AN ABSTRACT OF THE THESIS OF

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Abstract

Inquiry into the cause of men's premature mortality has been historically framed in a biological deterministic perspective. This research takes an alternative view whereby the possible interactions of psychosocial variables with men's health promoting and health seeking behaviors are examined using cross-sectional survey data with older men. Specifically, this research explored the relationships among gender role conflict, perceived social support, and older men's health behaviors. Traditional pencil/paper (n=256) and electronic (n=147) surveys were completed by older men aged 40 and over selected from university alumni of a large western university. As the Gender Role Conflict Scale (O'Neil et al., 1986) had not been previously validated within a sample of older men, confirmatory factor analysis was used to verify that the instrument performed as well or better in older men than in previous samples of college age men. Secondly, multiple regression and canonical correlation was used to find that gender role conflict predicts less perceived social support in our sample. Moreover, restrictive emotionality appears to have the greatest influence on perceived social support and interacts greatest with emotional/informational support. Last, structural equation modeling was used to
validate the findings from the regression analysis as well as determine that perceived social support predicts health promoting behaviors in our sample. While there did not appear to be a direct effect of gender role conflict on health seeking behaviors as hypothesized, health promoting behaviors did predict health seeking among these men. The findings from this study are an important step into examining how the gender role socialization of men may relate to health through protective and harmful behaviors supported by normative standards. This research allows health researchers to examine gender role conflict in older men through the validation of an instrument, and suggests that men who are highly socialized into male role norms are less likely to benefit from the well documented stress buffering effects of social support.
The Structural Relationship Among Gender Role Conflict, Social Support and Health Behavior in Older Men

by

Wade G. Hill

A THESIS

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I understand that my thesis will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my thesis to any reader upon request.
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THE STRUCTURAL RELATIONSHIP AMONG GENDER ROLE CONFLICT, SOCIAL SUPPORT, AND HEALTH BEHAVIOR IN OLDER MEN

CHAPTER I

Introduction

It has been said that men's health is a bit of a contradiction in terms (Banks, 2001). Perhaps the single greatest health disparity in the United States exists within the dichotomy of gender. In fact, the disparity in life expectancy in 2001 reached 6 years, that is women are expected to live to be almost 80 while men lag behind at 74 (National Institutes of Health, 2001).

Although life expectancy has increased dramatically since 1900 for all Americans, the differential in premature death between males and females has actually widened (Sahyoun, Lentzner, Hoyert, Robinson, 2001). In 1900, 43% of females and 39% of males lived to their 65th birthday. This 4% difference increased to 9% by 1997 as 86% of females and only 77% of males are expected to live to 65.

Despite the temptation to attribute this disparity to the dangerous activities of male youth, life expectancy for men and women after age 65 also reveal a female advantage. During the last century, life expectancy at age 65 rose from 12 to 16 years among men, and 12 to 19 years among women (Health, United States, 2002) indicating that women can expect 3 more years of life.

Causes of death contributing to this disparity are familiar. In 1999, the relative risk of death in males compared with females indicates that males have
higher rates of death for 12 of the 15 leading causes of death\(^1\) (exceptions are cerebrovascular disease RR=1.0, essential hypertension RR=1.0, and Alzheimer’s Disease RR=0.8) with all but four of these at least 1.5 times as high (CDC, 2001). Specifically, male to female ratio’s for suicide (4.4), aortic aneurysm (3.2), accidents (2.2), chronic liver disease (2.2), heart disease (1.5), cancer (1.5) and chronic respiratory disease (1.5) justify a conclusion that males suffer an appreciable cause-specific disadvantage in death.

Kimmel (1995) notes that data of this type have been used in misguided attempts to argue that the feminist agenda to improve women’s health lacks merit, after all, women already enjoy greater life expectancy than men. “But such complaints only hint at the larger point: Most of the leading causes of death among men are the result of men’s behaviors- gendered behaviors that leave men more vulnerable to certain illnesses and not others (Kimmel, 1995, p. vii).”

Indeed, acknowledging the etiological transition of the late 20th century to a chronic disease model whereby lifestyle behaviors are paramount in describing risk for disease, males appear to engage in less health protective and greater health harming behaviors than females. Data from the Behavioral Risk Factor Surveillance System (BRFSS) for the year 1999 indicate that more men use tobacco (and in greater amounts), eat less healthy diets, and suffer greater rates of obesity (CDC, 2002). Additionally, BRFSS data indicate that three times as many

\(^1\) The Centers for Disease Control and Prevention (2001) report that the 15 leading causes of death for 1999 are (in order starting with overall leading cause of death): diseases of heart; malignant neoplasms; cerebrovascular diseases; chronic lower respiratory diseases; accidents (unintentional injuries); diabetes mellitus; influenza and pneumonia; Alzheimer’s disease; nephritis, nephrotic syndrome, and nephrosis; septicemia; intentional self-harm (suicide); chronic liver disease and cirrhosis; essential hypertension; assault; and aortic aneurysm.
men binge drink, four times as many men habitually (5+ times each month) report driving after drinking, and more than two times as many men than women report not seeing a healthcare provider for a regular check-up within the last 5 years (CDC, 1999).

Despite significant evidence linking behavioral, disease, and mortality trends within men to lower life expectancy, Verbrugge (1985) has suggested that acquired risks resulting in gender differences in roles, stress, and preventive health practices combine with lifestyle to produce poor health outcomes. Brannon’s (1976) early canonization of the four essential aspects of the male role (No Sissy Stuff, The Big Wheel, The Sturdy Oak, and Give em’ Hell) suggested that males are socialized into normative belief patterns that prescribe behavior. “The gendered worlds into which small boys are socialized emphasize emotional inhibition (Big boys don’t cry), demands for independence (If he hits you, hit him back. Handle it yourself!), and above all, prohibitions against any behavior that smacks of femininity (Don’t be a sissy!) (Stillion, 1995, p. 56).”

The relevance of gender role socialization to men’s health may be applicable not only to individual overtly harmful behaviors of men as they try to align themselves with normative standards (e.g. smoking, drinking, risk taking), but may also prevent men from experiencing the protective nature of health seeking activities (e.g. annual exams, cancer screening). The idea that men participate in less health seeking behaviors is well documented (see, Nathanson, 1977; Verbrugge, 1985; and Waldron, 1976). Entrenched self-reliance, the need to
be perceived as powerful, and emotional inhibition combine to provide a potentially powerful disincentive for men to seek help when needed.

Perspectives on gender roles have evolved in the last 30 years driven by a greater need to understand social influences on a variety of human behaviors. In the 1970’s, gender role theorists began to question the traditional bipolar assumption that humans were appropriately predisposed into either masculinity or femininity (Lloyd, 2001). Instead, the androgynous model was proposed suggesting that there was an ideal mixture of both masculine and feminine traits that would predict individual success or functionality (Bem, 1987), but was criticized as an ineffective model that categorized people into an invariant “sex role container” (Kimmel, 1987) that didn’t accurately reflect empirical data.

Recently, gender role theorists have begun to re-define what masculinity means in the context of the daily lives of men and how adherence to the strict socially imposed masculine behavior norms may effect health and ultimately help explain harmful behavior patterns. The ideas of gender role conflict (O’Neil, 1986) evolved out of the sex-role strain paradigm (Pleck, 1981) which suggests that men experience intrapersonal conflict and personal restriction as a result of rigid and sexist gender roles (Mintz & O’Neil, 1990). To date, gender role conflict has provided a useful way to examine a variety of health-related interactions within the life-course of males including self-esteem (Coumoyer, 1993; Davis, 1987; and Sharpe & Heppner, 1991), intimacy (Sharpe & Heppner, 1991; Chariter & Arnold, 1985), anxiety (Davis, 1987; Coumoyer, 1994; Sharpe, 1993; Sharpe & Heppner), and depression (Good & Mintz, 1990, Sharpe, 1993). However, gender
role conflict has been examined very sparingly in populations of older men (O'Neil, 1995) and no study has yet evaluated the validity of the gender role conflict scale in men aged 50 and over. Secondly, it is not known to what extent gender role conflict may be associated with health promoting (e.g. diet and exercise) and health seeking (e.g. annual physical and dental exams, cancer screening) behaviors in older men that may contribute to disease and higher mortality.

The purpose of this study is to examine the interaction of gender role conflict, health promoting, and health seeking behaviors in a sample of older men. Additionally, given the idea that a lack of adequate social support has been associated with mortality (Berkman & Syme, 1979; House, Robbins, & Metzner, 1982), that men are generally at a support disadvantage (Shumaker & Hill, 1991), and that men's inability to express emotions may make them uncomfortable asking for support and less capable of eliciting it nonverbally (Saurer & Eisler, 1990), it seems reasonable to examine interactions among gender role conflict, social support, and health promoting and health seeking behaviors in older men.

RESEARCH QUESTIONS

This study focuses on the following questions:

1. Can gender role conflict be reliably modeled as a four factor construct within older men (aged 50 and older)? How do the factor structures for older men compare with those of college age men reported in the literature?
2. What is the relationship between gender role conflict and perceived availability of social support for a sample of older men?

3. What is the relationship between gender role conflict, health promoting, and health seeking behaviors in older men? Does social support mediate the effects of gender role conflict on health promoting and health seeking behaviors in older men?

HYPOTHESES TO BE TESTED

Refer to Figure 1 for the hypothesized model depicting all hypothesized relationships.

1. Gender role conflict can be reliably modeled as a four factor construct within older men including the subcomponents of Success, Power, and Competition, Restrictive Emotionality, Restrictive Affectionate Behavior Between Men, and Conflicts Between Work and Family Relations. The subcomponents are conceptually distinct and will show evidence of discriminate validity.

2. Gender role conflict within older men will be inversely related to perceived social support. That is, those men who report greater gender role conflict will report less perceived social support.

3. Gender role conflict will have a direct negative impact on both health promoting behaviors and health seeking behaviors. Gender role conflict will have an indirect effect on health promoting behaviors and health seeking behaviors mediated through perceived social support. Those men
who report greater gender role conflict will report less social support and social support will have positive impact on health behaviors. Health promoting behavior will be positively associated with health seeking behavior.
Figure 1. Hypothesized Relationships Among Study

Affect

Gender Conflict

Social Support

Positive

Health Seeking Behavior

Positive

Health Promoting Behavior

Negative

Emo/Info

Tang

Affect

PSI

SPC

RE

RABM

CBWL

# SVC

Sal/Coh

MFH

BMI

H Behaviors

e1

e2

e3

e4

d1

d2

d3

d4

Positive

Positive

Negative
CHAPTER II
THEORETICAL BACKGROUND: REVIEW OF THE LITERATURE

This section will review the prominent theories and extant literature describing the current state of knowledge relating men’s health behavior, social support, and masculinity.

Health Behavior

The post World War II rise in chronic disease as the leading cause of morbidity and mortality in economically developed nations has turned the focus within public health towards examining individual behavior as a primary determinant affecting the health of populations. Within this timeframe we have come to appreciate the role of diet, exercise, smoking, abusing alcohol, and a multitude of other risk and protective factors within the interaction of host, environment, and disease. Further, scholarship has provided some suggestions for assisting individuals to change unhealthy behaviors, or, promote healthful ones through theory driven interventions.

Fishbein et al, (2001) state that despite considerable variation in ideas and theoretical support for explanations of human health behavior, general consensus has been reached regarding factors that are necessary and sufficient for any individual to engage in a healthful act. Early in 1991, the National Institute of Mental Health (NIMH) convened a theorist’s workshop inviting participants from all major theoretical perspectives. The participants at this workshop included Albert Bandura (social cognitive theory), Marshall Becker (health belief model), Martin Fishbein (reasoned action), Frederick Kanfer (self regulation, self-control), and Harry Triandis
(Subjective Culture and Interpersonal Relations). Considering a wealth of empirical support throughout the literature, members of this committee identified a set of eight variables that account for most of the variance in any given deliberate behavior. For a person to engage in any given behavior, one or more of the following must be true (Fishbein et al., 2001):

1. The person has formed a strong positive intention (or made a commitment) to perform the behavior.

2. There are no environmental constraints that make it impossible for the behavior to occur.

3. The person has the skills necessary to perform the behavior.

4. The person believes that the advantages (benefits, anticipated positive outcomes) of performing the behavior outweigh the disadvantages (costs, anticipated negative outcomes); in other words, the persona has a positive attitude toward performing the behavior.

5. The person perceives more social (normative) pressure to perform the behavior than to not perform the behavior.

6. The person perceives that performance of the behavior is more consistent than inconsistent with his or her self-image, or that its performance does not violate personal standards that activate negative self-sanctions.

7. The person's emotional reaction to performing the behavior is more positive than negative.

8. The persona perceives that he or she has the capabilities to perform the behavior under a number of different circumstances; in other words, the persona has the perceived self-efficacy to execute the behavior in question.

The authors comment that the first three of these factors are considered as necessary and sufficient for producing any behavior. To illustrate, for a man to participate in screening activities for prostate cancer, that man must have a strong positive intention to perform the behavior in question; the man must have the skills
necessary to carry out the behavior; and the environment must provide a context of opportunity and be free of constraints.

Alternatively, the remaining five variables are considered to influence the strength and direction of the intention. For example, a person is unlikely to intend to engage in a positive health behavior if they do not first believe that the benefits outweigh the risks. Similarly, perceived normative pressure through powerful referents is likely to influence behavioral performance. Although most often, perceived norms or referents are thought to be either individuals or groups encountered within the context of an individual's life-course, perhaps no single or group effect can have the magnitude, duration, or daily reinforcement of strict gender role conventions that our society proscribes.

**Men's Health Behavior**

Behaviors of Excessive Appetite

The current state of men's health behavior in the United States and much of the economically developed world indicates that the primary risk factors for disease and early death appear gendered where men place themselves at risk for disease and early death through unhealthy lifestyles. The largest single contributor to males' higher mortality is ischemic heart disease which includes all major sub-types of myocardial infarctions. Though the gap is slowing narrowing, the sex ratio (male to female) in death from ischemic heart disease has been reported to range from 2.02-2.19 per 100,000 deaths (Waldron, 1995) Following heart disease, men die more frequently from lung cancer, chronic obstructive pulmonary disease including emphysema,
accidents, suicide, homicide, chronic liver disease and cirrhosis, and HIV infection or AIDS (National Center for Health Statistics, 1999).

Epidemiological research into the determinants of disease has provided prevention specialists with an array of modifiable risk factors for intervention. Current explanations for sex differences in disease and death should examine the extent to which males and females differ in behaviors known to either modify risk for disease or modify chances of death should prevention fail. Stroebe (2000) describes behaviors with well-supported associations to human disease such as using tobacco, drinking too much alcohol, and overeating as "behaviors of excessive appetite", and an examination of the gendered nature of these behaviors provides evidence that men indeed place themselves at risk.

It may be that the effects of tobacco on human health have no modern historical precedent. Fielding (1985) claims that the number of American lives lost each year to smoking alone is greater than the lives lost in World War I, Korea, and Vietnam combined, or about 400,000. Overall, one in every five deaths in the United States is tobacco related claiming more than 276,000 men and 142,000 women annually (CDC, 2002). Though the popular notion that the primary detrimental effect of tobacco results in cancer, ischemic heart disease actually ranks highest in the attributable mortality from tobacco use. In fact, mortality from heart disease in the United States is 70 percent higher for smokers than non-smokers (USDHHS, 1985).

Current trends indicate that tobacco use is without question, a gendered behavior. Though deaths from heart disease and cancer for women are increasing related to tobacco use (Zolty, 1998), a comparison of recent data on behavior shows
that more men use tobacco, use it more frequently, and in greater amounts. Behavioral Risk Factor Surveillance System (BRFSS) data for the year 2000 indicate that among those questioned, 24.4% of men and 21.2% of women admitted to be current smokers. Perhaps more revealing however is the fact that among those current smokers, men admitted to consuming significantly more tobacco. Almost 23% of men who are current smokers admitted to smoking more than 21 cigarettes a day, while only 12.3% of females stated the same. Given the known dose-response relationship between smoking and incidence of disease (e.g., see Scott, Palmer, and Stapleton, 2001), the greater use of cigarette tobacco may provide a partial explanation for the gender gap in mortality.

Tobacco use outside of smoking also appears to effect men inequitably. Smokeless tobacco use (i.e., “snuff”, “chewing tobacco”) is known to contribute to mortality from ischemic heart disease and cancer (Spangler & Salisbury, 1995), and appears to be on the rise in the United States. Bell, Spangler, and Quandt (2000) report that for United States men, overall sustained use of smokeless tobacco increased by about 10% (5.2% to 5.6%) between the years 1970 and 1990, while for women it appeared to decline (1.8% to 0.6%). The 1999 BRFSS showed similar data reporting that 31.9% of men reported ever using smokeless tobacco while only 2.7% of women said the same. Even more disturbing are the rates of smokeless tobacco use in certain subpopulations of American men. For example, Glover, O’Brien, and Holbert (1987) showed that in tobacco producing areas of the US, smokeless tobacco use among men can reach as high as 40%.
While the disproportionate use of tobacco by American men may provide clues to explain the gender gap in mortality, other behaviors of “excessive appetite” may contribute as well. For example, adverse health consequences from drinking alcohol may occur as a result of chronic misuse (e.g., pancreatitis, hepatitis, cirrhosis, dementia, and liver and esophageal cancer), or from single episodes of hazardous use (motor vehicle accidents, violence to self or others, acute poisoning). Quantity of risk varies according to health outcome, but people who drink any alcohol are at nearly twice the risk to develop cancers of the gastrointestinal tract, three times as likely to attempt suicide, almost four times as likely to have chronic pancreatitis or traumatic road injuries, and are six times as likely to seriously injured in a fire or by assault (Wodak, 1994).

Like tobacco use, significant evidence exists showing that men abuse alcohol at much greater rates than women and thus, are more susceptible to adverse health outcomes. Wilsnack et al. (2000) examined the influence of gender on alcohol use patterns from 16 general population surveys in 10 countries including the United States. Results indicate that men across social boundaries were more likely to use alcohol than women, and that in comparisons with female drinkers, male drinkers drank more frequently, in larger amounts, and with higher rates of adverse consequences. BRFSS data from 1999 sustain these findings for the United States alone showing that about 18% of men drink alcohol at least 16 days out of an average month while only 9% of women do the same. Additionally, 25.3% of men reported their average number of drinks on days they used alcohol to be 4 or more, while only 10.6% of women reported the same level of alcohol intake. While it is known that
frequency and amount of dependent alcohol ingestion tends to decrease with age, the
gender differential later in life actually grows to 14% for men and 1.5% for women
aged 65 and older (Satre & Knight, 2001) indicating that chronicity of use is
disfavorable towards men.

In addition to differences in tobacco and alcohol use between men and women,
other behaviors of excessive appetite appear salient to describe differences in
mortality. For example, despite the fact that American men and women experience
obesity at nearly identical rates (CDC, 2002), men tend to suffer greater rates of
"abdominal obesity" whereby a disproportionate amount of fat is found in the
abdominal area (Wing & Polley, 2001). Furthermore, research has shown that the
abdominally centered distributional patterns of fat within the human body may have
more impacts on disease incidence (e.g., hypertension, coronary artery disease, and
diabetes), than the absolute amount of adipose tissue present.

Inasmuch as diet and exercise predict obesity in adults\(^2\), men appear to benefit
from greater physical activity than women. For the year 2000, BRFSS data indicate
that 75.9% of men responded affirmatively to the question, "During the past month,
did you participate in any physical activities?", while only 71.4% of women did so.
Despite this, men appear to fair worse in terms of eating healthy diets and in 2001 had
8% fewer respondents state they consumed the recommended daily serving of fruits
and vegetables than women in the United States.

\(^2\) Grilo & Pogue Geile (1991) state that genetics and heritability can account for as much as 60% of body
mass index variation in adults. Despite this, these estimates still allow for the environmental influences
of diet and exercise as these habits are usually shared within families.
An examination into the differential participation of men in behaviors linked to leading causes of death provides some evidence which may explain why men experience shorter life-spans. Other dimensions of behavior exist that have been shown to influence mortality among humans. Preventive health behavior is defined as activities undertaken by individuals who believe themselves healthy for the purposes of preventing or detecting illness in an asymptomatic state (Glanz, Lewis, Rimer, 1997). Activities such as cancer screening, seatbelt use, and avoidance of ultraviolet radiation have been shown to have significant health protective qualities, and similar to consumptive behaviors, have been shown to be gendered with men generally limiting their participation.

Preventive Health Behavior & Help-Seeking Among Men

Most intuitively recognize the value of prevention over the tertiary management of a late fulminant disease processes. As more risk factors for chronic diseases are discovered and quantified, our ability to primarily prevent disease will continue to grow as will the efficacy of resources directed towards those efforts. Despite this, the current state of knowledge is not so well developed to enable primary prevention across the range of contemporary afflictions at the present. Individuals and populations also resist changes needed to modify risk, and as a result rely on early detection to change the course of disease processes.

The Report of the U.S. Preventive Services Task Force (1996) states that preventive services for the early detection of disease have been associated with substantial reductions in morbidity and mortality within the last 30 years. Mortality
from stroke has been reduced by 50% since 1972 based on earlier detection of hypertension, and dramatic reductions in the incidence of invasive cervical cancer and mortality from cervical cancer have occurred following the introduction of the Papanicolaou test to detect cervical dysplasia. Children no longer face irreversible mental retardation from metabolic disorders or poisoning, based on screening programs for phenylketonuria, congenital hypothyroidism, and lead. In short, screening has become an indispensable component of disease prevention within populations.

Perhaps the most basic of preventive health behaviors any one individual can participate in is undergoing a periodic health examination through an appropriate provider. Not only does a health examination allow for behavioral assessment and redirection according to risk factors for disease, but the examination may determine the need for screening tests within an asymptomatic individual. For men, recommendations for examinations are made according to risk status and age and thus are relative to the individual. Even though one set of recommendations does not apply to every male, evidence exists showing that men as a group do not seek health services at rates similar to women.

Historical research has consistently shown that women use more health services than men (Cleary, Mechanic, & Greenley, 1982; Waldron, 1983) which may be explained by a greater likelihood of women to seek help for prevention and illness.

3 The U.S. Preventive Services Task Force (1996) provides specific recommendations for prevention activities in males aged 25 and older including screening (blood pressure, total cholesterol, height and weight, fecal occult blood &/or sigmoidoscopy, ETOH abuse), counseling on substance use, diet and exercise, injury prevention, dental health, and sexual behavior, and immunizations (e.g., pneumococcal, influenza, and tetanus-diphtheria boosters).
(Hibbard & Pope, 1983). In addition, men have shown a greater failure to follow standard health practices and report symptoms compared to women (Helgeson, 1995). Tudiver and Talbot (1999) suggest that help-seeking behavior among men is preempted by a high threshold for tolerance and a lack of perceived vulnerability to illness. Others have suggested that explanations for sex differences in help seeking behaviors are due to differences between male and female role expectations that discourage men from admitting vulnerabilities and maximize self-reliance and independence (Verbrugge, 1985).

Recently, Culica et al. (2002) examined data from the Iowa Behavioral Risk Factor Surveillance System to determine if a consistent profile existed of individuals who do not receive regular medical checkups. Data for 3600 individuals indicated that 62% of the individuals reported having a routine medical check-up within the previous 12 months. Those people who did not have a checkup within the last 12 months were defined as “lapsed”, and 48% of males and 30% of females were included in this category. The authors conclude that the profile of a lapsed user is male; aged 25 to 44; is unmarried; has an annual income less than $75,000; is in excellent self-rated health; smokes every day; does not exercise; has not been told he has diabetes, cardiovascular disease, or hypertension; and says that he cannot afford to see a physician.

Nationwide data from the 2000 BRFSS support the conclusions that males access preventive care less often than females. When asked “About how long has it been since you last visited a doctor for a routine checkup?”, 19.1% of men nationwide stated that it had been 5 years or longer compared with 9.1% of females. BRFSS data
show that in 1999 only 71.8% of men compared with 76% of women had ever had blood cholesterol checked. In that same year, 15.2% of men stated that it had been over 2 years since having their blood pressure checked (compared with 7.7% of women), and only 65.5% of men had visited a dentist within the last 12 months (compared with 70.5% of women).

One of the few areas where specific screening activities between men and women can be compared is for colorectal cancer (CRC). Colorectal cancer is the second most common form of cancer in the U.S. and has the second highest mortality rate, accounting for nearly 140,000 new cases and 55,000 deaths each year (CDC, 2002x). The National Cancer Institute (2002) states the screening for colorectal cancer through the use of fecal occult blood testing (FOBT) can decrease mortality from the disease by 33% if used annually and by 21% if used semiannually. By using the sigmoidoscopy, the risk of dying from fatal colorectal cancer can be decreased by 70-90%. The U.S. Preventive Services Task Force (1996) recommends screening for colorectal cancer through annual fecal occult blood testing, or sigmoidoscopy (periodicity unspecified), or both, for all persons over the age of 50 or where family history would warrant earlier testing.

Lemon et al. (2001) surveyed 954 cancer-free individuals aged 50 and over and report that about 55% or 527 individuals had been screened for colorectal cancer within the last 12 months by FOBT, sigmoidoscopy, or both. Of the 414 men in the sample, 53% reported being screened while 57% (out of 540) of women acknowledged participation. Factors associated with screening for men include increasing age, education, and use of screening measures for prostate cancer. Men
aged 65 to 74 were more likely to be currently screened than men aged 50 to 65. This may be due in part Medicare coverage in the higher age group as more men than women report lack of access to healthcare\(^4\). Also, those men who had a recent history of screening for prostate cancer (within the last 12 months) were 2.6 (95% CI= 1.42, 4.82) times as likely to undergo screening for CRC. Of the men in this study, only 161 participated in both CRC screening and prostate cancer screening within the past 12 months (39%), which contrasts women sharply in their combined participation in CRC screening and mammography (49%).

In addition to colorectal cancer, prostate cancer screening has recently emerged as another viable method of secondary prevention of disease among male populations. Prostate cancer is the most commonly diagnosed cancer, other than skin cancer, among men in the United States and is second only to lung cancer as a cause of cancer-related death among men. Nearly 198,100 new cases of prostate cancer will be diagnosed and 31,500 men will die of the disease in 2001 (CDC, 2001x).

Despite a strong tradition of cancer screening in the United States, some controversy exists over whether prostate cancer screening tests should routinely be employed in asymptomatic men without significant family history of disease. Two major screening methods are currently employed to identify disease early in men and have been criticized for poor predictive values when used independently. The digital rectal examination (DRE) has been shown to have positive predictive values ranging

\(^4\) BRFSS data for the year 2000 show that only 86.4% of men responded to the question “Do you have any kind of healthcare coverage?, while 89.1% of women responded affirmatively. This may be due in part to a higher number of single, marginal wage earners among men that would preempt their qualification for state and federally subsidized healthcare (i.e., Medicaid).
from 21-55% and the prostate-specific antigen (PSA) test rates similarly at 32-49% (Catalona, Richie, and Ahmann, 1994).

As no randomized studies have yet been completed that demonstrate that screening for prostate cancer reduces morbidity and mortality, consensus among agencies and organizations responsible for making recommendations has not been reached. The American Cancer Society recommends that both the PSA and DRE be offered to men over the age of 50 annually who have a life expectancy over ten years, and to young men who are at high risk for disease. Alternatively, the National Cancer Institute and the US Preventive Services Task Force does not currently recommend routine screening for all men, only those at highest risk (Steele, 2000).

Despite the inconsistency in recommendations, trends in prostate cancer mortality indicate that the efficacy of screening may be valid. Stanford (1999) states that although incident rates of prostate cancer have increased by over a 100% for all men from 1986 (probably due to increased screening), death rates have begun to decline in recent years. For example, in white men under the age of 75, the age-adjusted mortality rate declined by 15% between 1990 and 1995 and survival rates have slowly increased since 1973. Overmyer (2000) agrees and states that a yet unpublished Austrian study has demonstrated dramatic improvements in mortality for men using prostate cancer screening. In 1993, the health system of Tyrol Austria embarked on an ambitious mission to screen and treat the entire population in an effort to address cancer mortality in men. By 1998, approximately 66% of all men in the state had been screened at least once and the overall mortality rate from prostate cancer in men aged 40 to 79 declined 42% compared with the rest of the nation.
Many prevention specialists believe that early indications of screening efficacy justify inquiry into factors that predict men’s participation in prostate cancer screening. For example, Zemencuk (2001) surveyed 442 adult men over the age of 50 to determine the current state of men’s knowledge and attitudes towards prostate cancer screening. The survey asked such questions as, “How much can regular PSA testing reduce a man’s chance of dying from prostate cancer” and “How beneficial do you believe regular PSA testing would be for you?” Results showed that most men (80%) believed that regular PSA testing could significantly reduce the risk of dying from prostate cancer, though findings were more pronounced for American men compared with Canadian men (63% answered affirmatively).

Steele et al., (2000) showed less promising results in their inquiry into factors associated with men’s use of prostate cancer screening services. These authors used telephone survey methods within the State of New York to determine that fewer than 10% of the 644 age-eligible men perceived their risk for prostate cancer to be high. Almost 20% of those surveyed perceived almost no risk, and 60% of the eligible men reported ever having the PSA test to screen for cancer. For this research, predictors of screening behavior included race (non-Hispanic white men were more likely to get screened), higher education, higher income, and physician advice.

Merrill (2001) also examined predictors of PSA screening for a sample of 1,293 men in Utah based on the 1996 Utah Health Status Survey. Forty-eight percent of respondents reported having the PSA test in the past year and appeared to increase and level off with age (23.9% for ages 40-49; 51.4% for ages 50-59; 67.4% for ages 60-69; and 67% for ages 70+). After adjusting for age, only marital status and
medical insurance were significantly associated with screening utilization in the previous year. Nearly 50.6% of married men and 33.5% of unmarried men acknowledged participation (OR= 2.1, 95% CI 1.3, 3.5). The authors interpret this effect by stating, "Marriage may influence higher levels of PSA screening because spouses encourage or married men practice better general health behaviors (p. 650)."

Combined with behaviors of excessive appetite and underutilization of basic healthcare services, men often fail to engage in other behaviors that may protect health. For example, sun protective behaviors either through the application of sun screening chemicals or sun avoidance has become an issue of greater interest as incidence of malignant melanoma continues to rise (Marks, 2000). In the United States, an estimated 51,400 cases of malignant melanoma will have been diagnosed in 2001 that will claim the lives of almost 10,000 people (CDC, 2002x). Incident rates of melanoma suggest a gendered pattern of risk as males experienced 16 cases of melanoma per 100,000 people between the years of 1992-1998 while women had only 10.6 (SEER Cancer Statistics Review, 1998).

Hall et al., (1997) investigated the sun protective behaviors of the U.S. white population by using 1992 National Health Interview data for 10,048 subjects. Fifty-three percent of respondents reported they were very likely to use sunscreen, wear protective clothing, or seek shade if they were outside on a sunny day for more than one hour. Of these, only 38% were male and only 21% of these males planned to use sun block if they planned to be in the sun for extended periods. In addition, the authors state that prior findings of men’s preference to use clothing as an alternative to
sun block were not supported in this study. In fact, these data show that men and women were about equally as likely to use protective clothing to limit sun exposure.

Others have found similar evidence that men do not avoid risk from excessive sun exposure. For example, Purdue et al. (2001) state that men are about a third more likely to experience one or more sunburns over a three month period after examining data from 4,023 Canadian adults. Moreover, in 1997 Pennsylvania added questions to the national BRFSS to describe population skin cancer risks and determined that although almost equal numbers of men and women believed sun exposure to increase risk for skin cancer (79% of men and 81% of women), 23% of men and 37% of women stated that they always or often used sunscreen when outdoors (Pennsylvania Department of Health, 1997). In all, gendered behavioral evidence suggests that melanoma incidence data may be partially explained by the discrepancy between men and women's behaviors related to sun exposure.

Male Sex-role Identity and Health

While it is well known that men have shorter life expectancy and greater participation in risky health behaviors, explanations for these relationships are an issue of some contention. Most health and social psychologists believe that while some of the difference can be attributed to biology, much of the explanation lies within a social context of traits forced upon boys and men. Because research has tended to neglect the impacts of gender on health treating it as a nuisance variable, very little is known about how gendered psychological qualities of men and women may relate to health. Moreover, because feminist authors were the first to address the interaction of gender
and health, the majority of empirical evidence available is virtually synonymous with women’s health (Courtenay & Keeling, 2000).

While differences exist in the literature on terminology used to describe the nature of men’s and women’s behavior, most authors would agree that masculine characteristics tend to be characterized as instrumental, where female traits are looked at as expressive. Instrumental traits are characterized by adjectives such as independent, ambitious, assertive and expressive traits are seen as empathic, emotional, and nurturing. Given these generalizations, historical scholarly inquiry has focused on correlates of health and the extent to which a person exhibits either instrumental (masculine), expressive (feminine), or both (androgynous).

From a utilitarian view, the greatest issue facing human health is heart disease. Indeed, Waldron (1995) estimates that coronary heart disease accounts for the major portion of the sex differential in mortality recognizing that men suffer more than two times the incidence of CHD compared to women up until the age of 70. Because of this, research seeking to explain the effects of gender socialization on male rates of heart disease has been most frequently reported in the literature.

For example, extensive research has focused on linking Type A behavior and coronary heart disease (CHD). The Type A behavior pattern includes extreme aggressiveness, easily aroused hostility, sense of time urgency, and competitive achievement striving (Friedman, & Rosenman, 1974). Until very recently, researchers have failed to recognize the overlap of Type A behavior patterns and many manifestations of instrumental sex-role traits of men. In fact, several researchers have found that both males and females who score high on measures of masculinity also
score high on measures of Type A behavior. As Helgeson (1987) states, the characteristics of the coronary-prone individual are strikingly similar to the characteristics of the traditional male gender role. Coronary-prone persons hide weaknesses, inhibit emotional expression, lack empathy, fear homosexuality, and fail to reveal their true selves partly from lack of self-knowledge and partly from a desire to conform to others expectations.

Secondly, rates or severity of disease in males may be attributed to health seeking practices. Generally, men have shown a greater failure to follow standard health practices, report symptoms, and visit physicians compared to women (Verbrugge, 1985). A reasonable explanation for these findings is the idea that men are conditioned to discredit vulnerabilities which may either prevent them from seeking help when needed or postpone receiving care. Rubin (1983) states that men learn to avoid or refuse to admit pain, will not ask for help, and always try to appear strong. To a man, seeking help is inconsistent with self-reliance and may signify weakness.

Vicki Helgeson writes on Masculinity, Men's Roles, and Coronary Heart Disease (1995). Here, Helgeson hypothesized that masculinity effects CHD through four separate mechanisms. First, masculinity may have a direct effect on the disease process through encouragement of traditional risk factors for CHD such as smoking, hypertension, diabetes, alcohol abuse, and high cholesterol. Secondly, masculinity may have indirect effects on CHD through mediator variables such as impaired social support, Type A behavior, and resistance to participation in the health care system.
To test this model, Helgeson sampled 70 men and 20 women who were admitted to the hospital for acute myocardial infarction during a one-year period. Patients were selected if they were under the age of 70 and had no history of another major chronic illness such as cancer or mental illness. Findings supported her hypotheses including significant correlations between Type A personality, social support, and negative masculinity. Moreover, for those relating greater negative masculinity, delay in seeking help after symptoms was longer.

These men either noticed symptoms and failed to act, noticed symptoms but did not interpret them as symptoms of a heart problem, or did not notice symptoms at the time but could now recollect them. For example, one 56-year-old man with a history of hypertension and coronary artery disease noticed symptoms but failed to act. He had been aware of shortness of breath and fatigue for 6 months before his heart attack and had been actively seeking newspaper articles on insurance policies. He had refilled his prescription for nitroglycerine tablets because the old one had expired. “I knew it was coming on,” he said. Several men found it difficult to recollect symptoms because they were focused on the task at hand. A 40-year-old man said, “Who knows if I’ve had symptoms? Sometimes I feel achy and I don’t feel good, but I just keep going because I have things to do (p. 85).”

Other qualitative statements from this research underscore normative male behavior related to help seeking. For example, one man (an auto mechanic) stated he was forced to stop working on a machine due to severe chest pain and waited for the pain to subside before pushing himself to finish the task. He finally called emergency medical services after his fourth attack of pain and the completion of the work. Others reacted with overt hostility toward care providers, “If I had it may way, I would’ve called a cab 2 days ago and got out of here”, “If I had a choice of going to a doctor now or in 3 days, I’d go in 3 days. I’d overcome it myself”, “It’s mind over matter—tired is what you tell yourself. If you rest there’s a good chance you’ll end up lazy.”
Research findings such as these have directed researchers interested in the effects of gender on health to identify, test, and refine new theoretical paradigms to enable better synthesis of findings to prevention practice. Here, the transition from the male sex-role identity paradigm to a sex-role strain approach has been most influential in current practice.

**Sex-role Strain**

Sabo and Gordon (1995) state that original thinking about gender roles and health behavior began in the 1960's with the realization that biological determinism and reliance on the "medical model" were slowly being replaced by the "sociocultural model". This model shifted understanding of health and illness into terms of cultural values and practices, social conditions, human emotion, personality, and perception. Fostering this transition, Social Inequality and Critical Feminist Perspectives added a tradition and understanding of how social hierarchies influence intrapersonal capital and perhaps more importantly how individuals participate as an active agent in the process. For example, Chodorow (1978) contrasts male and female psychology and asserts that women's social orientation is personal while men hold a positional station of rank. Girls learn to attune to the needs of others while boys are motivated to attain a status. Couched within these assertions lay psychological qualities that define femininity and masculinity.

Masculinity, masculine identity, and men's sex role identity have been conceptualized and measured in various ways since the 1970's. Initially, masculinity was conceptualized as a collection of traits that could be measured, linked with some
outcome of interest, and presumably altered. In fact, this idea of men’s gender roles formed the basis for Robert Brannon’s (1976) identification of four major components of the male role that seem to resonate with many:

1. No Sissy Stuff: the need to be different from women.
2. The Big Wheel: the need to be superior to others
3. The Sturdy Oak: the need to be independent and self-reliant
4. Give ‘Em Hell: the need to be more powerful than others, through violence if necessary

Gender socialization was thought to influence the extent to which boys adhere to the rules of manhood leading to a life threatened health and relationships if not outright hard living. Harrison, Chin, and Ficarrotto (1992) state:

It is time that men especially begin to comprehend that the price paid for belief in the male role is shorter life expectancy. The male sex-role will become less hazardous to our health only insofar as it ceases to be defined as opposite to the female role, and comes to be defined as one genuinely human way to live.

Based upon conceptions that masculinity represents a strict set of characteristics prescribed by society, sex-role theorists began to construct scales to operationalize these ideas. Sandra Bem (1974) constructed the first trait inventory to quantify sex roles through the use of scales asking people to rate the extent to which they consider certain characteristics to be desirable in men and in women. Others such as Spence, Helmreich, and Holahan (1979) improved scales by adding both positive and negative characteristics in their measures (Extended Version of the Personal Attributes Questionnaire), such as differentiating ‘self-confident’ from ‘arrogant’.

Kimmel (1987) describes the sex-role paradigm as “a historically invariant model, a kind of static sex-role container into which all biological males and females are forced to fit (p. 12).” This standardized approach ignores the fact that our
conceptions of masculinity and femininity are relational, that is, although they may have some universal characteristics we cannot understand either without reference to the other. Moreover, this author criticizes the sex-role paradigm by noting that it minimizes the extent to which gender relations are based on power. In essence, masculinity implies authority and mastery, while femininity is associated with passivity and subordination. "By undervaluing the historical and social bases for gender relations, then, the sex-role paradigm reproduces the very problems it seeks to understand (p. 13)".

Trait masculinity reigned as the dominant gender role paradigm until Joseph Pleck published The Myth of Masculinity in 1981. Pleck defines the Male Sex Role Identity (MSRI) paradigm as a problem-ridden process requiring individual psychological development of a "sex role identity". This process carries with it the view that sex roles are developed from within, rather than being culturally defined. Moreover, Pleck asserts that the research tradition of sex-role typing is riddled with inconsistency and confusion. Some MSRI theorists have held a simple conception of psychological sex by describing sex-traits on a single unitary-bipolar continuum. As such, an individual would score somewhere on a single scale of very feminine to very masculine. Other theorists question the simple version of the MSRI and instead support a multileveled approach. This approach hypothesized some "outside" sex-role structure that exists coincidentally with a deeper "inner" identity. One could be very confident of his masculinity in a conscious sense, but still have some "deep down" cross-sex identity. Last and most recently, MSRI theorists have hypothesized an androgynous sex-role identity that specifies a dual-unipolar ideal. Psychological
masculinity and femininity are treated as two independent dimensions where one would score high or low on each. As such, an individual would be reduced to mainly masculine (scoring high on masculine, low of feminine), mainly feminine (scoring high on feminine, low on masculine), androgynous (high on both masculine and feminine), undifferentiated (low on both).

In answer to popular theoretical assertions about sex-role identity, Pleck questions the empirical evidence offered in support of these ideas. For example, the only reported measure of internal consistency for a unidimensional scale exists as a split-half correlation (KR-21) for the Mf scale of the MMPI of 0.36. Moreover, the psychometric evaluation of multileveled conceptions of sex-role fair no better, and even modern evaluations using factor analysis present a very suspicious picture of androgyny. Despite some promise, not all evidence supports the existence of a two-factor structure in evaluating androgynous scales. Pleck points out a study by Berzins, Welling, and Wetter (1978) that found 18 separate factors of an androgyny scale, only seven of which were interpretable. This evidence leads to questions about the theoretical viability of the MSRI paradigm, particularly our history of categorizing individuals according to some predefined ideas about sex-roles.

Based upon criticism of the MSRI paradigm, Joseph Pleck constructed a revolutionary view of how socially constructed gender influences effects men's lives. In this, most authors acknowledge Pleck's new view of masculinity as groundbreaking within the field of men's studies. For example, O'Neil (1998) states,

"Pleck criticized this identity paradigm because it falsely implied that men have an innate psychological nature. This essentialist view of male nature suggested that the fundamental problem of men's psychological development
is establishing a gender role identity. Pleck’s criticism of the MSRI paradigm has been extremely important in deconstructing false, essentialist notions about men and their masculinity. Pleck’s work in my opinion, has been one of the most significant breakthroughs in the psychology of men in this century (p. 416).

Tenants of this new view, called Sex-role Strain (SRS), are slowly replacing those of the MSRI and in short, contain the following ten propositions:

1. Sex roles are operationally defined by sex role stereotypes and norms.
2. Sex roles are contradictory and inconsistent.
3. The proportion of individuals who violate sex roles is high.
4. Violating sex roles leads to social condemnation.
5. Violating sex roles leads to negative psychological consequences.
6. Actual or imagined violation of sex roles leads individuals to over conform to them.
7. Violating sex roles has more severe consequences for males than females.
8. Certain characteristics prescribed by sex roles are psychologically dysfunctional.
9. Each sex experiences sex role strain in its paid work and family roles.
10. Historical change causes sex role strain.

Replacing the idea that sex roles are innate and essential, the first proposition identifies sex roles developing out of social stereotypes and normative ideas. Stereotypes and norms differ in that stereotypes are widely shared beliefs about what the sexes are actually like and norms refer to what most conceive the sexes should be like. The value of this distinction appears most cogently in proposition 2 with the realization that many of the expectations society places upon men are impossible to achieve. For example, boys are often encouraged to excel in sports and social relationships but are criticized later in life for an inability to achieve intimacy.

Given the range of inconsistency in male norms and stereotypes, proposition three seems intuitive. As Pleck states, "Sex roles generate strain because it is difficult for individuals to develop and maintain the characteristics that their sex roles prescribe
for them (p. 143)”. Not only does incongruency between social expectations lead to sex role strain, but some stereotypes and/or norms are so idealized that only a fraction of men can expect to live up to them. By illustration, a man’s capacity to economically provide for his family, a critical social norm, can depend on many other factors besides the qualities of an individual (e.g., economy, education, race, health). A man who feels significant social/interpersonal pressure to conform to this role of “breadwinner” would lead to some condemnation for which negative psychological consequences may result (propositions 4 & 5). In a sense, violation of sex roles contributes to a vicious cycle of violation and over conformation (proposition 6). A man who fails to live up to some aspect of the male role will compensate in an exaggerated way by emphasizing other male norms.

Perhaps the most destructive of Pleck’s propositions on Sex-role Strain suggests that some aspects of male role norms are psychologically dysfunctional. Proposition eight emphasizes the idea that even if a man is successful at negotiating the myriad of social expectations on masculinity, and perhaps in spite of this success, adverse consequences result. Indeed, this proposition gains support through an examination trends in recent research into gender role conflict.

**Gender-role Conflict**

Mintz and O’Neil (1990) define Gender Role Conflict (GRC) as a psychological state in which socialized gender roles have negative consequences on the person or others. “Gender role conflict occurs when rigid, sexist, or restrictive gender roles result in personal restriction, devaluation, or violation of others or self.
The ultimate outcome is a restriction of the human potential of the person experiencing the conflict or a restriction of another’s potential (p. 382). Gender role conflict represents an operationalization of Pleck’s views on Sex-role strain, and is consistent in describing the phenomena of male socialization as an individualized, learned process with significant consequences. To expand on Pleck’s work, O’Neil states that GRC operates on four overlapping and complex levels: cognitions, affective experiences, behaviors, and unconscious experiences. Moreover, it appears that men experience GRC directly or indirectly through six different contexts: when they (1) deviate from or violate gender role norms; (2) try to meet or fail to meet gender role norms of masculinity; (3) experience discrepancies between their real self-concept and their ideal self-concept; (4) personally devalue, restrict, or violate themselves; (5) experience personal devaluations, restrictions, or violations from others; and (6) personally devalue, restrict, or violate others because of gender role stereotypes.

O’Neil et al., (1986) constructed the Gender Role Conflict Scale (GRCS) from the theoretical propositions above and the prior work of Joseph Pleck in 1981. The GRCS was developed as a 37-item measure that assesses directly or indirectly men’s conflicts with their gender roles. Respondents are asked to rate the degree to which they agree or disagree with statements such as “I strive to be more successful than others”, and “Finding time to relax is difficult for me”. The gender role conflict patterns are defined the following way:

1. **Success**: Persistent worries about personal achievement, competence, failure, status, upward mobility and wealth, and career success. **Power**: Obtaining authority, dominance, influence, or ascendancy over others.
Competition: Striving against others to gain something or the comparison of self with others to establish one’s superiority in a given situation.

2. Restrictive Emotionality: Having difficulty and fears about expressing one’s feelings and difficulty finding words to express basic emotions.

3. Restrictive Affectionate Behavior Between Men: Having limited ways to express one’s feelings and thoughts with other men and difficulty touching other men.

4. Conflict Between Work and Family Relations: Experiencing difficulties balancing work-school and family relations, resulting in health problems, overwork, stress, and lack of leisure and relaxation.

Clearly, men will experience GRC relative to a multitude of factors that act to shape expectations and coping mechanisms, or buffer the effects of internal conflict. Among these, life stage and age have been found to significantly interact with GRC.

In fact, while one study (Stillson et al., 1991) found no relationship between age or life stage and the patterns of gender role conflict, many others have found differences. For example, Mendelson (1988) assessed undergraduate and adult engineers for differences in gender role conflict using a life stage approach and found that men aged 22 to 28 years old had significantly less overall gender role conflict than men in the age groups of 17-22 and 28-30. Moreover, restrictive emotionality was significantly higher among 17-22-year-olds than among the older age group of 22-28.

Additionally, Cournoyer (1994) assessed differences in gender role conflict for undergraduate men (17-22 years) and middle-age men (36-45) and found the younger age group to have significantly more conflict with success, power, and competition. On the other hand, the group of older men experienced more conflicts between work and family relations than did the younger group.
Despite evidence that gender role conflict appears dynamic across the lifespan, little evidence exists describing how older men experience conflict later in life. In fact, only two published studies exist describing male populations over the age of 45 among more than 23 using samples consisting of college-age men. Sharpe, Heppner, and Dixon (1995) examined gender role conflict within a sample of 88 men aged 25 to 85 with a median age of 50. Mean scores for Success, Power, and Competition; Restrictive Emotionality; Restrictive Affectionate Behavior Towards Men; and Conflict Between Work and Family, resemble findings of other samples but are not reported by age. Reliable sub-group analysis was not possible given the small sample size.

Perhaps the best descriptive evidence on the interaction of age and gender role conflict comes from Theodore and Lloyd (2000). Theses authors specifically examined this age interaction using a sample of 221 middle-class Australian men representing the three age groups of 18-24, 36-45, and 60-plus years. Findings support prior research showing that younger men (i.e., 18-24) score higher on Success, Power, and Competition than the balance of the sample. Alternatively, middle-age men (36-45) score highest on Conflicts between Work and Family Relations. One surprising finding was there were no differences on Restrictive Emotionality and Restrictive Affectionate Behavior Between Men for any of the age groups. These authors question the ideas of other gender conflict theorists (Cournoyer & Mahalik, 1995) and Jung (1969) that suggest men become more feminized as they get older. If this were true, expected findings would have included differences between age groups on emotionality variables. Despite these findings, generalizability to American men
should be questioned given the highly variable nature of the normative and stereotype components of gender role conflict. At issue is the how closely Australian men compare to American men in terms of the occurrence of gender role conflict and their psychological responses. Other studies have examined men outside of the United States and found significant differential patterns of gender role conflict (e.g., see O’Neil et al., 1994; Horhoruw, 1991).

In addition to age and life stage, other research has examined race, class and ethnic variables to describe the extent to which gender role conflict operates in a diverse population. For example, Kim (1996) studied gender role conflict and acculturation of 126 Chinese-American, Japanese-American, and Korean-American college students and found that while these groups did not differ significantly from each other, acculturation into American social mores was a reliable predictor. A significant canonical correlation explaining 18% of the variance, linked acculturation to Restrictive Emotionality, and Success, Power, and Competition. Moreover, Stillson, O’Neil, and Owen (1991) also examined the differential effects of race on gender role conflict and found a similar homogeneity of effect. Using a sample of 134 men aged 22-39 who were 47.7% White, 34.1% Black, 15.9% Hispanic, and 2.3% Asian, these authors found a consistent pattern of responses between Whites, Blacks, and Hispanics. While lack of sample size precluded the ability to make strong observations in a sub-group analysis, these authors conclude that they found no evidence of racial differences in gender role conflict for men in the United States.

Gender role conflict has also been examined within the contexts of various other psychological variables. Chartier and Arnold (1985) used a sample of Canadian
College Students to find that greater gender role conflict was associated with lower ego identity. Others such as Rounds (1994) found similar evidence that high GRC not only predicted low ego identity but also was associated with lack of intimacy and restricted emotionality. Similarly, Chamberlin (1994) found that GRC is significantly associated with authoritarian personality variables such as poor leadership and interpersonal conflict. Moreover, consistent evidence from a variety of studies suggests that higher levels of gender role conflict predict lower levels of self-esteem (e.g., see Davis, 1987; Sharpe and Heppner, 1991; and Sharpe, 1993). In all, it appears that gender role conflict reacts reliably with a variety of psychological variables that could be linked to health. Given this, further evidence that associates gender role conflict with anxiety, depression, and help-seeking behaviors with men deserves discussion.

Four studies have assessed the relationship between gender role conflict and anxiety (Davis, 1987; Cournoyer, 1995; Sharpe, 1993; Sharpe & Heppner, 1991). Davis (1987), found that all four sub-scales of the GRCS correlate positively with anxiety in a sample of college students. Sharpe and Heppner (1991) used a sample of 190 college students and found that restrictive emotionality, restrictive affectionate behavior between men, and conflict between work and family relations all correlated positively with gender role conflict. These authors speculate that the lack of significant influence between success, power, and competition and anxiety may have two explanations. First, it’s possible that this component truly has little effect on one’s overall psychological health (anxiety as part). Alternatively and more likely, it’s possible that this construct has less effect with anxiety relative to a college-age
population. "In a sample of older men, perhaps in which some are suffering from career burnout and do not feel successful in their careers, gender-role conflict around issues of success, power, and competition may have a stronger relationship with psychological well-being (Sharpe & Heppner, 1991, p. 329)". Last, Cournoyer (1995) assessed relationships between anxiety and gender role conflict for both undergraduate and middle aged men. For undergraduate men, success, power, and competition, restrictive emotionality, and conflict between work and family relations were all significantly associated with anxiety. For the older age group, only restrictive emotionality and conflict between work and family relations were related to anxiety at a significant level.

A number of studies have examined the effects of gender role conflict on depression. Good & Wood (1995) used a sample of 395 undergraduate men to examine the relationship between GRC and depression. These authors found that achievement-related gender role conflict (i.e., only the subscales of success, power, and competition and conflict between work and family relations) explained 21.4% of depression variance within the sample. These findings agree well with the theoretical premise which holds that men who fail in socially defined roles (fail to achieve) are likely have experience negative psychological consequences, in this case depression. Results of this study are buttressed well by others including Sharpe & Heppner (1991), Good et al., (1996), Good & Mintz (1990) and Cournoyer (1994) who all found associations between gender role conflict and depression.

In addition to anxiety and depression, help-seeking behaviors have also been studied in relation to gender role conflict. Good and Wood (1995) explain that
theoretical justification of men’s negative perception of help seeking is warranted in terms of gender role conflict because, “recognition and acknowledgement of personal problems, willingness to self-disclose, tolerance of interpersonal vulnerability, and emotional awareness and expression are potentially desirable characteristics of counseling clients and yet are the direct opposite of the traditionally socialized male role (p 70)”. Given this, these authors’ findings that 25% of the variance in psychological help seeking among college men can be explained by components of gender role conflict is no surprise. Furthermore, components of gender role conflict that appear to be most salient in explaining this variation include restrictive affectionate behavior between men and restrictive emotionality. In support of these findings, Blazina and Watkins (1996) found similar evidence in college men, and demonstrated significant relationships not only between restrictive gender role conflict but also between success, power, and competition and attitudes towards psychological help-seeking.

Clearly, reliable evidence exists linking gender role conflict and help seeking behaviors within men. Given a predominant finding of the strength of restrictive emotionality and restrictive affectionate behavior between men and variety of constructs relating to health, perhaps men’s general failure with respect to intimacy should be examined. Ample evidence from six separate studies exists correlating gender role conflict and poor intimacy and indicates perhaps the most consistent relationships in the entire body of gender role conflict literature (O’Neil, Good & Holmes, 1995). That is, men who score high on gender role conflict are more likely have difficulty with intimate relationships while those who score low appear more
functional. Recognizing this, and in view that many components of men's health may be mediated through intimate relationships, it appears reasonable to investigate how gender role conflict and social support may interact with men's behavior.

Social Support in Men

Within the last 15 years there has been increased emphasis on research explicating the links between social support constructs and various health outcomes. Social support is broadly defined as resources and interactions provided by others that may be useful for helping a person to cope with a problem. Under this definition, there appears to be several separate theoretical bases for understanding how individuals interact with others to modify health outcomes.

Cohen, Gottlieb, and Underwood (2000) state there exist two dominant perspectives for examining how social support fits into an array of influences on health. The stress-buffering model proposes that support is related to well-being only for persons under stress. The main, or direct effect model proposes that social resources have a beneficial effect irrespective of whether persons are under stress. Generally, perceived availability of social resources is most often associated with a stress buffering effect, whereas integration within a social network has been linked most strongly with the direct effects hypothesis.

While each tradition of inquiry has provided a better understanding of how interpersonal relationships and networks influence health, in view of the pervasive effects of gender role conflict on men, an examination of the stress and coping perspective of social support warrants attention. Lakey and Cohen (2000) state that
the stress and coping philosophy hypothesizes that support reduces the effects of stressful life events on health through either the supportive actions of others or the belief that support is available. In this, the stress-support matching hypothesis holds that social support will be effective in improving outcomes insofar as the form of the assistance matches the demands of the stressor. This view states that each stressful circumstance places specific demands on the affected individual and that social support can work to either promote coping or lessen the effects of the stressor.

Illustrating this, suppose a man feels a significant level of gender role conflict when confronted with the need to have a digital rectal exam to screen for prostate cancer. The conflict results from social norms that prescribe him to behave as “invulnerable”, “tough”, and “macho”, and homophobic stereotypes suggesting that rectal exams by a healthcare professional can be likened to homosexual activity. The stress coping perspective would claim to have some influence through social support via possibly a wife or significant other making the appointment for the man (as he would not do it on his own) and applying pressure for him to attend. In this manner, the supporter provides instrumental support that buffers the effects of the gender role conflict and leads to a positive health outcome.

Support for the stress buffering effect of social support and relationships to health comes from a variety of sources. Cohen & Hoberman (1983) report a significant stress buffering effect on depressive and physical symptoms within a sample of undergraduate students. Another longitudinal study of college students measured stress and symptoms at the onset of the study, and stress, social support, and symptoms again two months later (Cohen, McGowan, Focskas, Rose, 1984). Time
two analyses predicted scores on depression and physical symptomatology even controlling for time 1 effects. Others have examined the stress buffering hypothesis for utility in smoking cessation programs and found a consistent effect between quitting smoking and social support.

Aside from the over-aching theoretical views explaining exactly how social support interacts with individuals, Wills and Shinar (2000) discuss the multidimensional nature of supporting activities. The following represent the basic dimensions of perceived support that have been explored with respect to influences on individuals:


2. Instrumental Support- Provides money, household goods, tools, transportation, child care, assistance with cooking, cleaning, shopping and repairs. Functions to solve practical problems, allows increased time for rest and relaxation, other coping efforts.

3. Informational Support- Provides information about resources, suggests alternative courses of action, provides advice about effectiveness. Functions to increase the amount of useful information available to the individual, helps obtain needed services, leads to more effective coping.

4. Companionship Support- Provides partner for sports, outdoor activities, movies, theater, museums, restaurants, shopping, and parties. Functions to produce positive affect, allows for release of recuperation from demands, provides positive distraction from rumination about problems.

A significant body of literature exists showing the relationship between various health constructs and multidimensional functional social support in diverse populations.

Many of the questions that have been addressed include relative impacts of social
support on human physiology, incident disease and mortality in caregiving populations, support and recovery from illness, and adjustment to a variety of specific disease processes (e.g., cancer, arthritis, diabetes, hemodialysis, and HIV/AIDS). Of particular interest within the worldview of health promotion is the effects of social support on health behaviors, both harmful and protective that may contribute to the evolution of disease or improve outcomes.

Scholars of the late 19th century recognized that social integration had appreciable effects on an individual’s propensity to commit suicide (Durkheim, 1951). Since then, research from the modern era has provided credible evidence showing that social involvement can be reliably linked with human health. Several prospective community studies have examined the link between social integration and mortality. In the Tecumseh Community Health Study, for example, men with the lowest levels of social involvement in 1967-69 were 2-3 times more likely to die in the subsequent 10-12 year period than men with the highest levels of social involvement (House, Robbins, and Metzner, 1982). Given the fact that this mortality differential is unlikely to be accounted for through biology or other factors, some authors began to suggest that social relationships somehow had an effect on an individual’s inclination to engage in risky health behaviors. Indeed, we now have sufficient evidence showing that social support effects such behaviors as smoking, maintenance of body weight, dietary habits, drug and alcohol use, and cancer screening (Umberson, 1987; Wills & DePaulo, 1991; Wills, 1990; and Umberson, 1992). Despite the apparent promise of social support as a mediator of health behavior, we have also come to recognize that social support appears to have a heterogeneous effect. For example, social support
appears to interact differently between men and women including magnitude of effect, importance of dimensions, and sources of support.

Although few studies have directly examined sex differences in the correlates of social support, some trends appear to provide evidence of unique patterns. For example, Hirsch (1979) examined a small sample (n=32) of college students and found that women tended to spend more time interacting with their social networks through sharing feelings and concerns than men did during periods of stress. Henderson et al. (1980) concluded that women had a stronger significant effect when examining the relationship between perceived availability of support and reported physical and depressive symptomatology.

Rosenthal, Gesten, and Shiffman (1986) provide more comprehensive evidence by using a sample of 253 undergraduate college students to examine differential patterns of social support between men and women. Specifically, these authors hypothesized that traditional men (those scoring high on masculinity) would report emotional support as less available than traditional women (those scoring high on femininity) regardless of level of stress. It was also expected that under increased stress, a greater need for emotional support would be activated, resulting in lower satisfaction with emotional support for traditional men who lack this component. Results confirm study hypotheses that men did report needing less emotional support than women, perceived it as less available, and were less satisfied with what emotional support they did obtain. Alternatively, the effect of one's sex role on these gender differences appears to be unrelated to social support. That is, there was no apparent
effect between males who scored as either masculine, feminine, or androgynous, possibly as a result of the invalidity of the sex-role paradigm.

Other research has been able to link type of social support (i.e., emotional, instrumental) to both most used sources and health outcomes. For example, Hanson et al. (1989) examined all-cause mortality of elderly men related to availability and sources of social support. These authors used a sample of 621 elderly men to conclude that type and satisfaction with support provided appears to have significant impacts on mortality. Among men reporting low levels of available emotional support, risk of dying was 2.3 times higher. Moreover, among men who reported low adequacy of emotional support, the risk of dying was 1.7 times as great. These risks appear greatest among all social support variables studied including social anchorage, contact frequency, and social participation. In addition to these findings, source of social support appears to be an important predictor for death among elderly men in this sample. Those men who were unmarried (defined in this study as living alone) had a risk of dying 1.7 times higher than married men. Certainly, cohabitation and availability/adequacy of emotional support covary, and this evidence suggests that emotional support provided by an available partner may have more significant impacts on men's health than other sources of social support.

Other research supports the findings that the relationship of marriage is protective for men. Umberson (1992) studied 6,484 men and women aged 24 and older in the United States and found that marriage appears to benefit the health of men more than women partly because marriage provides more social control for men. Umberson hypothesized that (1) married men would report more exposure to social
control efforts (efforts aimed at controlling the health of another) than unmarried men; 
(2) married persons are more likely to receive control attempts from a spouse than 
from another; and (3) social control efforts would be inversely associated with 
negative health behavior. In short, all study hypotheses received support. Findings 
indicate that unmarried status—whether divorced, widowed, or never-married—predicts 
less social control from others than men who are married. Additionally, married 
persons are most likely to identify a spouse as their primary social control agent, 
although men and women tended to differ in the extent to which this is true. Men 
named their spouse as their social control agent 80% of the time while women named 
their spouse only 59% of the time. Last, the social control hypothesis suggests that 
exposure to a social control agent should be associated with a reduction in negative 
health behavior over time. Results indicate that among the consistently married (both 
men and women), cigarette smoking decreased, and average hours of sleep and 
physical activity increased. Additionally, for men alone, those who became unmarried 
during the study period tended to smoke and drink alcohol more frequently. The 
following qualitative comments from this research illustrate these effects:

When asked about others influencing his health one male stated, “...my wife, 
my mother, my sisters. Everyone seems to be interested in my health. They 
tell me to eat better, they tell me to get more exercise, they tell me not to work 
so hard...”. Oppositely, when asked if he influenced any one else’s health 
another man stated, “People handle their own affairs...As far as being a 
busybody about other peoples health I don’t do it”. One women replied to the 
same question, “My husband. I feel free to nag. He comes from a high risk 
family for heart disease. And, I nag him regularly—about exercise primarily”.

Overall, these results provide important information regarding the effects of social support on men’s health behavior and help to explain prior findings that marriage appears related to mortality in male populations.

Conclusions

Early gender role theorists have contributed a great deal to our understanding of men’s interpersonal relations and behaviors. Research into sex role identity has been able to identify patterns of men’s behavior such as the heart disease predisposing characteristics of hostility, aggressiveness, and competitive achievement, as well as delay in seeking care and reporting symptoms. While these findings offer promise in understanding the health disparities between men and women, we have come to recognize that a sex role identity approach may lack the validity required to offer long-term solutions. Consequently, the emerging theoretical paradigm within men’s health studies utilizes Sex Role Strain Theory which suggests that men react to and internalize social norms and stereotypes that are contradictory, inconsistent, and virtually guarantee failure.

Gender role conflict, though in its infancy, has emerged as the dominant perspective within sex role strain, and has been able to improve our understanding of men’s health by understanding sources of socialized stress and conflict within men’s lives. Though support exists for the relationships between gender role conflict and anxiety, depression, help seeking, and poor intimacy in men, most research has used samples of college men for analysis. Consequently, little is known about how older men experience gender role conflict and possible relationships to health. Despite this,
we now understand that for men of all ages, restrictive emotionality as a component of gender role conflict, may represent the most potent variable in understanding men’s health. Moreover, given the relationship between restrictive emotionality and intimacy within men, questions regarding the interaction of gender role conflict and social support seem reasonable.

The purpose of this study is to explore the relationships between all four components of gender role conflict, perceived social support, and older men’s engagement in health promoting behaviors. Specifically, this study will examine the extent to which components of gender role conflict directly impact health promoting behaviors, as well as indirect impacts of gender role conflict mediated through social support.
CHAPTER III

METHODS

SAMPLE & DATA COLLECTION

A large northwestern university foundation provided an alumni list including names, sex, addresses, age, and electronic mail address (when available) for a total of 12,200 men aged 40 and over. Of these, a total of 1546 male alumni had electronic mail addresses available and a 50% random sample (n= 733) was selected to receive an electronic invitation to participate in the survey on-line. From the 10,654 alumni that did not have an electronic address available, 675 were selected to receive a traditional paper/pencil survey.

For the electronic survey, an electronic letter (email) was sent out inviting the men to participate in a survey addressing men’s health issues. Incorrect email addresses accounted for 159 of the 733 invitations, and 4 men sent emails back declining to participate in the study. Additionally, a number of men sent messages back agreeing to participate but unhappy to have been contacted by means of unsolicited electronic mailings. For this reason, the planned follow-up that included reminder electronic messages was omitted and final response included 147 completed surveys out of the 733 invitations sent out (26%).

For the paper and pencil survey, the 675 invitations and surveys were mailed followed by two successive reminder postcards spaced 3 weeks apart. Surveys were originally labeled with a numbering system so that those who responded would not be re-contacted with reminder postcards. Incorrect mailing addresses accounted for 38 of
the 675 invitations, and 256 completed surveys (out of 637 invitations) were returned by the end of the study period for a response rate of 40%.

SURVEY INSTRUMENT

A 125-item questionnaire was developed to address the main study variables of Gender Role Conflict, Social Support, and Health-promoting Behaviors (see appendix A). Gender Role Conflict was measured using all four sub-scales of the Gender Role Conflict Scale (O’Neil, 1990). Social Support was measured using the Medical Outcome Study’s Social Support Questionnaire (Sherbourne & Stewart, 1991). Additionally, health promoting behaviors were measured using a combination of items from the Multidimensional Health Questionnaire (Snell & Johnson, 1997), the year 2001 Behavioral Risk Factor Surveillance System Survey (Centers for Disease Control and Prevention, 2002), and Bausell’s (1986) inventory of health promoting behaviors.

The Gender Role Conflict scale was developed by O’Neil and colleagues in 1986 to assess the degree to which men experienced conflict surrounding a socialized male gender role. The scale assesses four domains of gender role conflict (Success, Power, Competition; Restrictive Emotionality; Restrictive Affectionate Behavior Between Men, Homophobia; and Conflicts Between Work and Leisure-Family Relations) using 37 Likert scale statements ranging from strongly agree to strongly disagree. Respondents are asked to report the degree to which they agree or disagree with statements such as “I have difficulty expressing my tender feelings,” or “I strive to be more successful than others” or “Finding time to relax is difficult for me.”

Original internal consistency scores using Cronbach’s alpha ranged from .75 to .85 for
each subscale for a sample of college age men and have since been replicated in numerous other studies using more diverse samples of men (e.g., see Chamerlain, 1994; Mendelson, 1998). O'Neil and Owen (1994) summarized 11 studies using the GRCS and found average reliabilities using z-transformations ranging from .81 to .90.

Validity of the GRCS has significant support as well. Originally, the GRCS consisted of 85 items reflecting one of six patterns of gender role conflict. A common exploratory factor analysis using oblique rotation yielded a meaningful factor solution containing the present four factors within 37 items. Four additional factor analyses or validity studies have been completed on the GRCS since the original research in 1986 (Braverman, 1990; Chamberlain, 1994; Chartier, Graff, & Arnold, 1986; and Mendelson, 1988) and all have found a similar factor structure. Additionally, more rigorous confirmatory factor analysis has also shown an identical factor structure to the original (O'Neil, 1994), thus, the GRCS has remained unchanged since the original publication.

Snell & Johnson (1997) developed the Multidimensional Health Questionnaire (MHQ) in response to a need to broaden the scope of the psychological, individual tendency approach within the study of health behaviors. The MHQ was constructed after reviewing pertinent literature and identifying those constructs that appear to have the greatest utility in for increasing our understanding of people's health. The MHQ contains twenty subscales, one of which are selected for this study (Motivation for Healthiness). Five Likert scale items assess this subscale allowing subjects to rate the degree to which a statement describes a quality within themselves (1, not at all characteristic; 5 very characteristic). For example, subjects may be presented with "I
have the ability to take care of any health problems I may encounter” or “When I am ill, I myself am in control of whether my health improves”. These authors report that preliminary evidence using a sample of male and female college students indicates that internal consistency using Cronbach’s alpha was .87 for the ‘motivation for healthiness’ subscale of the Multidimensional Health Questionnaire. Additionally, validity was examined by correlating subscale measures from the MHQ with actual reports of subject health behavior. Study hypotheses were supported showing consistent magnitude and direction for correlations. For example, high levels of ‘Motivation for Healthiness’ correlated positively with global measures of health behavior.

Sherborne and Stewart (1991) developed the MOS Social Support Survey in response to a need for a short, multidimensional assessment of one’s perceived availability of social support. After a review of available support measures representing the dimensions of emotional/informational, tangible, affectionate, and positive social interaction, 50 items were constructed for final evaluation. All items were subjected to a panel of 6 behavioral scientists to ensure face validity. Subsequently, 13 items were deleted that were judged difficult to categorize. The remaining 37 items were further reduced to 19 after a pilot study analysis concluded that either the items were not internally consistent, or that they were unable to discriminate social support from other dimensions of health and health related behavior.

Final psychometric evaluation of the MOS Social Support Survey was achieved through item application to 2987 individuals ranging in age from 18-98.
This sample included more Caucasians (80%), more females (61%), and more married individuals (68%). Reliability coefficients based on Cronbach’s alpha ranged from 0.91 for Affective support to 0.96 for Emotional/informational support. Total scale reliability was reported to be 0.97. Validity was examined through the use of Pearson product moment correlations between the social support dimensions and a selection of validity variables such as Loneliness, Family functioning, Marital Functioning, Mental and Physical Health, Social Activity and Role Limitations. Overall, study hypothesis were supported suggesting that validity was achieved.

PROCEDURE FOR DATA ANALYSIS

Due to considerable differences in analysis procedures used for the three articles, each will be discussed in turn. T-tests were used on individual items and subscale scores relative to each analysis to determine that no differences existed based on how the survey was administered (i.e., web-based or paper/pencil). Treatment of missing values differed for each analysis based on software capability differences between LISREL 8.52 and SPSS 11.5. In addition, for paper 3, a sub-sample of older men were selected out who were at least 50 years of age. This was necessary due to the inclusion of prostate and colon cancer screening items included in the construct of health seeking behavior and the fact that screening for these conditions is not currently recommended for those under age 50.

Article 1
All data analysis was conducted through LISREL 8.52 (Joreskog, 2000) and began with 403 cases. Five cases were found to have missing data that exceeded 10% and were subsequently deleted from the sample. Randomly dispersed missing data points (no variable greater than 3%) were found in the remaining 398 cases and were imputed by matching GRCS items specific to each subscale. LISREL was unable to impute complete missing data for 20 cases leaving a total of 378 complete cases for analysis.

Based upon the theoretical strength of previous research, exploratory factor analysis was omitted and confirmatory factor analysis (CFA) followed data screening. Because items on the GRCS represent ordinal level data having no true means, units of measure, or origins, the CFA was carried out using polychoric correlations and their asymptotic covariance matrix analyzed through a diagonally weighted least-squares (DWLS) approach. Due to the large number of unique elements to be estimated relative to the modest number of observations, LISREL provides DWLS to estimate the asymptotic variances of only estimated coefficients. Although this may be a limitation in the estimation of efficient model parameters, DWLS provides a compromise between unweighted least squares and fully weighted least squares (Joreskog & Sorbom, 2001).

Several fit statistics were selected to evaluate how the data fit the hypothesized four factor model. The conventional chi-square statistic is traditionally reported in analysis of latent structures as a means to test the closeness of fit between the

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5 Because this first order model contains all 37 indicators of the GRCS, LISREL has to estimate $37 \times (37-1)/2 = 666$ unique elements.
unrestricted sample covariance matrix (S) and the restricted covariance matrix Σ(θ). Because the researcher typically wants to fail to reject the null hypothesis that the two covariance matrices are different, any statistically significant χ² value would suggest less than ideal fit within the model. However, as Byrne (1998) notes, the sensitivity of the χ² statistic to the large samples required within structural equation modeling process creates an unrealistic single measure of fit adequacy. As a result, assessment of model fit will also include: (a) goodness of fit index (GFI), (b) adjusted goodness of fit index (AGFI), (c) comparative fit index (CFI), (d) the root mean square error of approximation (RMSEA), and (e) the parsimonious goodness of fit index⁶ (PGFI).

The GFI, AGFI, and CFI statistics range from 0 to 1 with values greater than 0.90 indicating a good model fit. For the RMSEA, a value of .05 and less indicates a good fit, values greater than .05 up to .08 reflecting a reasonable fit, and those .10 and higher indicating a poor model fit. Because the PGFI takes into account the complexity of the model in relation to model fit, Byrne (1998) suggests that values less than the usual recommended cutoff of 0.90 are acceptable. A lower bound value of .80 was selected for this research based on previous work with the GRCS (Rogers, Abbey-Hines, & Rando, 1997).

Article 2

All data analysis was conducted through SPSS Base 11.5 (for Window, SPSS Inc., Chicago, IL) and began with 403 cases. After deleting 14 cases with missing

⁶ The parsimonious index was included for comparison to previous psychometric research on the GRCS most notably the 1997 cross-validation of the scale by Rogers, Abbey-Hines, and Rando (1997).
data exceeding 10%, 389 cases were available for analysis. Seventy-three cases contained between 1-3 missing data points (65 possible data points) and were screened through the SPSS missing value routine to investigate both individual and pairwise patterns. No patterns were found, and no variable had greater than 2% occurrence of missing values. An Expectation-Maximization procedure was utilized to impute missing values for the incomplete 73 cases.

Following the imputation of missing values, standardized scores for individual variables were used to determine that there were not univariate outliers. Frequency distributions for each subscale score of the GRCS and the total social support score from the MOS Social Support Survey indicated that skewness and kurtosis were not problems in this data set. Mahalanobis $D^2$ statistics using SPSS regression were examined to rule-out multivariate outliers using a cut-off value of $\chi^2(2)=13.8$ ($p=.001$). Pearson product moment correlations were examined to rule-out multicollinearity.

Article 3

Data preparation was conducted through SPSS Base 11.5 (for Windows, SPSS Inc., Chicago, IL) and analysis was conducted through LISREL 8.5 (SSI, Scientific Software International, Lincolnwood, IL). Data screening began with 225 cases. Missing data was found randomly scattered in only 12 cases and subsequently imputed using the SPSS missing value routine and the Expectation-Maximization method. Means were examined after imputation and revealed no change.

Four cases were removed from the data set due to extreme values (cut-off for univariate outliers -3.29 to 3.29), leaving 221 cases for analysis. Frequency
distributions for each variable indicated that skewness and kurtosis were not problems in this data set. Pearson product moment correlations were examined to rule-out multicollinerity.

Following data screening, structural equation modeling was used to test study hypotheses. Several fit statistics were selected to evaluate how the data fit the hypothesized four factor model. The conventional chi-square statistic is traditionally reported in analysis of latent structures as a means to test the closeness of fit between the unrestricted sample covariance matrix (S) and the restricted covariance matrix $\Sigma(\theta)$. Because the researcher typically wants to fail to reject the null hypothesis that the two covariance matrices are different, any statistically significant $\chi^2$ value would suggest less than ideal fit within the model. However, as Byrne (1998) notes, the sensitivity of the $\chi^2$ statistic to the large samples required within structural equation modeling process creates an unrealistic single measure of fit adequacy. As a result, assessment of model fit will also include: (a) goodness of fit index (GFI), (b) adjusted goodness of fit index (AGFI), (c) comparative fit index (CFI), (d) and the root mean square error of approximation (RMSEA).

The GFI, AGFI, and CFI statistics range from 0 to 1 with values greater than 0.90 indicating a good model fit. For the RMSEA, a value of .05 and less indicates a good fit, values greater than .05 up to .08 reflecting a reasonable fit, and those .10 and higher indicating a poor model fit.

Study Limitations
A number of important limitations exist in this study. First, because the study method relies on cross-sectional survey data, temporal relationships among study variables are impossible to determine. Because of this, causation cannot be supported and we are limited to examining associations between variables to test study hypotheses.

Second, there exist significant limitations within our sample as they represent highly educated white males who voluntarily elected to participate in this research. Because of this, generalizability of study findings will be compromised with respect to other populations such as men of color and those less socioeconomic standing. Additionally, because response rates for the survey were marginal (26% for email survey; 40% for traditional paper/pencil), we cannot be confident that our results truly represent our sample of university alumni.

Last, selection bias may be present based on the use of web-based survey methods and the fact that not all United States households have access to the internet or use electronic mail. Despite this, the number of households with one or more computers has risen from 8.2% in 1984, to 22.8% in 1993, to 51% in the year 2000 and almost 37% of all internet users in the United States were over 45 years of age indicating that internet access for older people in general is increasing (U.S. Census Bureau, 2001). Moreover, Couper (2000) states that penetration of the internet in the United States has increased dramatically in recent years and that households with incomes of $75,000 and higher are more than twenty times as likely to have access to the internet compared with those with the lowest incomes, those with a college degree are nearly sixteen times as likely to have home internet access, and that white
households are more three times more likely to have home internet access. These trends suggest that the use of web-based survey methodology may be more valid in highly educated white populations as the diffusion of technology is likely to be greater.
CHAPTER IV

Results

ARTICLE 1: THE VALIDITY OF THE GENDER ROLE CONFLICT MEASURE IN OLDER MEN: A CONFIRMATORY FACTOR ANALYSIS.

Abstract

Despite continued use of the Gender Role Conflict Scale (GRCS) in the literature, few studies of addressed the validity of the scale across heterogeneous samples of men. To date, psychometric support for the scale has been provided using data from college-age men, and no studies have been published examining validity across the life-course. This study used a sample of 378 men aged 40 and over to validate the GRCS in older men through confirmatory factor analysis. With our sample, all four subscales of the GRCS demonstrated good internal consistency (Cronbachs Alpha >.80), produced factor loadings suggesting that 36 out of the 37 items loaded satisfactorily, and provided goodness-of-fit statistics that suggest an overall exceptional fit between the four factor model and that data. Limitation and directions for future research are discussed.

Introduction

Male gender role conflict has been described as, "A psychological state where sex roles have negative consequences or impacts on the person or on others. The ultimate outcome of this conflict is the restriction of the person's ability to actualize their human potential or the restriction of someone else's potential (O'Neil, 1981, p.61). O'Neil's four construct model captured by the Gender Role
Conflict Scale (GRCS) includes (a) success, power, and competition; (b) restrictive emotionality; (c) restrictive affectionate behavior between men; and (d) conflict between work and family. While the GRCS has generally withstood psychometric scrutiny, the scale has predominately been tested with young homogenous populations. In so far as gender role conflict may represent a dynamic psychological state that is modified by the life course of males, this research seeks to validate the GRCS with an older sample of men and address one shortcoming of the psychometric evaluation of the scale.

Background Literature

Through physical maturation, developmental changes, or specific life events, O'Neil & Egan (1992) state that gender role transitions are marked by a reevaluation or integration of new (or old) conceptions about masculinity or femininity. As young men experience social environments reinforcing the stereotypes of traditional masculinity, they internalize value and belief systems belonging to the "traditional male". Gender role conflict results from these adopted value and belief systems that force males into specific behavior patterns. Across the lifespan then, men may accumulate experiences or respond to changing societal norms whereby value and belief patterns associated with being male change, resulting in dynamic gender role conflict.

To date, the GRCS has received sufficient psychometric attention to warrant use in predominantly young, white, male populations. In total, three studies have addressed the validity of the scale through the use of college age men.
The original evaluation of the GRCS (O'Neil, Helms, Gable, David, and Wrightsman, 1986) studied 527 college age men (mean age of 19.8 years) and determined through an item reduction procedure that 37 hypothesized items appeared to relate to conflict in male gender roles. Exploratory factor analysis was used to determine a four factor structure interpreted as success, power, and competition, restrictive emotionality, restrictive and affectionate behavior between men, and conflicts between work and family relations. Findings also included internal consistency scores ranging from .75-.85 for each of the four subscales, as well as four-week test-retest reliabilities ranging from .72 to .86 for each factor. Subsequent analysis of GRC items and the masculine, feminine, and masculine-feminine scales of the Personal Attributes Questionnaire (Spence & Helmreich, 1978) through MANOVA generally supported construct validity of the final 37-item GRCS.

Subsequently, Good et al. (1995) was the first to publish a replication of the original four factor structure of the GRCS four samples of college age men (mean age 19 years). Confirmatory factor analysis was used across samples 2 (n=535) and 3 (n=401) to conclude that, "Confirmatory factor analysis strongly supported the original intercorrelated four-factor model, thereby providing robust support for the factorial validity of the GRCS (p. 6)". Despite this, Tucker-Lewis fit indices of .76 and .753 were reported indicating less than optimal fit although this was later found to be in error and corrected to .8268 and .8297 (still less than the optimal 0.90 cut-off)(Rogers, Abbey-Hines, & Rando, 1997).
Noting the limited psychometric support for the GRCS, Roger, Abbey-Hines, and Rando sought to improve upon the work of Good et al. (1995) by supplying a range of fit indices for their confirmatory factor analysis of the instrument. In addition to correcting computational errors from Good et al. (1995), these authors used two new samples (total n=655) of college males (mean ages 21.7 and 20.1) to cross-validate previous research. Goodness-of-fit indices provide support for the four factor model of the GRCS evidenced by a root mean square error of approximation (RMSEA) of .0509, adjusted goodness of fit index .8522, Tucker-Lewis index .8743 and parsimony index .7726. While the RMSEA provides evidence of a possible "good fit", the AGFI and TLI continue to fall below the recommended cut-off of 0.90.

In all, previous psychometric research in the gender role conflict scale (GRCS) has suffered from a lack of replication with heterogeneous samples, including samples including older men who may experience gender role conflict differently than younger men. In addition, all previous studies have treated the ordinal items of the GRCS as if they were continuous. Though this is often done within the social sciences under the assumptions of an underlying continuous distribution, it is well known that the restricted range of ordinal values tends to result in attenuated correlations, distortions of parameter estimates, and incorrect goodness-of-fit measures (Joreskog & Sorbom, 2001). To address these issues, Joreskog (2001) suggests analyzing the polychoric correlation matrix and associated asymptotic covariance matrix for the data instead of a traditional correlation or covariance matrix as if the data were truly continuous.
Methods

Sample & Data Collection

A large western university foundation provided an alumni list including names, sex, addresses, age, and electronic mail address (when available) for sampling purposes. After selecting females out, a total of 1,546 male alumni aged 40 and over had electronic mail addresses available. Of these, a 50% random sample (n= 733) was selected to receive an electronic invitation to participate in the survey on-line. Combined with the electronic survey, a traditional paper/pencil survey was sent to 675 randomly selected male alumni who did not have an electronic address available, from a sampling frame of nearly 12,200 older men.

For the electronic survey, an electronic letter was sent out inviting the men to participate in a survey addressing men's health issues. Incorrect email addresses accounted 159 of the 733 invitations, and 4 men sent emails back declining to participate in the study. Additionally, a number of men sent messages back agreeing to participate but unhappy to have been contacted by means of unsolicited electronic mailings. For this reason, the planned follow-up that included reminder electronic messages was omitted and final response included 147 completed surveys (26%).

For the paper and pencil survey, the 675 invitations were sent out followed by two successive reminder postcards spaced 3 weeks apart. Surveys were originally labeled with a numbering system so that those who responded would not be re-contacted with reminder postcards. Incorrect mailing addresses accounted
for 38 of the 675 invitations, and 256 completed surveys were returned by the end of the study period for a response rate of 40%.

**Survey Instrument**

The Gender Role Conflict Scale (GRCS; O'Neil et al., 1986) is a 37-item instrument designed to measure the extent to which men experience, "A psychological state in which gender roles have negative consequences or impact the individual or others" (O'Neil, 1990, p.25). More specifically, men are asked to report the degree to which they agree or disagree with 37 statements concerning gender role behaviors and feelings on Likert-type scales ranging from 1 (strongly disagree) to 6 (strongly agree). Four subscale scores can be calculated for each subject including: (a) Success, Power, and Competition (SPC); (b) Restrictive Emotionality (RE); (c) Restrictive Affectionate Behavior Between Men (RABM); and (d) Conflicts Between Work and Family Relations (CBWL).

Original internal consistency scores using Cronbach's alpha ranged from .75 to .85 for each subscale for a sample of college age men and have since been replicated in numerous other studies. O'Neil and Owen (1994) summarized 11 studies using the GRCS and found average reliabilities ranging from .81 to .90 for subscale scores.

**Procedure for Data Analysis**

All data analysis was conducted through LISREL 8.52 (Joreskog, 2000) and began with 403 cases. Five cases were found to have missing data that exceeded 10% and were subsequently deleted from the sample. Randomly
dispersed missing data points (no variable greater than 3%) were found in the remaining 398 cases and were imputed by matching GRCS items specific to each subscale. LISREL was unable to impute complete missing data for 20 cases leaving a total of 378 complete cases for analysis.

Based upon the theoretical strength of previous research, exploratory factor analysis was omitted and confirmatory factor analysis (CFA) followed data screening. Because items on the GRCS represent ordinal level data having no true means, units of measure, or origins, the CFA was carried out using polychoric correlations and their asymptotic covariance matrix analyzed through a diagonally weighted least-squares (DWLS) approach. Due to the large number of unique elements to be estimated relative to the modest number of observations, LISREL provides DWLS to estimate the asymptotic variances of only estimated coefficients. Although this may be a limitation in the estimation of efficient model parameters, DWLS provides a compromise between unweighted least squares and fully weighted least squares (Joreskog & Sorbom, 2001).

Several fit statistics were selected to evaluate how the data fit the hypothesized four factor model. The conventional chi-square statistic is traditionally reported in analysis of latent structures as a means to test the closeness of fit between the unrestricted sample covariance matrix (S) and the restricted covariance matrix Σ(θ). Because the researcher typically wants to fail to reject the null hypothesis that the two covariance matrices are different, any

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7 Because this first order model contains all 37 indicators of the GRCS, LISREL has to estimate $37 \times (37-1)/2 = 666$ unique elements.
statistically significant $\chi^2$ value would suggest less than ideal fit within the model. However, as Byrne (1998) notes, the sensitivity of the $\chi^2$ statistic to the large samples required within structural equation modeling process creates an unrealistic single measure of fit adequacy. As a result, assessment of model fit will also include: (a) goodness of fit index (GFI), (b) adjusted goodness of fit index (AGFI), (c) comparative fit index (CFI), (d) the root mean square error of approximation (RMSEA), and (e) the parsimonious goodness of fit index$^8$ (PGFI).

The GFI, AGFI, and CFI statistics range from 0 to 1 with values greater than 0.90 indicating a good model fit. For the RMSEA, a value of .05 and less indicates a good fit, values greater than .05 up to .08 reflecting a reasonable fit, and those .10 and higher indicating a poor model fit. Because the PGFI takes into account the complexity of the model in relation to model fit, Byrne (1998) suggests that values less than the usual recommended cutoff of 0.90 are acceptable. A lower bound value of .80 was selected for this research based on previous work with the GRCS (Rogers, Abbey-Hines, & Rando, 1997).

Results

Sample

The study sample consists of male university alumni aged 40 and over who agreed to participate in the research. The mean age of study participants at the time of the study was 53 years (SD = 9.07) and ranged from 40-86 years. The

$^8$ The parsimonious index was included for comparison to previous psychometric research on the GRCS most notably the 1997 cross-validation of the scale by Rogers, Abbey-Hines, and Rando (1997).
majority of participants were white (93%), married or a member of a couple (85%), and currently employed (78%). Based upon our focus on older men, it was expected that we would see a significant number of men who were retired though only 17% of the sample identified so. Educational status and income were also anticipated to be high given the nature of the sample. Forty-seven percent of the sample had bachelors degrees, 32% held masters, and the balance were educated at the doctoral level. Income was consistent with education as almost 81% reported earning greater than $50,000 annually.

Gender Role Conflict

Internal consistency reliability coefficients for the four subscales in this sample of older men are: (a) Success, Power, and Competition, (.86), (b) Restrictive Emotionality, (.87), (c) Restrictive and Affectionate Behavior Between Men, (.89), and (d) Conflicts Between Work and Family Relations, (.86).

Consistent with Rogers, Abbey-Hines, and Rando (1997) Table 1 shows the intercorrelations among the four GRCS factors and indicates significant relationships among the four factors. Statistical significance for all estimated correlations were examined via the t-statistics in the LISREL output that ranged from 5.48 to 15.74 indicating that all parameters reached significance at less than the 0.01 level.
Figure 1 represents the final model of our data for the GRCS. An examination of factor loadings reveals that the 36 out of the 37 items load reasonably well with each latent variable. Using Tabachnick’s (1996) criteria for interpretation of factors, a loading of .32 is considered the lowest threshold for interpretation, and the following can act as a rule of thumb for determination of the adequacy of factor loadings: loadings in excess of .71 (50% overlapping variance) are considered excellent, .63 (40% overlapping variance) are considered very good, .55 (30% overlapping variance) are considered good, .45 (20% overlapping variance) are considered fair, and .32 (10% overlapping variance) poor.

For the subscale of Success, Power, and Competition, factor loadings range from .38 (GRC1) to .71 (GRC24). The other three subscales show much higher factor loadings with RE ranging from .56-.83, RABM .49-.84, and CBWFR .68-.88. In all, 35% of the factors load at an “excellent” level (above .71) and more than 78% load at the “very good” level (above .63).
According to Byrne (1998) an examination of the squared multiple correlations ($R^2$) can also provide guidance in the assessment of the extent to which the measurement model is adequately represented by the observed measures. Our data for the GRCS indicate that $R^2$ for each indicator shows only moderately strong measures with the indicators for SPC ranging from .15 to .50, RE .32-.69, RABM .24-.71, and CBWFR .46-.78. Table 2 includes all 37 items and their corresponding $R^2$ values.

Modification indices provide by LISREL suggested that improvements in model fit could be made by allowing some errors within the model to correlate. For example, model fit could be improved by allowing $e_{23}$ (Competing with others is the best way to succeed) and $e_{28}$ (I strive to be more successful than others) to correlate, and this would be theoretically justifiable.
Variance Explained ($R^2$) for GRCS Items and Each Subscale

<table>
<thead>
<tr>
<th>Success, Power, and Competition</th>
<th>Restrictive Emotionality</th>
<th>Restrictive and Affectionate Behavior Between Men</th>
<th>Conflicts Between Work Leisure-Family Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRC1 = .15</td>
<td>GRC2 = .44</td>
<td>GRC3 = .49</td>
<td>GRC4 = .49</td>
</tr>
<tr>
<td>GRC5 = .40</td>
<td>GRC6 = .32</td>
<td>GRC7 = .64</td>
<td>GRC11 = .46</td>
</tr>
<tr>
<td>GRC8 = .44</td>
<td>GRC9 = .47</td>
<td>GRC10 = .66</td>
<td>GRC17 = .48</td>
</tr>
<tr>
<td>GRC12 = .43</td>
<td>GRC13 = .48</td>
<td>GRC16 = .71</td>
<td>GRC27 = .62</td>
</tr>
<tr>
<td>GRC14 = .47</td>
<td>GRC15 = .67</td>
<td>GRC20 = .71</td>
<td>GRC31 = .68</td>
</tr>
<tr>
<td>GRC18 = .20</td>
<td>GRC19 = .69</td>
<td>GRC26 = .58</td>
<td>GRC36 = .78</td>
</tr>
<tr>
<td>GRC21 = .39</td>
<td>GRC22 = .35</td>
<td>GRC33 = .46</td>
<td></td>
</tr>
<tr>
<td>GRC23 = .35</td>
<td>GRC25 = .49</td>
<td>GRC35 = .24</td>
<td></td>
</tr>
<tr>
<td>GRC24 = .50</td>
<td>GRC29 = .53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRC28 = .44</td>
<td>GRC30 = .56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRC32 = .31</td>
<td>GRC34 = .44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRC37 = .41</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, despite the fact that ad hoc adjustments have become standard practice in structural equation modeling, based on relatively good fit indices and parsimony, we chose not to make adjustments to the model. Table 3 provides the fit indices for our data on older men as well as findings from 3 previous samples.
Table 3.

Goodness-of-fit Statistics for the Gender Role Conflict Scale
In Older Men

<table>
<thead>
<tr>
<th>Sample (mean age)</th>
<th>$X^2$</th>
<th>df</th>
<th>N</th>
<th>P</th>
<th>RMSEA</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>PGFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hill et al. (2003) (53)</td>
<td>2,066.75</td>
<td>623</td>
<td>378</td>
<td>.000</td>
<td>.052</td>
<td>.97</td>
<td>.97</td>
<td>.98</td>
<td>.86</td>
</tr>
<tr>
<td>Rogers et al. (1997) (22,20)</td>
<td>1,679.09</td>
<td>623</td>
<td>655</td>
<td>.001</td>
<td>.051</td>
<td>NR</td>
<td>.8522</td>
<td>NR</td>
<td>.7726</td>
</tr>
<tr>
<td>Good et al. #1 (1995) (19)</td>
<td>1,590.57</td>
<td>623</td>
<td>535</td>
<td>.001</td>
<td>.054</td>
<td>NR</td>
<td>.8314</td>
<td>NR</td>
<td>.7113</td>
</tr>
<tr>
<td>Good et al. #2 (1995) (19)</td>
<td>1,459.33</td>
<td>623</td>
<td>401</td>
<td>.001</td>
<td>.058</td>
<td>NR</td>
<td>.8072</td>
<td>NR</td>
<td>.7046</td>
</tr>
</tbody>
</table>

Note. Rogers et al. (1997), combines two samples of men with mean ages of 22 and 20 years of age for their examination of the GRCS. Also, fit indices from Good et al. (1995), are reported in Rogers et al., (1997). NR= Not reported.

Discussion

The results of this research provide additional evidence of the four factor validity of the GRCS as originally proposed by O’Neil, Helms, Gable, David, and Wrightsman (1986). Prior to this research, evidence of the scales validity with older men was lacking. No other studies to date have examined the psychometric properties of the GRCS with respect to older men, given the potential for GRC to represent dynamic properties over the life-course.

Within our sample of older men, the 37 items of the GRCS appear to represent the four dimensions of SPC, RE, RABM, and CBWFR fairly well. The factor loading of a single item (GRC1) appears to fall below our established values for evidence of at least “fair” overlapping variance. Given that 17% of our sample
reported being retired, this finding may be theoretically relevant (GRC1, “Moving up the career ladder is important to me”). Many older men may indeed not have significant motivation to move up the career ladder. Despite this, the balance of the factor loadings for Success, Power, and Competition appear reasonable and indicate a strong component of this construct among older men in our sample, essentially no different from men of other ages.

Evidence from an examination of the goodness-of-fit statistics indicate that our research on the GRC model suffers from the same problems of many others with respect to using the $\chi^2$ value to evaluate model fit. If the decisional balance of accepting or rejecting this model rested with the $\chi^2$ alone, we would have to conclude that the data do not fit the hypothesized structure of the model. However, basis for determining model fit should rest with a number of fit indices as very few models could satisfy the requirements of the $\chi^2$ statistic.

Goodness-of-fit statistics for our research reveal that in general, the model fits very well. The RMSEA of .052 is consistent with previous research showing an “acceptable” measure of fit between the data and the model. In addition, the 90% confidence interval (0.048 ; 0.056) reported by LISREL indicates that the range of potential values likely falls within an acceptable limits, potentially showing a “good” fit as opposed to “acceptable”.
Figure 2. Final Model for the Gender Role Conflict Scale
Of particular note with our data, the balance of the goodness-of-fit statistics appear to improve upon previous findings regarding the validity of the GRCS. The goodness of fit index and adjusted goodness of fit index (.97 and .97) respectively each indicate that the model fits the data reasonably well. In addition, the comparative fit index (as it adjusts the normed fit index for small samples) also suggests a good model fit. Last, and perhaps most striking is that the model appears to score well with respect to parsimony. Previous to our research, no sample met the lower bounds criteria of .80 (James, Mulaik, & Brett, 1982) for model parsimony.

Although the present study contributes valuable information regarding the validity of the GRCS among older men, continued testing of this scale within more heterogeneous populations should follow. Questions regarding the validity of the scale within various racial categories, levels of socioeconomic status (SES), and possible subtle differences across life-span should be explored.

Our research is limited by virtue of the homogeneity of our sample, namely the fact that we surveyed mostly high SES, educated, white men. In addition, because structural equation modeling generally has high requirements for sample size, we would have greater confidence with our conclusions given greater numbers of older men. Despite this, it appears that the GRCS functions well within older men and has comparable or superior validity to younger populations.
References


ARTICLE 2: MULTIDIMENSIONAL SOCIAL SUPPORT IN OLDER MEN: THE IMPACT OF GENDER ROLE CONFLICT.

Abstract

This study examined the impact of gender role conflict on the perception of the availability of social support in a sample of older men. Three-hundred eighty-nine men completed a survey measuring gender role conflict and multidimensional social support. Stepwise regression results indicated that Restrictive Emotionality and Restrictive and Affectionate Behavior Between Men combine to explain about 11% of the variance in reported social support. Canonical correlation was used to explore possible dimensions between the four gender role conflict factors and differing dimensions of social support. Only one canonical variate was interpretable and indicated that all four subscales of the GRCS appeared inversely related to Emotional/Informational Support, Affective Support, and Positive Social Interaction. Study limitations and directions for future research are discussed.

Introduction

The explanatory power of social support on health outcomes has expanded in the last twenty years to suggest that health scientists not only utilize this construct in planning interventions, but to continue to inquire about how to improve our understanding of how it operates in the lives of diverse populations.

While it has been suggested that social support operates differently between the men and women, few have provided empirical evidence that would improve out understanding of the correlates of social support related to gender ideologies. The purpose of this research is to examine the extent to which
perceived social support may be impacted by gender role conflict within older men.

Background Literature

Health promotion literature is replete with studies linking social support to health outcomes. Among these, the seminal works of Berkman and Syme (1979), and House, Robbins, and Metzner (1982) demonstrate that a positive relationship exists between social support and health practices. Despite significant heterogeneity in the theoretical ideology of social support, many health promotion specialists subscribe to stress buffering hypothesis whereby the perception of the individual of the availability of social support buffers against a variety of threatening stressors (Cohen & Wills, 1985).

Stress-centered models of social support posit that social support is primarily beneficial for persons under stress, and that the perception of adequate support may mediate the experience of stress and the onset of a negative health outcomes through one of four mechanisms: (a) bolstering the ability to cope with the stressor, (b) eliminating the affective reaction, (c) influencing physiologic processes, or (d) altering maladaptive behavior responses (Cohen, 1988). A further requirement of stress-centered models asserts that the form social support takes must match the needs of the individual who experiences the stressor.

Of particular interest to social support theorists are the differences that men and women appear to exhibit in relation to the availability and utilization of social support. While research on the health effects of social support and women is just
beginning to catch up with men, a number of generalities exist in the literature to provide some guidance. Men are less likely than women to report having a close confidant, and are more likely to list their spouse (as opposed to someone else) as a confidant (Antonucci & Akiyama, 1987). Men’s social relationships emphasize the performance of tasks while women’s center around intimacy and disclosure with a much greater network of family or friends (see, Buhrke & Fuqua, 1987; Antonucci & Akiyama, 1987). These ideas may explain why men appear to derive greater support benefit from marriage than women in studies of mortality risk.

Berkman and Syme (1979) followed mortality for 6928 individuals aged 30-69 and found a significant protective effect of marriage on men, but not women. This finding has since been replicated numerous times. House, Robbins, and Metzner (1982), and Kaplan et al, (1988) both found that marriage had a differential effect on mortality that favored men. Men’s single reliance on their spouse as source of social support may be related to the way that they are conditioned by society according to normative behavior and stereotypes that prescribe limits on supportive activities of male-male friendships (Pleck, 1976; Rubin, 1983). For example, men are supposed to be different than women, superior, independent and self-reliant, and more powerful than others (Brannon, 1976). In this sense, social support in itself is inimical to the way the way that men are conditioned to view their gender identity, and it’s likely that the most potent effects of social support with men are observed only within single male-female relationships where men have social “permission” to receive support.
Social science has just begun to investigate the relationships between socially prescribed gender roles and a variety of psychosocial and health outcomes, and few studies exist examining the ways in which men’s gender roles may influence the provision or receipt of social support. Butler, Giordano, and Neren (1985) examined sex-role attributes as predictors of the utilization of support systems during stressful events of 100 male and female graduate students. Despite equal amounts of reported stress, males in this study perceived their environments offering less help, and men requested less help than their female counterparts. For males, the sex-role trait of femininity was significantly associated with “support asked for”, meaning that the more one identified with female traits, the more it appeared acceptable to ask for help when needed.

Of particular interest in view of the stress-buffering hypothesis of social support is the relatively new idea of gender role conflict. O’Neil (1981) describes gender role conflict as, “A psychological state where sex roles have negative consequences or impacts on the person or on others. The ultimate outcome of this conflict is the restriction of the person’s ability to actualize their human potential or the restriction of someone else’s potential (p. 61).” Gender role conflict occurs when ridged gender roles prescribe limitations on value systems and behaviors of men and has recently been implicated in a number of important health and psychological outcomes including men’s reluctance to seek psychological help (Good, Dell, & Mintz, 1989), lower self-esteem (Cournoyer & Mahalik, 1995), higher depression and anxiety (Cournoyer & Mahalik, 1995; Sharpe & Heppner, 1991), less capacity for intimacy (Cournoyer & Mahalik, 1995).
Recognizing that the breadth men's social support is most likely comes from single or limited sources, the relationship between gender role conflict and less capacity for intimacy suggests that gender role conflict may significantly interact with the availability of social support.

Purpose of the Study

The purpose of this study is to explore the relationship between gender role conflict and the perception of the availability of multidimensional social support in a sample of older males. Specifically, we hypothesized that men who exhibit greater gender role conflict will report less availability of social support. In addition, based on the strength of previous research and the knowledge that most men derive their support from limited sources, we suggest that restrictive emotionality will have the greatest impact on social support.

Methods

Sample & Data Collection

The sample for this study was obtained from an alumni list of a large northwestern university and included names, sex, addresses, age, and electronic mail address (when available) for sampling purposes. After selecting females out, a total of 1546 male alumni aged 40 and over had electronic mail addresses available. Of these, a 50% random sample (n= 733) was selected to receive an electronic invitation to participate in the survey on-line. Combined with the
electronic survey, a traditional paper/pencil survey was sent to 675 randomly
selected male alumni who did not have an electronic address available, from a
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Original internal consistency scores using Cronbach’s alpha ranged from .75 to .85 for each subscale for a sample of college age men and have since been replicated in numerous other studies. O’Neil and Owen (1994) summarized 11 studies using the GRCS and found average reliabilities ranging from .81 to .90 for subscale scores. Validity of the scale with younger men has been established for some time (e.g. see Good et al., 1995; Rogers, Abbey-Hines, & Rando, 1997), and was tested in the current sample of older men through confirmatory factor analysis and found superior to previous work (see Hill and Donatelle, 2003).

The MOS Social Support Survey is a 19-item instrument designed to measure the perceived availability of four types of social support: (a) emotional/informational support, (b) tangible support, (c) affectionate support, and (d) positive social interaction (Sherborne & Stewart, 1991). Participants are asked to rate how often certain types of support are available to them using a 5-point likert-type scale (1=none of the time, 5=all of the time). The original study reported internal consistency coefficients ranging from .91 (affective support) to .96 (emotional/informational support), with a total scale reliability reported at .97. Validity was examined through the use of Person product moment correlations
between the scale and other measure of social functioning including loneliness, family functioning, marital functioning, and social activity and role limitations.

**Date Preparation & Procedure for Analysis**

All data analysis was conducted through SPSS Base 11.5 (for Windows, SPSS Inc., Chicago, IL) and began with 403 cases. After deleting 14 cases with missing data exceeding 10%, 389 cases were available for analysis. Seventy-three cases contained between 1-3 missing data points (65 possible data points) and were screened through the SPSS missing value routine to investigate both individual and pairwise patterns. No patterns were found, and no variable had greater than 2% occurrence of missing values. An Expectation-Maximization procedure was utilized to impute missing values for the incomplete 73 cases.

Following the imputation of missing values, standardized scores for individual variables were used to determine that there were not univariate outliers. Frequency distributions for each subscale score of the GRCS and the total social support score from the MOS Social Support Survey indicated that skewness and kurtosis were not problems in this data set. Mahalanobis $D^2$ statistics using SPSS regression were examined to rule-out multivariate outliers using a cut-off value of $\chi^2(2)=13.8$ (p=.001). Pearson product moment correlations in Table 1 ranged from -.309 to .568 for variables used in the regression ruling-out multicollinearity.

T-tests on individual items and type of survey method (web-based or paper/pencil) were examined to conclude that there was no difference in response based solely upon how the survey was conducted.
Table 4

Correlation Matrix for Subscale Scores
And Total Social Support (N=389)

<table>
<thead>
<tr>
<th></th>
<th>SPC</th>
<th>RE</th>
<th>RABM</th>
<th>CBWL</th>
<th>Total Social Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC</td>
<td>---</td>
<td>.489**</td>
<td>.461**</td>
<td>.439**</td>
<td>-.252**</td>
</tr>
<tr>
<td>RE</td>
<td>---</td>
<td>.568**</td>
<td>.338**</td>
<td>-.309**</td>
<td></td>
</tr>
<tr>
<td>RABM</td>
<td>---</td>
<td></td>
<td>.276**</td>
<td>-.286**</td>
<td></td>
</tr>
<tr>
<td>CBWLFR</td>
<td>---</td>
<td></td>
<td></td>
<td>-.201**</td>
<td></td>
</tr>
<tr>
<td>Total Social Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>---</td>
</tr>
</tbody>
</table>

Note 1  SPC= Success, Power, and Competition; RE= Restrictive Emotionality; RABM= Restrictive and Affectionate Behavior Between Men; and CBWL= Conflicts Between Work and Leisure- Family Relations.

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

Following data preparation and screening, stepwise multiple regression was used to determine the extent to which gender role conflict impacts perceived social support among men. Following the regression, canonical correlation will be used to explore which of the four dimensions of social support interact greatest with the four dimension of gender role conflict.

Results

Sample

The study sample consisted of male university alumni aged 40 and over who agreed to participate in the research. The mean age of study participants at the time of the study was 53 years (SD = 9.07) and ranged from 40-86 years. The majority of participants were white (93%), married or a member of a couple (85%), and currently employed (78%). Based upon our focus on older men, it was
expected that we would see a significant number of men who were retired though only 17% of the sample identified so. Educational status and income were also anticipated to be high given the nature of the sample. Forty-seven percent of the sample had bachelors degrees, 32% held masters, and the balance were educated at the doctoral level. Income was consistent with education as almost 81% reported earning greater than $50,000 annually.

**Gender Role Conflict & Multidimensional Social Support**

Internal consistency reliability coefficients for the four subscales of gender role conflict in this sample of older men are: (a) Success, Power, and Competition, (.86), (b) Restrictive Emotionality, (.87), (c) Restrictive and Affectionate Behavior Between Men, (.89), and (d) Conflicts Between Work and Family Relations, (.86).

For multidimensional social support using the MOS Social Support Survey, subscale reliability coefficients include; (a) Emotional/Informational Support, (.95), (b) Affectionate Support, (.90), (c) Tangible Support, (.91), and (d) Positive Social Interaction, (.90). The internal consistency coefficient for overall social support was .96.

Means and standard deviations for continuous variables are shown in Table 2. Higher scores on the GRCS indicate more gender role conflict specific to each subscale, and higher scores on the MOS Social Support Scale indicate more perceived social support.
Table 5

Means and Standard Deviations
For Continuous Variables (N=389)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>53.2</td>
<td>9.1</td>
</tr>
<tr>
<td>Gender Role Conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPC</td>
<td>43.95</td>
<td>10.22</td>
</tr>
<tr>
<td>RE</td>
<td>31.79</td>
<td>9.54</td>
</tr>
<tr>
<td>RABM</td>
<td>25.26</td>
<td>7.83</td>
</tr>
<tr>
<td>CBWL</td>
<td>21.10</td>
<td>6.74</td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional/Informational</td>
<td>30.41</td>
<td>7.02</td>
</tr>
<tr>
<td>Affectionate</td>
<td>16.79</td>
<td>3.53</td>
</tr>
<tr>
<td>Tangible</td>
<td>12.55</td>
<td>2.80</td>
</tr>
<tr>
<td>Positive Social Interaction</td>
<td>12.14</td>
<td>2.51</td>
</tr>
<tr>
<td>Total Support</td>
<td>71.90</td>
<td>14.03</td>
</tr>
</tbody>
</table>

Regression & Canonical Correlation Analysis

A stepwise multiple regression analysis was done on the total social support score using the subscale scores of the Gender Role Conflict Scale. A total of 11% of the variance was explained in the total social support score by the gender role constructs of Restrictive Emotionality and Restrictive and Affectionate Behavior Between Men.

Because the subscales of the GRCS were all significantly intercorrelated and we wanted to describe what types of social support may be most related to gender role conflict, canonical correlation was used to explore the possible relationships between all of the dimensions for both scales. Variables in set 1 include the subscale scores of SPC, RE, RABM, and CBWL from the GRCS.
Variables in set 2 include the subscale scores from the MOS Social Support Survey of Emotional/Informational Support, Affectionate Support, Tangible Support, and Positive Social Interaction.

Table 6
Stepwise Multiple Regression of Predictor Variables
On Total Social Support Score (N=389)

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable Entered</th>
<th>Adjusted R2</th>
<th>F to Enter</th>
<th>R2 Change</th>
<th>p Change</th>
<th>Beta In</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RE</td>
<td>.093</td>
<td>40.99*</td>
<td>.096</td>
<td>.000</td>
<td>-.309</td>
</tr>
<tr>
<td>2</td>
<td>RABM</td>
<td>.109</td>
<td>24.75*</td>
<td>.018</td>
<td>.006</td>
<td>-.163</td>
</tr>
</tbody>
</table>

*p = 0.00; RE = Restrictive Emotionality, RABM = Restrictive Affectionate Behavior Between Men.

The first canonical variate accounted for 18% of the overlapping variance and had canonical correlation of .423. The second canonical correlation failed to reach statistical significance (p=.071) and accounted for only 3% of overlapping variance between the two sets of variables.

Canonical variate #1 appeared strongly influenced by SPC, RE, and RABM and were inversely related to Emotional/Informational Support, Affectionate Support, and Positive Social Interaction. Those subjects who scored high on SPC, RE, and RABM tended to score lower on Emotional/Informational Support, Affectionate Support, and Positive Social Interaction. This inverse relationship was especially true between Restrictive Emotionality on the Gender Role Conflict side, and the perception of Emotional/Informational Support on the Social Support side. Table 4 includes the summary statistics from the canonical correlation.
Table 7
Canonical Correlation Analysis for Predictor Variables of Gender Role Conflict (Set 1) and Multidimensional Social Support (Set 2) (N=389)

<table>
<thead>
<tr>
<th>Variable Sets</th>
<th>Canonical Variate 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictor Set 1</strong></td>
<td></td>
</tr>
<tr>
<td>SPC</td>
<td>.701</td>
</tr>
<tr>
<td>RE</td>
<td>.955</td>
</tr>
<tr>
<td>RABM</td>
<td>.701</td>
</tr>
<tr>
<td>CBWL</td>
<td>.408</td>
</tr>
<tr>
<td><strong>Predictor Set 2</strong></td>
<td></td>
</tr>
<tr>
<td>Emotional/Informational</td>
<td>-.898</td>
</tr>
<tr>
<td>Affectionate</td>
<td>-.737</td>
</tr>
<tr>
<td>Tangible</td>
<td>-.296</td>
</tr>
<tr>
<td>Positive Social Interaction</td>
<td>-.738</td>
</tr>
<tr>
<td>Canonical Correlation</td>
<td>.423</td>
</tr>
<tr>
<td>Explained Variance</td>
<td>18%</td>
</tr>
</tbody>
</table>

*Note: Cutoff for interpretation is .300.*

Discussion

The findings of the regression analysis suggest that perception of the availability of social support among older men in our sample can be partly explained by the degree to which the men exhibit gender role conflict. Restrictive emotionality and Restrictive and Affectionate Behavior Between Men explain nearly 11% of the variance in total social support and confirm the inverse nature of the relationship.

The canonical correlation analysis supported the findings from regression in that 18% of the shared variance between the four subscales of gender role conflict, and the four dimensions of social support was explained. This analysis fell short, however, in describing any multiple dimensions along which these
variables were related and determined that there was only a single canonical variate that was both interpretable and practically relevant. Within this variate, all four subscales of gender role conflict on one side appear to be inversely related to Emotional/Informational Support, Affectionate Support, and Positive Social Interaction.

Particularly relevant from a theoretical sense is that the highest canonical loading for the gender role conflict variables was Restrictive Emotionality (.955), and the highest loading for the social support variables was Emotional/Informational Support (-.898). This finding is consistent with Sharpe & Heppner (1991) who found a similar inverse pattern of canonical loadings with respect to the gender role conflict subscale of Restrictive Emotionality and the Miller Social Intimacy Scale among a sample of college-age men. It appears that restrictive emotionality within men interacts with perceived social support across the life-span, and that this relationship may represent a potent predictor in the gender gap of social support.

Several limitations exist in this study suggesting a tentative conclusion. First, response rates for our survey were relatively low suggesting that those men who returned the survey may not represent the population as a whole. Secondly, by virtue of the cross-sectional nature of this study, effects observed may be related to cohort effects or localized societal effects that would not be generalizable to older men as a whole. Third, our sample is limited to upper-class, educated, white males. Because gender role expectations may be dynamic across age and culture, these results should not be generalized outside of this
population. We did not gather data on the potential sources of social support in this sample. Although our analysis was based on the amount of perceived social support within older males, we cannot speculate on the impact of gender role conflict on single or multiple sources of social support.

Despite the limitations, this research underscores the need to examine gender roles issues in relation to the powerful mediator of social support in men. It provides preliminary evidence that gender role conflict is related to how men perceive the availability of social support within the context of their lives. Future research should replicate these results in a more heterogeneous sample of men, and attempt to validate the relationship of gender role conflict and social support on health behavior or health outcome data. Furthermore, subsequent inquiry should address how gender role conflict impacts specific sources of social support. For example, which elements of gender role conflict appear to have the greatest effects on multidimensional social support derived from differing sources (e.g., male friends, female friends, spouse or “significant other”)? Are these relationships consistent across the lifespan? Answers to these questions may explain the differential health effects of marriage on men, as well as provide clues for disease prevention and health promotion practitioners.
References


ARTICLE 3: THE STRUCTURAL RELATIONSHIP AMONG GENDER ROLE CONFLICT, SOCIAL SUPPORT, AND HEALTH BEHAVIOR IN OLDER MEN.

Abstract

Gender role conflict in men has been associated with lower ego identity, lower self-esteem, higher anxiety and less help-seeking behavior. This research seeks to examine the relationships among gender role conflict, perceived social support, and health behaviors among a sample of older men. A survey instrument measuring these constructs was administered to a sample of 225 male university alumni aged 50-70. Structural equation modeling was used to determine that there appears to be a negative relationship between gender role conflict and social support and a positive relationship between health promoting behaviors and health seeking behaviors within the sample. Additional findings, study limitations, and directions for future research are discussed.

Introduction

As Banks (2001) notes, men's health is a bit of a contradiction in terms. In the United States today, Men die at greater rates of nearly every non-sex specific cause at greater rates than females. While it is tempting to reduce the explanation for this to biological processes that predispose men to early death, science has yet to account for the differential in death to a genetic predisposition alone.

Another possibility exists to account for the differential in mortality, that is, patterns of negative health behaviors that appear gendered in terms of traditional male socialization. In reviewing men’s health literature, Lloyd (1996) identified
three prominent definitions of men’s health: (1) Men’s health is biological; (2) Men’s health is about risk and risk-taking; and (3) Men’s health is primarily about masculinity, the process of learning to be a man, and the impact this process has on the way men perceive their health. Research has taken note of these themes and has begun to examine the interaction between how men are socialized into traditional roles and the subsequent consequences to health.

Traditional masculine qualities have been associated with a number of negative traits in men including emotional inexpressiveness (Pleck, 1981), health risk behaviors (Eisler, Skidmore, & Ward, 1988), increased stress (Eisler & Skidmore, 1987), decreased psychological well-being (Sharpe & Heppner, 1991), and decreased psychological help-seeking (Wisch, Mahalik, Hayes, and Nutt, 1995).

To operationalize the idea that traditional male roles are dysfunctional, O’Neil (1981) proposed the construct of Gender Role Construct defined as a psychological state that occurs when “rigid, sexist, or restrictive gender roles, learned during socialization, result in personal restriction, devaluation, or violation of others or self” (O’Neil, 1990, p. 25). This construct would suggest that restrictive gender roles place restrictions on men’s behaviors that may lead to a variety of negative consequences to personal achievement and health.

Gender role conflict consists of four factors: (1) success, power, and competition (SPC); (2) restrictive emotionality (RE); (3) restrictive affectionate behavior among men (RABM); and (4) conflict between work and family relations (CBWFR) (O’Neil, Good, & Holmes, 1985). SPC is a measure of the emphasis
that a man places on achievement, authority, and competition with others to succeed. RE embodies the difficulty that men have with emotional self-disclosure and emotional expressiveness of others. Similarly, RABM reflects the discomfort that many men feel with expressions of caring between men. Last, CBWFR refers to the distress the men experience between conflicting demands of family life and personal and family life.

Gender Role Conflict and Social Support

Within the last 15 years there has been increased emphasis on research explicating the links between social support constructs and various health outcomes. Social support is broadly defined as resources and interactions provided by others that may be useful for helping a person to cope with a problem. Under this definition, there appears to be several separate theoretical bases for understanding how individuals interact with others to modify health outcomes.

Cohen, Gottlieb, and Underwood (2000) state there exist two dominant perspectives for examining how social support fits into an array of influences on health. The stress-buffering model proposes that support is related to well-being only for persons under stress. The main, or direct effect model proposes that social resources have a beneficial effect irrespective of whether persons are under stress. Generally, perceived availability of social resources is most often associated with a stress buffering effect, whereas integration within a social network has been linked most strongly with the direct effects hypothesis.
While each tradition of inquiry has provided a better understanding of how interpersonal relationships and networks influence health, in view of the pervasive effects of gender role conflict on men, an examination of the stress and coping perspective of social support warrants attention. Lakey and Cohen (2000) state that the stress and coping philosophy hypothesizes that support reduces the effects of stressful life events on health through either the supportive actions of others or the belief that support is available. In this, the stress-support matching hypothesis holds that social support will be effective in improving outcomes insofar as the form of the assistance matches the demands of the stressor. This view states that each stressful circumstance places specific demands on the affected individual and that social support can work to either promote coping or lessen the effects of the stressor.

Illustrating this, a man may feel a significant level of gender role conflict when confronted with the need to have a digital rectal exam to screen for prostate cancer. The conflict results from social norms that prescribe him to behave as "invulnerable", "tough", and "macho", and homophobic stereotypes suggesting that rectal exams by a healthcare professional can be likened to homosexual activity. The stress coping perspective would claim to have some influence through social support via possibly a spouse or significant other making the appointment for the man (as he would not do it on his own) and applying pressure for him to attend. In this manner, the supporter provides instrumental support that buffers the effects of the gender role conflict and leads to a positive health outcome.
Support for the stress buffering effect of social support comes from a variety of sources. Cohen & Hoberman (1983) report a significant stress buffering effect on depressive and physical symptoms within a sample of undergraduate students. Another longitudinal study of college students measured stress and symptoms at the onset of the study, and stress, social support, and symptoms again two months later (Cohen, McGowan, Fooskas, Rose, 1984). Time two analyses predicted scores on depression and physical symptomatology even controlling for time 1 effects. Others have examined the stress buffering hypothesis for utility in smoking cessation programs and found a consistent effect between quitting smoking and social support.

A significant body of literature exists showing the relationship between various health constructs and multidimensional functional social support in diverse populations. Many of the questions that have been addressed include relative impacts of social support on human physiology, incident disease and mortality in caregiving populations, support and recovery from illness, and adjustment to a variety of specific disease processes (e.g., cancer, arthritis, diabetes, hemodialysis, and HIV/AIDS). Of particular interest within the worldview of health promotion is the effects of social support on health behaviors, both harmful and protective that may contribute to the evolution of disease or improve outcomes.

While no study has yet addressed the relationship between perceived social support and gender role conflict, the interaction seems intuitive. All four constructs of the gender role conflict scale have interactive themes, that is, they function within a sphere of interpersonal interaction for the male. The construct of
success, power, and competition would suggest that a man should compete with others to achieve dominance, supremacy, and power. Restrictive emotionality and restrictive affectionate behavior between men both limit the type, amounts, and sources of social support that can be utilized by a male to buffer the stresses of life. Conflicts between work and family relations suggests that the one "appropriate" source of support (i.e. heterosexual relationship at home, wife or other) may be limited by virtue of the demands of work or school. In all, a high degree of gender role conflict is very likely to interact negatively with perceived social support within males.

Purpose of the Study

Given the nature of gender role conflict as a stress producing mechanism within the lives of men, and the well supported nature of social support on stress, this research seeks to examine the direct effects of gender role conflict on social support and both health promoting and health seeking behaviors. Additionally, through survey methodology, we will examine the effects of social support on health seeking and health promoting behavior. Based on recommendations for cancer screening within older male populations (as part of health seeking behavior) our focus will be limited to males aged 40 and over. For this study, the following hypotheses will be tested:

- Men who report greater gender role conflict will report less perceived social support, less participation with health seeking behaviors, and less practice of health promoting behaviors.

- Men who report greater perceived social support will report greater participation in health seeking and health promoting behaviors.
Men who report greater participation in health promoting behaviors will also report greater participation in health seeking behaviors.

Methods

Sample & Data Collection

A large western university foundation provided an alumni list including names, sex, addresses, age, and electronic mail address (when available) for sampling purposes. After selecting females out, a total of 1546 male alumni aged 40 and over had electronic mail addresses available. Of these, a 50% random sample (n= 733) was selected to receive an electronic invitation to participate in the survey on-line. Combined with the electronic survey, a traditional paper/pencil survey was sent to 675 randomly selected male alumni who did not have an electronic address available, from a sampling frame of nearly 12,200 older men.

For the electronic survey, an electronic letter was sent out inviting the men to participate in a survey addressing men’s health issues. Incorrect email addresses accounted 159 of the 733 invitations, and 4 men sent emails back declining to participate in the study. Additionally, a number of men sent messages back agreeing to participate but unhappy to have been contacted by means of unsolicited electronic mailings. For this reason, the planned follow-up that included reminder electronic messages was omitted and final response included 147 completed surveys (26%).

For the paper and pencil survey, the 675 invitations were sent out followed by two successive reminder postcards spaced 3 weeks apart. Surveys were
originally labeled with a numbering system so that those who responded would not be re-contacted with reminder postcards. Incorrect mailing addresses accounted for 38 of the 675 invitations, and 256 completed surveys were returned by the end of the study period for a response rate of 40%.

From both surveys, the total number of completed surveys was 403 for men aged 40 and older. Based on age specific recommendations for screening for prostate and colon cancer, men aged 40-49 we selected out leaving 225 cases available for analysis.

**Survey Instruments**

The 125-item survey instrument was composed of: (1) the Gender Role Conflict Scale; (2) the MOS Social Support Survey; (3) the Motivation for Healthiness (MFH) subscale of the Multidimensional Health Questionnaire (Snell & Johnson, 1997); health behavior questions derived from the year 2001 Behavioral Risk Factor Surveillance System Survey (Centers for Disease Control and Prevention, 2002) and Bausell’s (1986) inventory of health behaviors. Additionally, questions were asked to determine body mass index and salience/coherence of cancer screening activities. The latent constructs specified in the hypothesized model include gender role conflict, social support, health seeking behavior, and health promoting behavior.

**Gender Role Conflict**
The Gender Role Conflict Scale (GRCS; O’Neil et al., 1986) is a 37-item instrument designed to measure the extent to which men experience, "A psychological state in which gender roles have negative consequences or impact the individual or others" (O’Neil, 1990, p.25). More specifically, men are asked to report the degree to which they agree or disagree with 37 statements concerning gender role behaviors and feelings on Likert-type scales ranging from 1 (strongly disagree) to 6 (strongly agree). Four subscale scores can be calculated for each subject including: (a) Success, Power, and Competition (SPC); (b) Restrictive Emotionality (RE); (c) Restrictive Affectionate Behavior Between Men (RABM); and (d) Conflicts Between Work and Family Relations (CBWL).

Original internal consistency scores using Cronbach’s alpha ranged from .75 to .85 for each subscale for a sample of college age men and have since been replicated in numerous other studies. O’Neil and Owen (1994) summarized 11 studies using the GRCS and found average reliabilities ranging from .81 to .90 for subscale scores. Validity of the scale with younger men has been established for some time (e.g. see Good et al., 1995; Rogers, Abbey-Hines, & Rando, 1997), and was tested in the current sample of older men through confirmatory factor analysis and found superior to previous work (see Hill and Donatelle, 2003).

Individual indicators of gender role conflict include the four subscales of the GRCS scale.

Social Support
The MOS Social Support Survey is a 19-item instrument designed to measure the perceived availability of four types of social support: (a) emotional/informational support, (b) tangible support, (c) affectionate support, and (d) positive social interaction (Sherborne & Stewart, 1991). Participants are asked to rate how often certain types of support are available to them using a 5-point likert-type scale (1=none of the time, 5=all of the time). The original study reported internal consistency coefficients ranging from .91 (affective support) to .96 (emotional/informational support), with a total scale reliability reported at .97. Validity was examined through the use of Person product moment correlations between the scale and other measures of social functioning including loneliness, family functioning, marital functioning, and social activity and role limitations.

Individual indicators of social support include the four subscales of the MOS Social Support Survey.

Health Promoting Behavior

Snell & Johnson (1997) developed the Multidimensional Health Questionnaire (MHQ) in response to a need to broaden the scope of the psychological, individual tendency approach within the study of health behaviors. The MHQ contains twenty subscales, one of which was selected for use in this study (Motivation for Healthiness- MFH). Five Likert scale items assess MFH asking subjects to rate the degree to which a statement describes a quality within themselves (1, not at all characteristic; 5 very characteristic). For example, subjects may be presented with “I am very motivated to be physically healthy” or
"I strive to keep myself in tip-top physical shape". These authors report that preliminary evidence using a sample of male and female college students indicates that internal consistency using Cronbach’s alpha was .87 for the MFH subscale. Additionally, validity was examined by correlating subscale measures from the MHQ with actual reports of subject health behavior. Study hypotheses were supported showing consistent magnitude and direction for correlations.

Additionally, health promoting or protective behaviors were measured which asked subjects to respond to 12 questions with a yes/no response. Question format was adopted from Bausell (1986) and the 2001 Behavioral Risk Factor Surveillance System Survey (Centers for Disease Control and Prevention, 2002) and addressed diet, exercise, safety, and sunburn avoidance. Examples of questions include: “Do you always wear your seatbelt while in an automobile?”, “Have you had a sunburn within the past 12 months including any time that even a small part of your skin was red for more than 12 hours?”, or “Do you exercise at least three times a week so that you breathe heavily and your pulse is accelerated for at least 20 minutes.” The subjects score on health promoting behaviors was determined by the total count of positive health behaviors (negative health behaviors were reverse coded).

Last, self-reported height and weight were collected for the calculation of body mass index (weight in kg / (height in meters)^2).
Health seeking behavior was measured through 8 items asking subjects to respond to questions such as “How long has it been since you last visited a dentist or a dental clinic for any reason?” or “During the past 12 months, have you had a flu shot?” or “A Prostate-Specific Antigen test, also called a PSA test, is a blood test used to check men for prostate cancer. Have you had a PSA test within the last 12 months?” Topics for questions included colon cancer screening, prostate cancer screening, flu vaccination, routine medical visits, routine dental visits, and cholesterol testing.

Salience and coherence of cancer screening was measured by 10 items suggested by Myers et al. (1994) and adopted to include colon cancer in addition to prostate cancer. Items used a likert-type scale each having the same four levels of response (1= Strongly Disagree, 4=Strongly Agree). For example, men were asked “I believe that going through prostate/colon cancer screening would help me to be healthy”, or “I think that going through prostate/colon cancer screening is too much trouble for what I would get out of it”. Initial internal consistency was reported via a Cronbach’s alpha of 0.72.

Data Preparation & Procedure for Analysis

Data preparation was conducted through SPSS Base 11.5 (for Windows, SPSS Inc., Chicago, IL) and analysis was conducted through LISREL 8.5 (SSI, Scientific Software International, Lincolnwood, IL). Data screening began with 225 cases. Missing data was found randomly scattered in only 12 cases and subsequently imputed using the SPSS missing value routine and the Expectation-
Maximization method. Means were examined after imputation and revealed no change.

Four cases were removed from the data set due to extreme values (cut-off for univariate outliers -3.29 to 3.29), leaving 221 cases for analysis. Frequency distributions for each variable indicated that skewness and kurtosis were not problems in this data set. Pearson product moment correlations in Table 1 ranged from -.001 to .76 for variables used in the analysis ruling-out multicollinerity.

T-tests on individual items and type of survey method (web-based or paper/pencil were examined to conclude that there was no difference in response based solely upon how the survey was conducted.

Following data screening, structural equation modeling will be used to test study hypotheses. Several fit statistics were selected to evaluate how the data fit the hypothesized four factor model. The conventional chi-square statistic is traditionally reported in analysis of latent structures as a means to test the closeness of fit between the unrestricted sample covariance matrix (S) and the restricted covariance matrix $\Sigma(\theta)$. Because the researcher typically wants to fail to reject the null hypothesis that the two covariance matrices are different, any statistically significant $\chi^2$ value would suggest less than ideal fit within the model. However, as Byrne (1998) notes, the sensitivity of the $\chi^2$ statistic to the large samples required within structural equation modeling process creates an unrealistic single measure of fit adequacy. As a result, assessment of model fit will also include: (a) goodness of fit index (GFI), (b) adjusted goodness of fit index (AGFI),
(c) comparative fit index (CFI), (d) and the root mean square error of approximation (RMSEA).

The GFI, AGFI, and CFI statistics range from 0 to 1 with values greater than 0.90 indicating a good model fit. For the RMSEA, a value of .05 and less indicates a good fit, values greater than .05 up to .08 reflecting a reasonable fit, and those .10 and higher indicating a poor model fit.
Table 8
Correlation Matrix for Gender Role Conflict, Social Support, and Health Behavior Variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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<th>10</th>
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<th>12</th>
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<tbody>
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<tr>
<td>SSTANG</td>
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<tr>
<td>SSAFF</td>
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<td>SSPSI</td>
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<td>.786**</td>
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<tr>
<td>MFH</td>
<td>.027</td>
<td>.856</td>
<td>.027</td>
<td>.053</td>
<td>1.00</td>
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<td></td>
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</tr>
<tr>
<td>BMI</td>
<td>-.033</td>
<td>-.005</td>
<td>-.046</td>
<td>-.068</td>
<td>-.403**</td>
<td>1.00</td>
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<tr>
<td>HBEHAVIOR</td>
<td>-.023</td>
<td>.069</td>
<td>.082</td>
<td>.070</td>
<td>.459**</td>
<td>-.220**</td>
<td>1.00</td>
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<tr>
<td>HSERVICES</td>
<td>-.031</td>
<td>.074</td>
<td>-.008</td>
<td>.016</td>
<td>.210**</td>
<td>-.029</td>
<td>.278**</td>
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<td></td>
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<tr>
<td>SAL/COH</td>
<td>.049</td>
<td>.092</td>
<td>.023</td>
<td>.051</td>
<td>.185**</td>
<td>-.111</td>
<td>.177**</td>
<td>.403**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPC</td>
<td>-.261**</td>
<td>-.084</td>
<td>-.216**</td>
<td>-.177**</td>
<td>.152</td>
<td>-.115</td>
<td>.017</td>
<td>.091</td>
<td>-.001</td>
<td>1.00</td>
<td></td>
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</tr>
<tr>
<td>RE</td>
<td>-.333**</td>
<td>-.079</td>
<td>-.234**</td>
<td>-.264**</td>
<td>.021</td>
<td>-.042</td>
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<td>.045</td>
<td>.472**</td>
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<tr>
<td>RABM</td>
<td>-.260**</td>
<td>-.088</td>
<td>-.162*</td>
<td>-.164*</td>
<td>.062</td>
<td>-.083</td>
<td>.053</td>
<td>-.007</td>
<td>-.009</td>
<td>.049**</td>
<td>.540**</td>
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</tr>
<tr>
<td>CBWL</td>
<td>-.181**</td>
<td>-.083</td>
<td>-.093</td>
<td>-.102</td>
<td>.026</td>
<td>-.058</td>
<td>-.058</td>
<td>-.079</td>
<td>-.123</td>
<td>.432**</td>
<td>.335**</td>
<td>.251**</td>
<td>1.00</td>
</tr>
<tr>
<td>(SD)</td>
<td>.851</td>
<td>.807</td>
<td>.885</td>
<td>.785</td>
<td>4.77</td>
<td>4.25</td>
<td>1.98</td>
<td>2.11</td>
<td>3.23</td>
<td>.789</td>
<td>.942</td>
<td>.954</td>
<td>1.16</td>
</tr>
</tbody>
</table>

Table 1: * significant at 0.05 (2-tailed), **significant at .01 (2-tailed). Note: SSEMO=Emotional/Informational Support; SSTANG=Tangible Support; SSAFF=Affectionate Support; SSPSI=Positive Social Interaction; MFH=Motivation for Healthiness; BMI=Body Mass Index; HBEHAVIOR=Total # Positive Health Behaviors; HSERVICES=Total # Health Seeking Activities; SAL/COH=Salience and Coherence of Cancer Screening; SPC=Success, Power, and Competition; RE=Restrictive Emotionality; RABM=Restrictive and Affectionate Behavior Between Men; CBWL=Conflicts Between Work & Leisure.
Results

Sample

The study sample consisted of male university alumni aged 50 and over who agreed to participate in the research. The mean age of study participants at the time of the study was 57 years (SD = 5.35) and ranged from 50-86 years. The majority of participants were white (94%), married or a member of a couple (85%), and currently employed (75%). Based upon our focus on older men, it was expected that we would see a significant number of men who were retired and 21% identified as such. Educational status and income were also anticipated to be high given the nature of the sample. Forty-two percent of the sample had bachelors degrees, 36% held masters, and the balance were educated at the doctoral level. Income was consistent with education as almost 88% reported earning greater than $50,000 annually.

Gender Role Conflict, Social Support, and Health Behavior

Internal consistency reliability coefficients for the four subscales of gender role conflict in this sample of older men are: (a) Success, Power, and Competition, (.87), (b) Restrictive Emotionality, (.89), (c) Restrictive and Affectionate Behavior Between Men, (.88), and (d) Conflicts Between Work and Family Relations, (.88).

For multidimensional social support using the MOS Social Support Survey, subscale reliability coefficients include; (a) Emotional/Informational Support, (.95), (b) Affectionate Support, (.88), (c) Tangible Support, (.91), and (d) Positive
Social Interaction, (88). Internal consistency for the MFH subscale was .94 and the measures of salience and coherence were consistent at a .71 level.

Means and standard deviations for continuous variables are shown in Table 2. Higher scores across all variables indicate more of that construct.

Table 9

Means and Standard Deviations
For Continuous Variables (N=389)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>57.3</td>
<td>5.35</td>
</tr>
<tr>
<td>Gender Role Conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPC</td>
<td>43.12</td>
<td>10.21</td>
</tr>
<tr>
<td>RE</td>
<td>31.15</td>
<td>9.36</td>
</tr>
<tr>
<td>RABM</td>
<td>24.68</td>
<td>7.64</td>
</tr>
<tr>
<td>CBWL</td>
<td>19.86</td>
<td>7.02</td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional/Informational</td>
<td>30.72</td>
<td>6.90</td>
</tr>
<tr>
<td>Affectionate</td>
<td>12.67</td>
<td>2.68</td>
</tr>
<tr>
<td>Tangible</td>
<td>17.17</td>
<td>3.25</td>
</tr>
<tr>
<td>Positive Social Interaction</td>
<td>12.39</td>
<td>2.35</td>
</tr>
<tr>
<td>Health Seeking Behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Services Used</td>
<td>4.94</td>
<td>2.14</td>
</tr>
<tr>
<td>Salience/Coherence Screening</td>
<td>35.69</td>
<td>5.80</td>
</tr>
<tr>
<td>Health Promoting Behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number positive behaviors</td>
<td>9.32</td>
<td>2.08</td>
</tr>
<tr>
<td>Motivation for Healthiness</td>
<td>18.72</td>
<td>4.88</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>27.46</td>
<td>4.23</td>
</tr>
</tbody>
</table>

Structural Equation Modeling

In general, a two step approach is recommended for testing structural equation models that includes first testing the measurement model through confirmatory factor analysis to insure adequate measurement and then testing the
full model with structural pathways included. Based on previous research
demonstrating validity of both the Gender Role Conflict Scale and the MOS Social
Support Scale, factor analysis was omitted for these model components. Factor
analysis followed for the latent constructs of health promoting behaviors and
health seeking behaviors and demonstrated adequate measurement for both
constructs (loadings >0.30; Tabachnick & Fidell, 1996).

Model Fit

The standardized coefficients for all 13 indicators were significant (p<.01)
and indicated that the items loaded well on the latent variables (see Figure 3). The
independence model that tests the hypothesis that the variables are uncorrelated
with one another was rejected, $\chi^2 (78, N = 221) = 1200.11, p<.01$. Goodness-fit-
measures provided by LISREL 8.5 are included in Table 3.

Table 10. Goodness-of-fit statistics for Gender Role Conflict, Social Support,
and Health Behavior Among Older Men

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>Result</th>
<th>Good Fit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td>86.39</td>
<td>No*</td>
</tr>
<tr>
<td>$\chi^2/df$</td>
<td>1.46</td>
<td>Good</td>
</tr>
<tr>
<td>GFI</td>
<td>.94</td>
<td>Good</td>
</tr>
<tr>
<td>AGFI</td>
<td>.92</td>
<td>Good</td>
</tr>
<tr>
<td>CFI</td>
<td>.98</td>
<td>Good</td>
</tr>
<tr>
<td>RMSEA</td>
<td>.043</td>
<td>Good</td>
</tr>
</tbody>
</table>

*Note: this $\chi^2$ value is statistically significant (p<.05).
Figure 3. Hypothesized and Final Model for Gender Role Conflict, Social Support, and Health Behavior in Older Men
Despite the fact that the $\chi^2$ statistic was significant, the balance of the goodness-of-fit statistics indicate that a good fit was achieved within the hypothesized model. The GFI, AGFI, and CFI are all greater than 0.90, and the RMSEA is less than 0.50 indicating that post-hoc model adjustment is unneeded. Although LISREL provided a number of modification indices (i.e., correlating errors) that would have been theoretically defensible, in the interest of theoretical parsimony further model fitting was omitted.

Standardized path coefficients indicate that higher gender role conflict was moderately predictive of lower perceived social support (coefficient = -.35) and somewhat higher reported health promoting behaviors (coefficient = .15). There was no apparent relationship between gender role conflict and health seeking behaviors. Additionally, perceived social support was not predictive of health seeking behavior but did appear to predict health promoting behaviors (coefficient = .11). Last, health promoting behaviors appeared moderately predictive of health seeking behaviors. Only two statistically significant effects appear in the model, the relationship between gender role conflict and social support and the relationship between health promoting behavior and health seeking behavior.

Discussion

The results of this project provide partial support for study hypotheses examining health behaviors among our sample of older men. The hypothesis that higher gender role conflict would predict lower social support was supported although to a lesser degree than was expected. The path coefficient of -.35
indicates that only about 12% of the variance in social support was explained by gender role conflict. Although the direction of the relationship was consistent with our hypothesis, we expected that the magnitude would have been greater. Despite this, the explained relationship between gender role conflict and social support is promising given that social support is a complex construct that is likely sensitive to not only psychological variables but a complex array of extrinsic factors as well.

The hypothesis that gender role conflict had a direct negative effect on health seeking behaviors was not supported. Based on evidence of very good model fit and a path coefficient indicating that no relationship exists (coefficient = .02), the null relationship is most likely true. Several explanations for this finding are possible. First, our sample consists of well-educated older white males. This bias may account for our lack of findings and may not be consistent among other populations of men including those of differing racial heritage, socio-economic status, or education. In fact, it is very likely that disadvantaged men would have to engage in a greater cognitive process to attend services such as annual physician and dental visits and cancer screenings. When faced with knowledge or economic barriers, psychological factors such as gender role conflict may play a greater role.

Second, "health seeking behavior" may need to be re-conceptualized in terms of how it may interact with gender role conflict. Its possible that a more accurate construct would include a greater emphasis on "help seeking" in a more generic sense with the "help" coming from a wide variety of sources including one's social network as well as professional sources. Gourash (1978) defines help seeking as any communication about a problem or troublesome event directed
toward obtaining support, advice, or assistance in times of distress. Our reliance on professional sources of help in health seeking behavior may not have been sensitive to gender role conflict in terms of the limitations that the traditional male role places on men and interactions with others. This idea is supported by previous research finding a negative relationship between gender role conflict and psychological help seeking among men (see Good, Dell and Mintz, 1989; Robertson and Fitzgerald, 1992; Wisch, Mahalik, Hayes, and Nutt, 1995).

Last, based on marginal survey return rates, its possible that those men who returned the survey are different than the population as a whole. In essence, the men who returned the survey “selected themselves in” and may have had some self-interest in the study topics.

The hypothesis of a direct negative effect between gender role conflict and health promoting behaviors also failed to receive support. Although non-significant, the path coefficient of .15 indicates that a positive relationship appears in the data, quite the opposite of what was expected. It appears that men who report higher gender role conflict also report higher participation in health promoting behaviors.

An examination of the correlation matrix in Table 1 provides a mixed description of this finding. Correlations between all four subscales of the gender role conflict measure and body mass index were negative (none statistically significant) indicating that those with higher gender role conflict tended to have less body mass. Additionally, gender role conflict was positively associated with the Motivation for Health subscale of the Multidimensional Health Questionnaire.
Despite this, the total number of health behaviors was negatively associated the Restrictive Emotionality and Conflicts Between Work and Leisure.

Our findings may be explained by recognizing that the self-report measures of health promotion may be influenced by the degree to which males subscribe to traditional gender roles. For example, two of the strongest correlations appear between Success, Power, and Competition and Motivation for Healthiness and Body Mass Index. Some men may perceive that to be powerful and competitive among other men that they must subscribe to the current standards for healthy behavior. Thus, when presented with a statement such as “I have a strong desire to keep myself physically healthy” (from the Motivation for Health scale) men may respond positively based on how they feel they should respond in terms of being male.

Direct effects on health behaviors from social support also provide mixed support for our hypotheses. While there is no evidence of a positive association between social support and health seeking behavior (coefficient = .02), there is some evidence that social support is positively related to health promoting behaviors (coefficient = .11). Again, we feel that our lack of findings relating social support the health seeking behaviors may be addressed by a re-conceptualization of “health” seeking behavior to “help” seeking behavior. Our modest finding of the positive association between social support and health promoting behaviors is well supported in the literature. Not only does social support appear to be related to health promoting behaviors (Rifflle, Yoho, and Sams, 1989), but it does not appear to decline with age (Lough & Schank, 1996).
Our finding of a moderate positive relationship between health promoting behaviors and health seeking behaviors is not surprising. We hypothesized the directionality of this effect based on the idea that older men who have established a more health promoting lifestyle may be more likely to adhere to recommendations for seeking health services (e.g. cancer screening). While the temporal nature of this hypothesis is impossible to determine using cross-sectional data, we feel that behaviors of a health promoting lifestyle in older well-educated populations would require daily maintenance as opposed to the sporadic activity of the health seeking behaviors. Therefore, it may be more likely that health promoting behaviors cause health seeking behaviors in this population. Although statistically equivalent models exist that could reverse the path of causation, or leave out a causal path and correlate the unexplained variance in the constructs, we feel theoretically justified in making this specification in the model.

This study has a number of important limitations. As mentioned, our sample was limited to high SES, Caucasian older men. Our findings cannot be interpreted outside of this population and more research should be done examining the interrelationships among gender role conflict, social support, and health behaviors in more diverse populations.

Secondly, its possible that our model is mis-specified in terms of the directionality of the causal pathways included. Based on the cross-sectional data we had available, the temporal relationships among theoretical constructs cannot be conclusively described. Longitudinal research is needed to examine the time-
order nature of the model constructs and provide a greater degree of confidence with respect to causation.

Despite these limitations, this study contributes valuable information about possible determinants of older men's health behavior. The idea that gender role conflict appears to interact negatively with perceived social support, and that social support in turn positively relates to health promoting behaviors suggests that health promotion experts should not neglect to consider socialized male role norms in designing interventions targeting older men.
References


CHAPTER V

Conclusion

The findings of this study contribute to an evolving literature examining psychosocial predictors of men’s health outside of a reductionistic biomedical model. This research takes an upstream view of health and morbidity by examining the antecedents of health promoting and health seeking among older men. Moreover, by linking gender role conflict and the very potent concept of social support, we have provided a basis for future inquiry among more diverse groups of men. Data from this study provide mixed support for the study hypotheses. Following is a brief discussion of each hypothesis.

Hypothesis #1: Gender role conflict can be reliably modeled as a four factor construct within older men including the subcomponents of Success, Power, and Competition, Restrictive Emotionality, Restrictive Affectionate Behavior Between Men, and Conflicts Between Work and Family Relations. The subcomponents are conceptually distinct and will show evidence of discriminate validity. The data provided convincing support for this hypothesis in view of exceptional evidence of model fit within the confirmatory factor analysis. The rich literature on the GRCS supports conceptual distinctness of the constructs, and evidence from our data suggests that while the factors within the model are no doubt moderately related (correlations range .32-.65), discriminate validity is supported in that no correlation between the factors exceeds that .85 suggested by Kline (1998). In addition, convergent validity is achieved in that 36 out of the 37
items load reasonably well on the constructs they were specified on. As noted in Paper #1, 35% of the factors load at an "excellent" level (above .71) and more than 78% load at the "very good" level (above .63).

By providing support for Hypothesis #1, we have accomplished two objectives that may find utility in future research with older men. First, no research to date has established that the GRCS is best conceptualized by a four factor model within a sample of older men. The mean age of our sample was 53 years while the two previous attempts to address this question used samples of college students with mean ages of around 20 years (see Good et al., 1995; Rogers, Abbey-Hines, & Rando, 1997). With a firm basis in the literature for questioning the stability of gender role socialization across the life-course, examining gender role conflict within older men is essential for the continuation of inquiry into all populations of men who may experience adverse effects of being socialized male. Second, our analysis did not treat the data from the GRCS (seven-point likert scale) as continuous data. Instead, the analysis approach capitalized on the ability to calculate polychoric coefficients that serve as a more reliable estimate of the relationships of interest (Joreskog, 2001). This has been possible only recently with technological advances in both computer hardware and software, and this paper adds to a growing number of investigations that follow on a more rigorous approach with psychosocial data.

The utility of these findings in a theoretical sense are evident from the perspective of how health promotion specialists conceptualize antecedents or barriers to men's health behaviors. Theoretically, the fact that the original four
factor model of gender role conflict appears as valid in older men as it is in younger men reaffirms the pervasive nature of socially imposed restrictive male stereotypes across men. Insofar as gender role conflict has predicted lower self-esteem (Davis, 1987; and Sharpe & Heppner, 1991), difficulty with intimacy (Sharpe & Heppner, 1991; Chariter & Arnold, 1985), anxiety (Davis, 1987; Cournoyer, 1994; Sharpe, 1993; Sharpe & Heppner, 1991), and depression (Good & Mintz, 1990) within samples of men, health promotion specialists targeting men with intervention should explore the extent to which gender role conflict represents a barrier to behavioral change.

While the findings from this study provide support for the use of the gender role conflict scale in samples of older men, this research does not provide empirical evidence to describe differential effects of gender role conflict in magnitude across the lifespan. O'Neil et al. (1993) suggests that men naturally undertake a gender role journey whereby they experience three distinct phases over the lifespan: (1) acceptance of traditional roles; (2) gender role ambivalence, confusion, anger, and fear; and (3) personal-professional activism. The assumption that men reevaluate conceptions of masculinity as they age and transcend the barriers of gender role conflict represents an unanswered question in view that this research suggests that older men experience that same patterns of gender role conflict but not necessarily to the same degree. Some guidance is provided by examining a descriptive comparison of gender role conflict subscale means reported in the literature for young men with those provided in this research for older men. Table 11 provides means and standard deviations for subscale
scores for 397 men whose mean age was 19.3 years (Good & Wood, 1995), and 389 older men from this research whose mean age was 53 years.

Table 11
Comparison of Means of GRCS Subscale Scores for Younger and Older Men

<table>
<thead>
<tr>
<th>Gender Role Conflict Subscale</th>
<th>Good &amp; Wood, 1995</th>
<th>Hill &amp; Donatelle, 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=397</td>
<td>N=389</td>
</tr>
<tr>
<td></td>
<td>Mean Age=19</td>
<td>Mean Age=53</td>
</tr>
<tr>
<td>Mean(SD)</td>
<td>Mean(SD)</td>
<td></td>
</tr>
<tr>
<td>Success, Power, &amp; Competition (SPC)</td>
<td>55.6 (10.5)</td>
<td>44.0 (10.2)</td>
</tr>
<tr>
<td>Restrictive Emotionality (RE)</td>
<td>33.6 (9.8)</td>
<td>31.8 (9.5)</td>
</tr>
<tr>
<td>Restrictive Affectionate Behavior Between Men (RABM)</td>
<td>34.2 (8.7)</td>
<td>25.3 (7.8)</td>
</tr>
<tr>
<td>Conflicts Between Work &amp; Leisure (CBWL)</td>
<td>23.7 (6.1)</td>
<td>21.10 (6.7)</td>
</tr>
</tbody>
</table>

Comparing the gender role conflict subscale means in Table 11 suggests that older men likely experience less gender role conflict across all subscales than younger men. The most striking differences occur in the subscales of SPC (Young men=55.6, Older men=44.0) and RABM (Young men=34.2, Older men=25.3) where on average nearly ten points of difference occur with older men experiencing less conflict in each subscale. An attenuated drive towards SPC with advancing age is logical in terms of men removing themselves from the workforce at retirement, but, explanations for the apparent differences in RABM are less obvious. Perhaps, as O’Neil (1993) suggests, men reevaluate and redefine gender role themes as they age as a result of learning. O’Neil (1995) offers, “For
example, a man at midlife may realize the he cannot be completely fulfilled by career success. This may lead him to redefine his success in the context of equally important aspects of life, including family relationships and intimacy (p. 168)."

Despite the fact that little empirical evidence exists at present regarding men's "gender role journey" and the potential for men to "unlearn" traditional male stereotypes, these early observations provide a basis for further inquiry into the nature of how men change with regard to gender role socialization across the lifespan. With a more complete description of this change process, health promotion specialists would have the ability to plan prevention programs aimed at facilitating the process of men reevaluating gender role values and assumptions that impact health.

Hypothesis #2: Gender role conflict within older men will be inversely related to perceived social support. That is, those men who report greater gender role conflict will report less perceived social support. Evidence to support this hypothesis was found in Paper #2. The regression analysis and canonical correlation were able to demonstrate that greater gender role conflict did indeed predict less perceived social support within our sample of older males. Our hope that the canonical correlation would reveal distinct dimensions of this relationship however was not established. For example, it is theoretically plausible to suspect that there may be two dimensions of the relationship between gender role conflict and perceived social support: 1) An affective dimension whereby restrictive emotionality and restrictive and affectionate behavior between men may relate strongest to emotional and affectionate support; and 2) An instrumental dimension
whereby success, power, and competition and conflicts between work and family relations may relate strongest to tangible and positive social interactions types of social support. Evidence for this was suggested within our sample in looking at the loadings for the canonical correlation. The greatest loadings for the single canonical variate that was produced were between restrictive emotionality (.955) on one side, and emotional/informational support (-.898) on the other.

While no study to date has established that gender role conflict relates negatively to perceived social support among older men, the idea that gender role conflict impacts interpersonal relationships is not new. O'Neil, Good, and Holmes (1995) reviewed six studies (mainly using samples of college age men) to conclude that restrictive emotionality and restrictive affectionate behavior between men consistently predicted difficulties with intimacy. Moreover, Coumoyer (1994) found that restrictive emotionality correlated negatively with marital happiness among adult men, and Chartier et al. (1986) established that men scoring high on gender role conflict also scored high on lack of trust and anger towards women.

Practical implications for the relationship between gender role conflict and perceived social support take several forms. First, it appears increasingly obvious from this research and the literature that men who experience significant gender role conflict are at a support disadvantage and that healthcare providers and those planning health programs should consider the extent to which men have adequate supports available when intervening. For example, Hibbard, Neufeld, and Harrison (1996) suggest that clinicians pay particular attention to increasing
subpopulations of men engaged in care giving activities for ailing family members. As the proportion of elders in the population grows, more men are assuming duties of a primary caregiver and the negative association between care giving and health is well documented (e.g. see, Barusch & Spaid, 1989; Chenoweth & Spencer, 1986). Equally well documented are the positive associations between the presence of social support and the positive health status of caregivers (e.g. see, Israel, 1982; Krause, 1987) suggesting that a capacity exists for improving the health of male caregivers predisposed to low social support.

Second, the negative relationship between gender role conflict and social support has practical implications for men’s health through important functions of supporters in terms of health seeking and health promoting behaviors of men. Interactions between gender role conflict, social support, and health promoting/health seeking behaviors of men are discussed under Hypothesis #3.

Hypothesis #3: Gender role conflict will have a direct negative impact on both health promoting behaviors and health seeking behaviors. Gender role conflict will have an indirect effect on health promoting behaviors and health seeking behaviors mediated through perceived social support. Those men who report greater gender role conflict will report less social support and social support will have positive impact on health behaviors. Health promoting behavior will be positively related to health seeking behavior. Because this system of hypotheses was tested within the context of a structural equation model (i.e., see final model in paper #3), a few comments are warranted describing the omnibus results of the project.
A frequently unstated but important hypothesis was initially tested on route to addressing the stated individual hypotheses of interest. In this, we hypothesized simply that “the model will fit the data”, meaning that our measurement model (individual indicators) represented the latent constructs of the model, and that the directionality of the associations and paths between constructs were sufficient to represent the data. Support for this hypothesis was achieved through an examination of the fit indices and the factor loadings of the measurement model. Evidence suggests that this model as originally hypothesized fits the data very well and is made theoretically stronger by the fact that no post-hoc model fitting (as is very common with structural equation modeling) was needed improve model fit. This is both very promising and very challenging for individual study hypotheses. In essence, where we have received support for our hypotheses we have good confidence that we are correct. Alternatively, where our hypotheses have not received support, we can be just as confident that it is unlikely that a relationship exists within this population.

Our research provided support for the hypothesis that gender role conflict was negatively predictive of social support that was in turn positively associated with health promoting behaviors. This finding is consistent with others (e.g. see Muhlenkamp and Sayles, 1986; Brown, Muhlenkamp, Fox, & Osborn, 1983) who found that perceived social support is positively correlated with healthy lifestyle practices.

Additionally, health promoting behaviors were positively associated with health seeking behaviors. The challenge in defending this hypothesis comes from
the directional nature specified in the model. While there is a possibility that health seeking behavior actually precedes health promoting behavior, we feel that the indicators used to define health promoting behavior suggest our specification is more likely. Due to the fact that health promoting behavior was best captured by motivation for healthiness (factor loading = .84) as a psychological construct, and that health seeking behavior was best captured through number of preventive services used in the previous year (factor loading = .68), it is theoretically more plausible that an older man who has a greater motivation to be health will use more preventive services. As this is cross-sectional data, definitive evidence of the viability is not available and more prospective research should be done concerning this issue.

The hypotheses that social support and gender role conflict impact health seeking behavior did not receive support. As discussed in paper #3, it's possible that health seeking behaviors need to be re-conceptualized into a more general construct best defined as "help" seeking. Additionally, it's possible that our highly educated sample of mostly white, older males, are not impacted by these constructs as much as more heterogeneous populations of men. The presence of various significant barriers (e.g., cost, access, time off work) may interact with gender role conflict to limit, and social support to improve, health seeking behaviors in less advantaged populations of men. Based on a very well fitting model, this research should be replicated with more diverse populations of older males to validate our lack of findings.
Last, the finding that gender role conflict was positively associated with health promoting behaviors was an unexpected result. While this relationship failed to reach statistical significance within the model, the fact that the evidence describes a positive relationship is difficult to explain. It's possible that subjects responded defensively to questions about lifestyle behaviors given their highly educated backgrounds. Men who had a greater sense of gender role conformity (i.e., the need to be superior, in-control, independent) may have sought to conform to well-publicized behavioral standards suggesting weakness or loss of control with unhealthy behaviors.

In summary, this research adds to the growing body of evidence suggesting that we examine psychosocial impacts on men's health especially as they interact with how society prescribes behavior based on gender. This project has validated an important instrument in the study of men's experience with gender, demonstrated that gender role conflict is associated with how men perceive social support resources available to them, and related a causal pathway whereby men who experience significant gender role conflict perceive less social support and engage in fewer health behaviors. This research should be expanded to include younger men, and those with more varied backgrounds. Future research should examine help seeking behaviors in men as they may relate to both gender role conflict and social support, as well as ask new questions that relate to men's health such as possible gendered consequences on risk-taking behavior and substance use.
BIBLIOGRAPHY


APPENDIX
MEN'S HEALTH STUDY

Instructions

Answer questions as they relate to you. For most answers, check the box(es) most applicable to you or fill in the blanks.

Demographics

Please tell us about yourself.

1. Please enter the email address where you received your invitation to participate in this study. This is used so that we do not contact you again after you submit your responses.

(Provide one response only.)

2. Your Ethnicity

(Select only one.)
- Asian/Pacific Islander
- Black/African American
- Caucasian
- Hispanic
- Native American
- Other

3. Your Age

(Provide one response only.)

4. Are you:

(Select only one.)
- Married
- Divorced
- Widowed
- Separated
- Never married and Single
- A member of an unmarried couple

5. What is the highest college degree you have completed?

(Select only one.)
Certificate or Associates Degree
Bachelors Degree
Masters Degree
Doctoral Degree

6. Your Income

(Select only one.)
- Less than $25,000
- $25,001 - $50,000
- $50,001 - $75,000
- $75,001 - $100,000
- More than $100,000

7. Are you currently:

(Select only one.)
- Employed for wages
- Self-employed
- Out of work for more than 1 year
- Out of work for less than 1 year
- A Homemaker
- A Student
- Retired
- Unable to work

8. About how much do you weigh without shoes (please report in pounds)?

(Provide one response only.)

9. About how tall are you without shoes (Please report in feet and inches)?

(Provide one response only.)

10. Would you say that in general your health is:

(Select only one.)
- Excellent
- Very good
- Good
- Fair
- Poor
11. Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?

(Select only one.)

☐ Yes
☐ No

12. Do you identify as:

(Select only one.)

☐ Heterosexual/Straight
☐ Homosexual/Gay
☐ Bisexual
☐ Other

13. Have you ever experienced any of the following health conditions?

(Select all that apply.)

☐ High Blood Pressure
☐ Heart Attack
☐ Stroke
☐ Diabetes
☐ Cancer
☐ Lung Disease

14. Has any member of your immediate family ever experienced any of the following health conditions?

(Select all that apply.)

☐ High Blood Pressure
☐ Heart Attack
☐ Stroke
☐ Diabetes
☐ Cancer
☐ Lung Disease

Gender Roles

Answer each question by placing a check mark in the box which best represents your feelings about the question. Work quickly and avoid spending too much time on any one question.

15. Moving up the career ladder is important to me.

(Select only one.)

☐ 1 Strongly Disagree
☐ 2
16. I have difficulty telling others I care about them.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

17. I feel torn between my hectic work schedule and caring for my health.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

18. Making money is part of my idea of being a successful man.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

19. Strong emotions are difficult for me to understand.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

20. I sometimes define my personal value by my career success.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
21. Expressing feelings makes me feel open to attack by other people.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

22. My career, job, or school affects the quality of my leisure or family life.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

23. I evaluate other people's value by their level of achievement and success.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

24. Talking (about my feelings) during sexual relations is difficult for me.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

25. I worry about failing and how it affects my doing well as a man.

(Select only one.)
- 1 Strongly Disagree
- 2
26. I have difficulty expressing my emotional needs to my partner.

(Select only one.)
- □ 1 Strongly Disagree
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6 Strongly Agree

27. Men who are overly friendly to me, make me wonder about their sexual preference (men or women).

(Select only one.)
- □ 1 Strongly Disagree
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6 Strongly Agree

28. Being very personal with other men makes me feel uncomfortable.

(Select only one.)
- □ 1 Strongly Disagree
- □ 2
- □ 3
- □ 4
- □ 5
- □ 6 Strongly Agree

29. Finding time to relax is difficult for me.

(Select only one.)
- □ 1 Strongly Disagree
- □ 2
- □ 3
30. Doing well all the time is important to me.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

31. I have difficulty expressing my tender feelings.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

32. I often feel that I need to be in charge of those around me.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

33. I am sometimes hesitant to show my affection to men because of how others might perceive me.

(Select only one.)
☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

34. Hugging other men is difficult for me.

(Select only one.)
☐ 1 Strongly Disagree
35. Men who touch other men make me uncomfortable.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

36. Telling others of my strong feelings is not part of my sexual behavior.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

Gender Roles

Answer each question by placing a check mark in the box which best represents your feelings about the question. Work quickly and avoid spending too much time on any one question.

37. Competing with others is the best way to succeed.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

38. Winning is a measure of my value and personal worth.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
39. I often have trouble finding words that describe how I am feeling.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

40. My needs to work or study keep me from my family or leisure more than I would like.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

41. I strive to be more successful than others.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

42. Expressing my emotions to other men is risky.

(Select only one.)
- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

43. Affection with other men makes me tense.

(Select only one.)
- 1 Strongly Disagree
- 2
44. Verbally expressing my love to another man is difficult for me.

(Select only one.)

- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

45. I like to feel superior to other people.

(Select only one.)

- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

46. Overwork and stress, caused by a need to achieve on the job or in school, affects/hurts my life.

(Select only one.)

- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree

47. Being smarter or physically stronger than other men is important to me.

(Select only one.)

- 1 Strongly Disagree
- 2
- 3
- 4
- 5
- 6 Strongly Agree
48. I am often concerned about how others evaluate my performance at work or school.

(Select only one.)

☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

49. My work or school often disrupts other parts of my life (home, family, health, leisure).

(Select only one.)

☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

50. Telling my partner my feelings about him/her during sex is difficult for me.

(Select only one.)

☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

51. I do not like to show my emotions to other people.

(Select only one.)

☐ 1 Strongly Disagree
☐ 2
☐ 3
☐ 4
☐ 5
☐ 6 Strongly Agree

Social Support

Next are some questions about the support that is available to you.
52. About how many close friends and close relatives do you have (people you feel at ease with and can talk to about what is on your mind)?

(Select only one.)
- none
- 1
- 2
- 3
- 4
- 5 +

53. Someone to help you if you were confined to bed...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

54. Someone you can count on to listen to you when you need to talk...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

55. Someone to give you good advice about a crisis...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

56. Someone to take you to the doctor if you needed it...

(Select only one.)
- 1 None of the time
57. *Someone who shows you love and affection...*

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

58. *Someone to have a good time with...*

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

59. *Someone to give you information to help you understand a situation...*

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

60. *Someone to confide in or talk to about yourself or your problems...*

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

61. *Someone who hugs you...*

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time
62. Someone to get together with for relaxation...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
☐ 3 Some of the time
☐ 4 Most of the time
☐ 5 All of the time

63. Someone to prepare your meals if you were unable to do it yourself...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
☐ 3 Some of the time
☐ 4 Most of the time
☐ 5 All of the time

64. Someone whose advice you really want...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
☐ 3 Some of the time
☐ 4 Most of the time
☐ 5 All of the time

65. Someone to do things with to help you get your mind off things...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
☐ 3 Some of the time
☐ 4 Most of the time
☐ 5 All of the time

66. Someone to help with daily chores if you were sick...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
☐ 3 Some of the time
☐ 4 Most of the time
☐ 5 All of the time

67. Someone to share your most private worries and fears with...

(Select only one.)

☐ 1 None of the time
☐ 2 A little of the time
68. Someone to turn to for suggestions about how to deal with a personal problem...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

69. Someone to do something enjoyable with...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

70. Someone who understands your problems...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

71. Someone to love and make you feel wanted...

(Select only one.)
- 1 None of the time
- 2 A little of the time
- 3 Some of the time
- 4 Most of the time
- 5 All of the time

Healthcare

Please tell us about the different types of healthcare you use.

72. About how long has it been since you last had your blood cholesterol checked?

(Select only one.)
- Within the past year (anytime less than 12 months ago)
73. During the past 12 months, have you had a flu shot?

(Select only one.)
☐ Yes
☐ No

74. How long has it been since you last visited a dentist or a dental clinic for any reason?

(Select only one.)
☐ Within the past year (anytime less than 12 months ago)
☐ Within the past 2 years (1 year but less than 2 years ago)
☐ Within the past 5 years (2 years but less than 5 years ago)
☐ 5 or more years ago

75. How long has it been since you last visited a physician, nurse practitioner, or physician’s assistant for any reason?

(Select only one.)
☐ Within the past year (anytime less than 12 months ago)
☐ Within the past 2 years (1 year but less than 2 years ago)
☐ Within the past 5 years (2 years but less than 5 years ago)
☐ 5 or more years ago

76. As far as you know, have you ever been tested for HIV? Do not count tests you may have had as a result of a blood transfusion.

(Select only one.)
☐ Yes
☐ No
☐ Don't know/Not sure

Healthcare

Please tell us about the different types of healthcare you use.
77. A Prostate-Specific Antigen test, also called a PSA test, is a blood test used to check men for prostate cancer. Have you had a PSA test within the last 12 months?

(Select only one.)

☐ Yes
☐ No

78. A digital rectal exam is an exam in which a doctor, nurse, or other health professional places a gloved finger into the rectum to feel the size, shape, and hardness of the prostate gland. Have you had a digital rectal exam within the last 12 months?

(Select only one.)

☐ Yes
☐ No

79. A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood. Have you used one of these tests in the last 12 months?

(Select only one.)

☐ Yes
☐ No

80. Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the bowel for signs of cancer or other health problems. Have you ever had either of these exams within the last 12 months?

(Select only one.)

☐ Yes
☐ No
81. Going through prostate/colon cancer screening is an important thing for me to do.

(Select only one.)

☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

82. I think that going through prostate/colon cancer screening would be an easy thing for me to do.

(Select only one.)

☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

83. Arranging my schedule to go through prostate/colon cancer screening would be an easy thing for me to do.

(Select only one.)

☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

84. Doing prostate/colon cancer screening makes sense to me.

(Select only one.)

☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

85. I think the benefits of prostate/colon cancer screening outweigh any difficulty I might have in going through the tests.

(Select only one.)

☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
86. I believe the chance that I might develop prostate cancer is high.

(Select only one.)
☐ Strongly agree
☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

87. I think that going through prostate/colon cancer screening is too much trouble for what I would get out of it.

(Select only one.)
☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

88. I believe the chance that I might develop colon cancer is high.

(Select only one.)
☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

89. I think that I would be better off if I don't go through prostate/colon cancer screening.

(Select only one.)
☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

90. I think it is likely that I will develop prostate cancer.

(Select only one.)
☐ Strongly disagree
☐ Mildly disagree
☐ Mildly agree
☐ Strongly agree

91. I believe that prostate/colon cancer screening is an effective way to find cancer early.

(Select only one.)
92. I think it is likely that I will develop colon cancer.

(Select only one.)

- Strongly disagree
- Mildly disagree
- Mildly agree
- Strongly agree

93. I believe that I can protect myself from prostate/colon cancer by going through screening.

(Select only one.)

- Strongly disagree
- Mildly disagree
- Mildly agree
- Strongly agree

94. I believe that going through prostate/colon cancer screening would help me to be healthy.

(Select only one.)

- Strongly disagree
- Mildly disagree
- Mildly agree
- Strongly agree

---

**Substance Use**

95. Do you now smoke cigarettes every day, some days, or not at all?

(Select only one.)

- Every day
- Some days
- Not at all

96. Do you currently use chewing tobacco or snuff every day, some days, or not at all?

(Select only one.)

- Every day
- Some days
97. Do you now smoke cigars every day, some days, or not at all?
(Select only one.)
☐ Every day
☐ Some days
☐ Not at all

98. Do you now smoke a pipe every day, some days, or not at all?
(Select only one.)
☐ Every day
☐ Some days
☐ Not at all

99. During the past year, did you often end up drinking more than you planned to drink?
(Select only one.)
☐ Yes
☐ No

100. During the past year, did you fail to do some of the things you should have done because of drinking?
(Select only one.)
☐ Yes
☐ No

101. During the past year, have you thought, or has someone told you that your drinking was possibly hurting your health?
(Select only one.)
☐ Yes
☐ No

Health Promotion

102. Do you try a lot to avoid eating too much salt?
(Select only one.)
☐ Yes
☐ No

103. Do you try a lot to avoid eating too much fat?
(Select only one.)
104. Do you try to consume enough vitamins and minerals?

(Select only one.)
- yes
- no

105. Have you had a sunburn within the past 12 months including any time that even a small part of your skin was red for more than 12 hours?

(Select only one.)
- Yes
- no

106. Do you always wear your seatbelt while in an automobile?

(Select only one.)
- yes
- no

107. Do you take steps to reduce stress?

(Select only one.)
- yes
- no

108. Do you take aspirin daily or every other day?

(Select only one.)
- Yes
- No
- I cannot take aspirin due to health problems

Health Promotion

109. I strive to keep myself in tip-top physical shape.

(Select only one.)
- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

110. I am motivated to keep myself from becoming physically unhealthy.

(Select only one.)
- 1 Not at all characteristic
111. I do things that keep me from becoming physically unhealthy.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

112. I try to avoid engaging in behaviors that undermine my physical health.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

113. I really want to prevent myself from getting out of shape.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

114. I am really motivated to avoid being in terrible physical shape.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

115. Do you own a smoke detector?

(Select only one.)

- yes
- no
116. Do you try to keep your weight within the prescribed range for your age?

(Select only one.)
☐ yes
☐ no

117. Do you try to eat sufficient fiber in your diet?

(Select only one.)
☐ yes
☐ no

118. Do you exercise at least three times a week so that you breathe heavily and your pulse is accelerated for at least 20 minutes?

(Select only one.)
☐ yes
☐ no

119. Do you try to avoid eating too much cholesterol?

(Select only one.)
☐ yes
☐ no

120. Do you usually sleep from 7-8 hours per night?

(Select only one.)
☐ yes
☐ no

121. I'm very motivated to be physically healthy.

(Select only one.)
☐ 1 Not at all characteristic
☐ 2 Slightly characteristic
☐ 3 Somewhat characteristic
☐ 4 Moderately characteristic
☐ 5 Very characteristic

122. I'm strongly motivated to devote time and effort to my physical health.

(Select only one.)
☐ 1 Not at all characteristic
☐ 2 Slightly characteristic
☐ 3 Somewhat characteristic
☐ 4 Moderately characteristic
123. I have a strong desire to keep myself physically healthy.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic

124. It's really important to me that I keep myself in proper physical health.

(Select only one.)

- 1 Not at all characteristic
- 2 Slightly characteristic
- 3 Somewhat characteristic
- 4 Moderately characteristic
- 5 Very characteristic