs to be conducted to lend support if situational factors do or do not have an overall effect on sexual function among older adult males.

Implications for Nursing Research

Even though this study displays an acceptable beginning, it is the investigator's belief that it is only a beginning point for additional discussion and investigation regarding sexual function among older adult males. Although the study findings suggested promising practices and answered many initial questions, many questions remain unanswered. Therefore, this study raises a number of opportunities for future research. First, the investigator recommends that future research focuses on older adult males of low socioeconomic status, in addition to no attainment of college education to name a few, to increase generalizability of study findings. The second recommendation is to conduct a phenomenological study of influences affecting sexual function among sexually active males 65 and older. The third recommendation is to conduct a randomized controlled trial to test the effectiveness of exercise, such as tai chi or yoga, on improving sexual function among older adult males who suffer from Obesity or Cancer. Lastly, is to replicate this study on females aged 65 and older. Accordingly, these future studies would reinforce the need for healthcare providers to consider sexual function experienced in older age in the context of sexual health and healthy ageing.

Conclusion

The purpose of this study was to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. This study examined the relationship between perceived stress and sexual function as well as included correlations between several demographic characteristics. In accomplishing this,

perceived stress, in addition to age and several comorbidities were highlighted with correlating levels of sexual function. Appropriately, the findings from this study are of significance to nursing practice because of the potential countless factors which may affect overall quality of life, including sexual function, among the growing older adult male population.

APPENDIX A
IRB APPROVAL



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<http://rgw.arizona.edu/compliance/home>

Human Subjects
 Protection Program

Date: August 22, 2016

Principal Investigator: Cheryl Maes

Protocol Number: 1608776258

Protocol Title: A DESCRIPTIVE ANALYSIS OF PERCEIVED STRESS AND
 SEXUAL FUNCTION AMONG COMMUNITY-DWELLING OLDER
 ADULT MALES

Level of Review: Exempt

Determination: Approved

Documents Reviewed Concurrently:

Data Collection Tools: *Abbreviated Mental Test Score.docx*

Data Collection Tools: *Demographic Questionnaire.docx*

Data Collection Tools: *Questionnaires.docx*

HSPF Forms/Correspondence: *CMaes_Application for Human Research 6.2016_edit
 8.18.16.doc*

HSPF Forms/Correspondence: *CMaes_F107 Verification of Human Subjects Training Form
 6.2016_revised
 8.1.16.doc*

HSPF Forms/Correspondence: *Signature page.pdf*

Informed Consent/PHI Forms: *CMaes_T502A Informed Consent Form 6.2016_edit
 8.17.16.doc*

Informed Consent/PHI Forms: *CMaes_T502A Informed Consent Form 6.2016_edit
 8.17.16.pdf*

Other Approvals and Authorizations: *ELSEVIER LICENSE TERMS AND CONDITIONS.docx*

Other Approvals and Authorizations: *Email From OLLI Director.docx*

Participant Material: *Survey Script-Edit.docx*

Recruitment Material: *Recruitment flyer-edit.docx*

This submission meets the criteria for exemption under 45 CFR 46.101(b). This project has been reviewed and approved by an IRB Chair or designee.

- The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).
- All research procedures should be conducted according to the approved protocol and the

policies and guidance of the IRB.

- Exempt projects do not have a continuing review requirement.
- Amendments to exempt projects that change the nature of the project should be submitted to the Human Subjects Protection Program (HSPP) for a new determination. See the Guidance on Exempt Research information on changes that affect the determination of exemption. Please contact the HSPP to consult on whether the proposed changes need further review.
- You should report any unanticipated problems involving risks to the participants or others to the IRB.
- All documents referenced in this submission have been reviewed and approved. Documents are filed with the HSPP Office. If subjects will be consented, the approved consent(s) are attached to the approval notification from the HSPP Office.

APPENDIX B
PERMISSIONS FOR INSTRUMENT

Mapi Research Trust, a non-for-profit organisation subject to the terms of the French law of 1st July 1901, registered in Carpentras under number 453 979 346, whose business address is 27 rue de la Villette, 69003 Lyon, France, hereafter referred to as “MRT” and the User, as defined herein, (each referred to singularly as a “Party” and/or collectively as the “Parties”), do hereby agree to the following User Agreement Special and General Terms:

Mapi Research Trust PROVIDE™
27 rue de la Villette 69003 Lyon France
Telephone: +33 (0)4 72 13 65 75

Recitals

The User acknowledges that it is subject to these Special Terms and to the General Terms of the Agreement, which are included in Appendix 1 to these Special Terms and fully incorporated herein by reference. Under the Agreement, the Questionnaire referenced herein is licensed, not sold, to the User by MRT for use only in accordance with the terms and conditions defined herein. MRT reserves all rights not expressly granted to the User.

The Parties, in these Special Terms, intend to detail the special conditions of their partnership.

The Parties intend that all capitalized terms in the Special Terms have the same definitions as those given in article 1 of the General Terms included in Appendix 1.

In this respect, the Parties have agreed as follows:

Article 1. Conditions Specifics to the User

Section 1.01 Identification of the User

User Name	Maes Cheryl
Legal Form	Student
Address	1305 N. Martin Avenue Tucson, Arizona 85721
Country	United States of America
Email address	cheryl.maes@unlv.edu
Telephone number	7028083605

Section 1.02 Identification of the Questionnaire

Title	Male Sexual Health Questionnaire (MSHQ)
Author(s)	Rosen Raymond C, Sanofi Aventis
Owner	Sanofi-Aventis
Copyright	MSHQ © 2004, Sanofi-Aventis, France. All rights reserved.
Original bibliographic references	<p>MSHQ Rosen RC, Catania J, Pollack L, Althof S, O'Leary M, Seftel AD. Male Sexual Health Questionnaire (MSHQ): scale development and psychometric validation. <i>Urology</i>. 2004 Oct;64(4): 777-82 (PubMed Abstract)</p> <p>Rosen RC. Assessment of sexual dysfunction in patients with benign prostatic hyperplasia. <i>BJU Int</i>. 2006 Apr;97 Suppl 2:29-33; discussion 44-5. Review (PubMed Abstract)</p> <p>MSHQ-EjD-SF Rosen RC, Catania JA, Althof SE, Pollack LM, O'Leary M, Seftel AD, Coon DW. Development and validation of four-item version of Male Sexual Health Questionnaire to assess ejaculatory dysfunction. <i>Urology</i>. 2007 May;69(5):805-9 (PubMed Abstract)</p>

Article 2. Rights to Use

Section 2.01 Context of the Use of the Questionnaire

The User undertakes to only use the Questionnaire in the context of the Study as defined hereafter.

Context of Use	Clinical project or study
Title	A Descriptive Analysis of Perceived Stress and Sexual Function Among Community-Dwelling
Type of research	Other
Other	Descriptive Study
Study/Protocol reference	Dissertation Requirement for University of Arizona
Questionnaire used as primary endpoint	Yes
Number of patients expected	100
Number of submissions to the questionnaire for	One

Term of clinical follow-up for each patient	None
Start	10/2016
End	04/2017
Mode of administration	Paper administration

Section 2.02 Conditions for Use

The User undertakes to use the Questionnaire in accordance with the conditions for use defined hereafter.

(a) Rights transferred

Acting in the Owner's name, MRT transfers the following limited, non-exclusive rights, to the User (the "Limited Rights")

- (i) to use the Questionnaire, only as part of the Study; this right is made up exclusively of the right to communicate it to the Beneficiaries only, free of charge, by any means of communication and by any means of remote distribution known or unknown to date, subject to respecting the conditions for use described hereafter; and
- (ii) to reproduce the Questionnaire, only as part of the Study; this right is made up exclusively of the right to physically establish the Questionnaire or to have it physically established, on any paper, electronic, analog or digital medium, and in particular documents, articles, studies, observations, publications, websites whether or not protected by restricted access, CD, DVD, CD-ROM, hard disk, USB flash drive, for the Beneficiaries only and subject to respecting the conditions for use described hereafter; and
- (iii) Should the Questionnaire not already have been translated into the language requested, the User is entitled to translate the Questionnaire or have it translated in this language, subject to informing MRT of the same beforehand by the signature of a Translation Agreement indicating the terms of it and to providing a copy of the translation thus obtained as soon as possible to MRT.

The User acknowledges and accepts that it is not entitled to amend, modify, condense, adapt, reorganise the Questionnaire on any medium whatsoever, in any way whatsoever, even minor, without MRT's prior specific written consent.

(b) Specific conditions for the Questionnaire

- Use in Individual clinical practice or Research study / project

The User undertakes never to duplicate, transfer or publish the Questionnaire without indicating the Copyright Notice.

- Use in a publication or on a website with unrestricted access:

In the case of a publication, article, study or observation on paper or electronic format of the Questionnaire, the User undertakes to respect the following special obligations:

- not to include any full copy of the Questionnaire, but a protected version with the indication “sample copy, do not use without permission”
 - to indicate the name and copyright notice of the Owner
 - to include the reference publications of the Questionnaire
- to indicate the details of MRT for any information on the Questionnaire as follows: contact information and permission to use: Mapi Research Trust, Lyon, France – Internet: <https://eprovide.mapi-trust.org/>
- to provide MRT, as soon as possible, with a copy of any publication regarding the Questionnaire, for information purposes
- to submit the screenshots of all the Pages where the Questionnaire appears to MRT before release to check that the above-mentioned requirements have been respected.

- Use for dissemination:

- On a website with restricted access:

In the case of publication on a website with restricted access, the User may include a clean version of the Questionnaire, subject to this version being protected by a sufficiently secure access to only allow the Beneficiaries to access it.

The User undertakes to also respect the following special obligations:

- to indicate the name and copyright notice of the Owner
 - to include the reference publications of the Questionnaire
- to indicate the details of MRT for any information on the Questionnaire as follows: contact information and permission to use: Mapi Research Trust, Lyon, France – Internet: <https://eprovide.mapi-trust.org/>
- to submit the screenshots of all the Pages where the Questionnaire appears to MRT before release to check that the above-mentioned requirements have been respected.
- On promotional / marketing documents

In the case of publication on promotional/marketing documents, the User undertakes to respect the following special obligations:

- to indicate the name and copyright notice of the Owner
 - to include the reference publications of the Questionnaire
 - to indicate the details of MRT for any information on the Questionnaire as follows: contact information and permission to use: Mapi Research Trust, Lyon, France – Internet: <https://eprovide.mapi-trust.org/>
 - to provide MRT, as soon as possible, with a copy of any publication regarding the Questionnaire, for information purposes
 - to submit the screenshots of all the Pages where the Questionnaire appears to MRT before release to check that the above-mentioned requirements have been respected.
- For any other use not defined herein, please contact MRT for the specific conditions of use and access fees (if applicable).

Article 3. Term

MRT transfers the Limited Rights to use the Questionnaire as from the date of delivery of the Questionnaire to the User and for the whole period of the Study.

Article 4. Beneficiaries

The Parties agree that the User may communicate the Questionnaire in accordance with the conditions defined above to the Beneficiaries involved in the Study only, in relation to the Study defined in section 2.01.

Article 5. Territories and Languages

MRT transfers the Limited Rights to use the Questionnaire on the following territories and in the languages indicated in the table below:

Questionnaire	Language
MSHQ	English for the USA

Article 6. Price and Payment Terms

The User undertakes in relation to MRT to pay the price owed in return for the availability of the Questionnaire, according to the prices set out below, depending on the languages requested and the costs of using the Questionnaire, in accordance with the terms and conditions described in section 6.02 of the General Terms included in Appendix 1.

ROYALTY FEES*	Commercial users	Cost per study	1 000 €
		Cost per language	1 000 €
	Funded academic research	Cost per study	Free
		Cost per language	Free
	Not funded academic users	Cost per study	Free
		Cost per language	Free
DISTRIBUTION FEES*	Commercial users	Cost per study	700 €
		Cost per language	300 €
	Funded academic research	Cost per study	300 €
		Cost per language	50 €
	Not funded academic users	Cost per study	Free
		Cost per language	Free

Agreed and acknowledged by

Maes Cheryl 20-Mar-2017

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APPENDIX C
RECRUITMENT FLYER

Sexual Health Study

Be part of an important sexual health research study:

- Are you male?
- Are you 65 years of age or older?

If you answered YES to these questions, you may be eligible to participate in a research study.

The purpose of this study is to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males in stable relationships. Benefits to participate include the anticipated findings may serve as a foundation for enhancing sexual health; thus, establishing improved quality of life among older adult males. Participants will not receive payment; however, snacks and drinks will be provided. Furthermore, no medications will be given.

This study will be conducted at the Osher Lifelong Learning Institute (OLLI) UNLV Paradise Campus on the following dates:

- Monday October 24, 2016
- Tuesday October 25, 2016
- Wednesday October 26, 2016

If interested in participating in this study, you will only need to attend one of the three scheduled meetings to complete a survey which should not exceed one hour of your time.

An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

Please contact Cheryl A. Maes (702-808-3605 or cheryl.maes@unlv.edu) for more information.

APPENDIX D
SURVEY SCRIPT

Survey Script

I am a PhD student at the University of Arizona, College of Nursing. I am here today to conduct a research study that will determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males. I am looking for independent, active males aged 65 and older who are able to speak and read English to complete a onetime survey that will be presented during this meeting.

The total amount of time to complete the survey should take no more than one hour. Your name or other identifying information will not be kept or reported. Although participants will not receive payment, snacks and drinks will be provided. In addition, the information gathered may be published providing information imperative for health promotion.

I appreciate your willingness to participate in this study. If you have any future questions or concerns my contact information will be provided. Thank you.

APPENDIX E
INFORMED CONSENT

The University of Arizona Consent to Participate in Research

Study Title: A Descriptive Analysis of Perceived Stress and Sexual Function Among Community-Dwelling Older Adult Males

Principal Investigator: Cheryl A. Maes, MSN, APRN, FNP-BC

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate. Please consider the information carefully. Feel free to discuss the study with your friends and family and to ask questions before making your decision whether or not to participate.

Why is this study being done?

The purpose of this study is to determine the level of distress associated with perceived stress and sexual function among community-dwelling older adult males. You are being asked to participate in this study because you are a community-dwelling male 65 years of age or older who is independent, active, and able to speak and read English.

What will happen if I take part in this study?

If you volunteer to participate in this study, you will complete one survey that asks questions about your level of distress associated with perceived stress and sexual function. By completing this survey you have agreed to participate in this study.

How long will I be in the study?

The study will take approximately one hour of your time.

How many people will take part in this study?

A maximum returned sample size of 235 participants is needed to take part in this study.

Can I stop being in the study?

Your participation in this study is voluntary. You may refuse to participate in this study or in any part of this study. You may withdraw at any time without prejudice. You are encouraged to ask questions about this study at the beginning or any time during the research study.

What risks, side effects or discomforts can I expect from being in the study?

There are risks involved in all research studies. This study may include only minimal risks. Potential risks include being uncomfortable disclosing information about your sexuality. Moreover, you may potentially feel bothered by responding to the questions asked, as well as disclosing your responses, which may seem personal in nature.

What benefits can I expect from being in the study?

There may be direct benefits to you as a participant in this study. However, we hope to gain a better understanding of factors influencing sexual function among males aged 65 and older. The information gathered may be published providing important information for health promotion.

What other choices do I have if I do not take part in the study?

You may choose not to participate in this study without penalty or loss of benefits to which you are otherwise entitled.

Will my study-related information be kept confidential?

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law.

Who can answer my questions about the study?

For questions, concerns, or complaints about the study you may contact Cheryl A. Maes at 702-808-3605.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at <http://rgw.arizona.edu/compliance/human-subjects-protection-program>

An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

By reading the consent form and completing the questionnaire, I agree to participate in this study and have my responses collected and analyzed.

APPENDIX F
DEMOGRAPHIC QUESTIONNAIRE

Demographic Questionnaire

Participant Code # _____

1. Current Age:
 - 65-70 years old _____
 - 71-75 years old _____
 - 76-80 years old _____
 - 81-85 years old _____
 - 86 years or older _____

2. Please specify your race:
 - American Indian or Alaskan Native _____
 - Asian _____
 - African American or Black _____
 - Native Hawaiian or Pacific Islander _____
 - Caucasian _____

3. Please specify your ethnicity:
 - Hispanic or Latino _____
 - Not Hispanic or Latino _____

4. What is your marital status?
 - Single _____
 - Married _____
 - Divorced _____
 - Widowed _____
 - Separated _____

5. What is the highest degree or level of school you have completed?
 - Did not graduate high school _____
 - High school graduate _____
 - Some college _____
 - Associate degree _____
 - Bachelor's degree _____
 - Master's degree _____
 - Doctorate degree _____
 - Professional degree (MD, JD, etc.) _____

6. Which of the following statements about occupational status apply to you?
 - Not working at the moment _____
 - Part-time or hourly work (< 15 hours per week) _____
 - Part-time work (15-34 hours per week) _____
 - Full-time work _____

7. Do any of the following statements apply to your present situation?

- In age-related retirement _____
- In early retirement _____
- Unemployed _____
- Exclusively house man _____
- Involved in voluntary service _____
- None of the above apply _____

8. How do you consider yourself financially?

- Very poor _____
- Poor _____
- Lower middle income level _____
- Middle income level _____
- Higher middle income level _____
- Rich _____
- Very rich _____

9. How many relatives do you see or hear from at least once a month?

- None _____
- One _____
- Two _____
- Three _____
- Four _____
- Five or more _____

10. How many relatives do you feel at ease with that you can talk about private matters?

- None _____
- One _____
- Two _____
- Three _____
- Four _____
- Five or more _____

11. How many relatives do you feel close to such that you could call on them for help?

- None _____
- One _____
- Two _____
- Three _____
- Four _____
- Five or more _____

12. How many of your friends do you see or hear from at least once a month?

None _____
One _____
Two _____
Three _____
Four _____
Five or more _____

13. How many friends do you feel at ease with that you can talk about private matters?

None _____
One _____
Two _____
Three _____
Four _____
Five or more _____

14. How many friends do you feel close to such that you could call on them for help?

None _____
One _____
Two _____
Three _____
Four _____
Five or more _____

15. Please indicate if you currently have any of the following medical conditions (*Select all that apply*):

Type 2 Diabetes _____
Hypertension (High Blood Pressure) _____
Hyperlipidemia (High Cholesterol) _____
Coronary Artery/Heart Disease _____
Benign Prostatic Hyperplasia (Enlarged Prostate) _____
Cancer _____
Obesity _____

APPENDIX G
THE PERCEIVED STRESS SCALE (PSS)

The Perceived Stress Scale

Description: The following questions ask about your feelings and thoughts during *the last month*. In each question, you will be asked *how often* you felt or thought a certain way. Although some of the questions are similar, there are small differences between them and you should treat each one as a separate question. The best approach is to answer fairly quickly. That is, do not try to count up the exact number of times you felt a particular way, but tell me the answer that in general seems the best.

Instructions: For each question, check the response if you have had these thoughts or feelings: never, almost never, sometimes, fairly often, or very often. Please read all answer choices each time.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
1. In the last month, how often have you been upset because of something that happened unexpectedly?					
2. In the last month, how often have you felt that you were unable to control the important things in your life?					
3. In the last month, how often have you felt nervous and “stressed”?					
4. In the last month, how often have you felt confident about your ability to handle personal problems?					
5. In the last month, how often have you felt that things were going your way?					
6. In the last month, how often have you found that you could not cope with all the things you had to do?					
7. In the last month, how often have you been able to control irritations in your life?					
8. In the last month, how often have you felt that you were on top of things?					
9. In the last month, how often have you been angered because of things that happened that were outside of your control?					
10. In the last month, how often have you felt that difficulties were piling up so high that you could not overcome them?					

APPENDIX H
THE MALE SEXUAL HEALTH QUESTIONNAIRE (MSHQ)

The Male Sexual Health Questionnaire

Instructions: The following questions concern various aspects of your ability to have sex. In answering these questions, please think about all aspects of the sexual activity you have had with your main partner, with other partners, or masturbating. By sexual activity, we mean any type of sex you may have had, including intercourse, oral sex, or other sexual activities that can lead to ejaculation.

Some of these questions might be difficult to answer. Please answer as many as possible, and be as honest as you can when answering them. Please remember that all of your answers are confidential.

The first questions concern your erections, which some people refer to as “hard-ons”.

In the last month have you taken Viagra or any similar drugs for problems with your erection? Yes No

Erection Scale

1. In the last month, without using drugs like Viagra, how often have you been able to get an erection when you wanted to? (Check only one)
 - 5 All of the time.
 - 4 Most of the time.
 - 3 About half of the time.
 - 2 Less than half of the time.
 - 1 None of the time.
 - 0 Used Viagra or similar drug with every sexual encounter.

2. In the last month, if you were able to get an erection, without using drugs like Viagra, how often were you able to stay hard as long as you want to? (Check only one)
 - 5 All of the time.
 - 4 Most of the time.
 - 3 About half of the time.
 - 2 Less than half of the time.
 - 1 None of the time.
 - 0 Used Viagra or similar drug with every sexual encounter.

3. In the last month, if you were able to get an erection, without using drugs like Viagra, how would you rate the hardness of your erection? (Check only one)
 - 5 Completely hard.
 - 4 Almost completely hard.
 - 3 Mostly hard, but can be slightly bent.
 - 2 A little hard, but bends easily.

- 1 Not at all hard.
0 Used Viagra or similar drug with every sexual encounter.
4. In the last month, if you have had difficulty getting hard or staying hard without using drugs like Viagra, have you been bothered by this problem? (Check only one)
- 5 Not at all bothered/Did not have a problem with erection.
4 A little bit bothered.
3 Moderately bothered.
2 Very bothered.
1 Extremely bothered.

Ejaculation Scale

5. In the last month, how often have you been able to ejaculate when having sexual activity? (Check only one)
- 5 All of the time.
4 Most of the time.
3 About half of the time.
2 Less than half of the time.
1 None of the time/Could not ejaculate.
6. In the last month, when having sexual activity, how often did you feel that you took too long to ejaculate or “cum”? (Check only one)
- 5 None of the time.
4 Less than half of the time.
3 About half of the time.
2 Most of the time.
1 All of the time.
0 Could not ejaculate.
7. In the last month, when having sexual activity, how often have you felt like you were ejaculating (“cumming”), but no fluid came out?
- 5 None of the time.
4 Less than half of the time.
3 About half of the time.
2 Most of the time.
1 All of the time.
0 Could not ejaculate.
8. In the last month, how would you rate the strength or force of your ejaculation?
- 5 As strong as it always was.
4 A little less strong than it used to be.
3 Somewhat less strong than it used to be.

- 2 Much less strong than it used to be.
 - 1 Very much less strong than it used to be.
 - 0 Could not ejaculate.
9. In the last month, how would you rate the amount or volume of semen when you ejaculate?
- 5 As much as it always was.
 - 4 A little less than it used to be.
 - 3 Somewhat less than it used to be.
 - 2 Much less than it used to be.
 - 1 Very much less than it used to be.
 - 0 Could not ejaculate.
10. Compared to one (1) month ago, would you say the physical pleasure you feel when you ejaculate has...
- 5 Increase a lot.
 - 4 Increased moderately.
 - 3 Neither increased nor decreased.
 - 2 Decreased moderately.
 - 1 Decreased a lot.
 - 0 Could not ejaculate.
11. In the last month, have you experienced any physical pain or discomfort when you ejaculated? Would you say you have...
- 5 No pain at all.
 - 4 Slight amount of pain or discomfort.
 - 3 Moderate amount of pain or discomfort.
 - 2 Strong amount of pain or discomfort.
 - 1 Extreme amount of pain or discomfort.
 - 0 Could not ejaculate.
12. In the last month, if you have had any ejaculation difficulties or have been unable to ejaculate, have you been bothered by this?
- 5 Not at all bothered.
 - 4 A little bit bothered.
 - 3 Moderately bothered.
 - 2 Very bothered.
 - 1 Extremely bothered.

Satisfaction Scale

13. Generally, how satisfied are you with the overall sexual relationship you have with your main partner? (Check only one)

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

14. Generally, how satisfied are you with the quality of the sex life you have with your main partner?

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

15. Generally, how satisfied are you with the number of times you and your main partner have sex?

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

16. Generally, how satisfied are you with the way you and your main partner show affection during sex?

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

17. Generally, how satisfied are you with the way you and your main partner communicate about sex?

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

18. Aside from your sexual relationship, how satisfied are you with all other aspects of the relationship you have with your main partner?

- 5 Extremely satisfied.
- 4 Moderately satisfied.
- 3 Neither satisfied nor unsatisfied.
- 2 Moderately unsatisfied.
- 1 Extremely unsatisfied.

19. In the last month, how often have you had sexual activity, including masturbating, intercourse, oral sex, or any other type of sex? (Check only one)

- 5 Daily or almost daily.
- 4 More than 6 times per month.
- 3 4-6 times per month.
- 2 1-3 times per month.
- 1 Zero (0) times per month.

If your answer is zero (0) for item 19, please answer the following questions:

A. When was the last time you had sex? (Check only one)

- 5 1-3 months ago.
- 4 4-6 months ago.
- 3 7-12 months ago.
- 2 13-24 months ago.
- 1 More than 24 months ago.

B. What are the reasons you have not had sex?

I could not have sex because I could not get an erection: Yes No

I could not have sex because I could not ejaculate or "cum": Yes No

Other (specify): _____

20. Compared to one (1) month ago, has the number of times you have had sexual activity increased or decreased?

- 5 Increased a lot.
- 4 Increased moderately.
- 3 Neither increased nor decreased.
- 2 Decreased moderately.
- 1 Decreased a lot.

21. In the last month, have you been bothered by these changes in the number of time you have had sexual activity?
- 5 Not at all bothered.
 - 4 A little bothered.
 - 3 Moderately bothered.
 - 2 Very bothered.
 - 1 Extremely bothered.
22. In the last month, how often have you felt an urge or desire to have sex with your main partner?
- 5 All of the time.
 - 4 Most of the time.
 - 3 About half of the time.
 - 2 Less than half of the time.
 - 1 None of the time.
23. In the last month, how would you rate your urge or desire to have sex with your main partner?
- 5 Very high.
 - 4 High.
 - 3 Moderate.
 - 2 Low.
 - 1 Very low or none at all.
24. In the last month, have you been bothered by your level of sexual desire? Have you been...
- 5 Not at all bothered.
 - 4 A little bit bothered.
 - 3 Moderately bothered.
 - 2 Very bothered.
 - 1 Extremely bothered.
25. Compared to one (1) month ago, has your urge or desire for sex with your main partner increased or decreased?
- 5 Increased a lot.
 - 4 Increased moderately.
 - 3 Neither increased nor decreased.
 - 2 Decreased moderately.
 - 1 Decreased a lot.

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