RELATIONSHIPS BETWEEN EDUCATION, PERSONALITY, CHANGE IN
PERSONALITY TRAITS, AND THE USE OF MENTAL HEALTH SERVICES
AMONG MIDDLE-AGED WOMEN OVER A 10-YEAR TIME SPAN


by


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ABSTRACT

AMY C. BERWICK. Relationship between education, personality traits, change in personality traits, and the use of mental health services among middle-aged women over a 10-year time span. (Under the direction of DR. PHYLLIS POST)

The purpose of this study was to examine the relationship between various levels of education, personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience), personality trait changes over time, and use of mental health services among middle-aged women. The subjects were 1110 women from 40 to 60 years of age responding to the 2005 National Survey of Midlife Development in the United States (MIDUS). The study used logistic regression first to investigate the predictive value of varying levels of education and personality traits on use of services during the past 12 months. A second logistic regression was used to investigate personality trait changes (between 1995 and 2005) on use of services during the past 12 months. Change scores were calculated using the reliable change index (RCI). In the first logistic regression, neuroticism ($OR = 1.82$, $p < .001$) and openness to experience ($OR = 1.51$, $p < .05$) were associated with significantly increased likelihood of mental health service utilization among middle-aged women. Conscientiousness ($OR = 0.65$, $p < .05$), in contrast, was associated with decreased likelihood of use of mental health services. Education and use of mental health services were not significant in the logistic regression. The second regression using the RCI scores was not significant, most likely due to the lack of reliable change for any of the personality traits. The significant association between neuroticism and conscientiousness and the use of mental health services among middle-aged women replicated findings from the 1995 MIDUS survey.

However, this is the first study to find significance with openness to experience and use of mental health services among middle-aged women. Implications and future research are discussed.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

CHAPTER 1:  INTRODUCTION

Overview

The multiple roles in middle age provide meaning and a sense of purpose for women as well as correlate with better mental health (di Scalea, 2012). However, there is an increased vulnerability to depression due to events such as overwhelming caregiving duties. Women comprise 73% of informal caregivers (National Alliance for Caregiving, 2009). Of caregivers, 32% meet six of the criteria for clinical depression (Covinsky et al., 2003). In a study of middle-aged women, 50% had feelings of fatigue and depression (Li et al., 2002). According to the Substance Abuse and Mental Health Services Administration (SAMHSA, 2011) between 2005 and 2009 there has been a 49% increase in drug-related suicide attempts for women aged 50 and older. Despite the fact that mental health services are known to be beneficial for reducing depressive symptoms (Schmidt, 2005), women needing services only utilize them 22% of the time (Rosen et al., 2007). Without intervention, these symptoms are likely to continue (Keyes, 2010).

In Chapter 1, the modern middle-aged woman is defined. Role transitions for this cohort are unique from preceding generations. The multitude of roles faced by this group can have both beneficial and detrimental effects on mental health. These effects are detailed in mental health and the underutilization of services. Next, the variables associated with the use of services are discussed under the sections of education and personality. The research questions, design, assumptions, limitations, delimitations, and

validity follow the purpose and significance of the study. Finally, the conclusion of the chapter contains operational definitions and a summary.

Midlife

Middle age, the longest phase of the human lifespan, is a relatively new concept (Degges-White & Myers, 2006a). At the turn of the 19th century, the construct of middle age did not exist as life expectancy was 47 years old (Jacobson, 1995). Today, life expectancy for women is 80 years old (Centers for Disease Control, 2011). This 64% increase in longevity has created the midlife phase between young and old lasting between 20 and 40 years. This period continues to elongate and shift further out on the time line. In fact, 30% of Americans in their 70s consider themselves still in middle age (Lachman, 2004).

As a developmental stage, midlife has received little attention in research due to the perception that it is a relatively stable period of life with few biological developmental markers (Staudinger & Bluck, 2001). Instead, middle age is associated with role transitions that include changes in family and social structure. While there are some stereotypical images of middle-aged women, the Baby Boomer women are redefining what middle age means in the 21st century (Rogerson & Kim, 2005). This cohort, born between 1946 and 1964, has had more accessibility to education and greater job opportunity than previous cohorts have. Education levels of female baby boomers have increased dramatically. The number of female college graduates has increased from 11% in 1970 to over 36% in 2010 (Bureau of Labor Statistics, 2011).

Baby Boomer women have taken more time for education and career, which has resulted in later age of marriage. According to the United States Census Bureau (2010),

the median age at first marriage for women has risen from 20.3 years old in 1960 to 26.5 year old in 2010. In 1960, this equated to 59% of adults between 18 and 29 were married, while only 20% of the same demographic are married today.

The delay in marriage has also affected timing in having children. The availability of birth control and medical advances in fertility make it possible to have healthy children well into middle age (Goldin & Katz, 2002; Friese, Becker, & Nachtigall, 2008). A 45-year old woman could be sending her last child off to college or could be pregnant for the first time. In fact, the only age group to have a rise in birth rate in 2010 was women in their early 40s (Hamilton et al, 2011). Modern midlife has even created a research area for nurses attending to new mothers transitioning to menopause (Morgan, Merrell, Rentschler, & Chadderton, 2012).

In addition to having children later in life, middle-aged women are involved in the workforce in greater numbers than ever. As seen in Figure 1, the Bureau of Labor Statistics (2011) reported that women represented 53.6% of the labor force in 2010, with women between 45 and 55 years old averaging the most hours of work per week. These statistics are generalizable to most industrialized nations. The percent of women in the workforce in the United States ranks fourth in the world, just after Sweden, Canada, and The Netherlands, but ahead of The United Kingdom, Germany, and Japan (Bureau of Labor Statistics, 2011).

**Shift in Female Demograhics**

■ 1960/1970　■ 2010
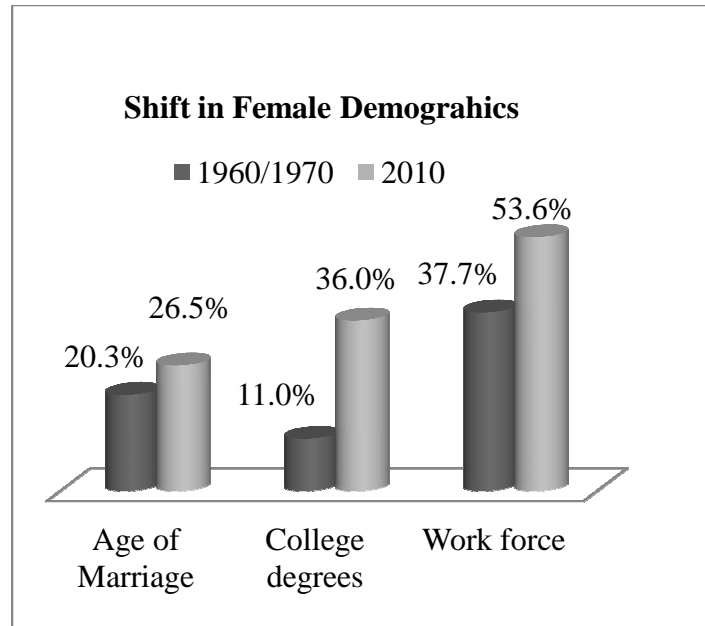
Figure 1. Demographic Shift for Women
Bureau of Labor Statistics (2011)

While more women than ever are in the paid workforce, many are also taking on

extra caregiving responsibilities for an elder family member. Furthermore, middle-aged

women may still be caring for dependent children (Chassin, Macy, Seo, Presson, &

Sherman, 2010). The delays in starting families have created the multigenerational

caregiver or the sandwich generation (Miller, 1981; Rogerson & Kim, 2005). The number

of middle-aged women with three generations under the same roof is estimated at 9%;

however, 33% of middle-aged women provide care for an older person while raising

children (Bureau of Labor and Statistics, 2011).

Midlife is also a time for reevaluation of life and relationships. Approximately, 1

in 4 divorces in 2010 were among those ages 50 and older (Brown & Lin, 2012). In a

survey of divorced adults age 40 to 79, women initiated 60% of divorces and separations

(Association for the Advancement of Retired Persons (AARP, 2007). Transitions in and

out of relationships are now typical of family life (Cherlin, 2009). In the United Sates, 40% of first marriages, 60% of second, and 73% of third marriages end in divorce (U.S. Bureau of the Census, 2006). As many as 75% of those who divorce will eventually remarry. According to the U.S. Bureau of the Census (2006), these new blended families will comprise approximately 1/3 of all marriages.

The changes modern women face in midlife effect their emotional health (di Scalea et al., 2012). Some aspects of change are healthy; however, other aspects create vulnerability to mental health problems (Sutin, Costa, Wethington, & Eaton, 2010). Their ability to cope mediates their needs for mental health services. One particular issue, however, is the underutilization of mental health services when a woman is unable to cope. To date, research has focused on education, race, ethnicity, socioeconomic factors, and use of services with scant attention on personality traits and use of services. Therefore, this research will explore personality traits and trait changes over time, in addition to education among middle-aged women.

<center>Mental Health and Underutilization of Services</center>

The idealized middle-aged woman who has it all, career, husband, children, and a social life tends to be mentally healthy. According to role-enhancement theory, multiple roles can promote women's development by increasing self-esteem, providing purpose and increasing contact with others (Strauss, 2001; Thoits, 1983), while the loss of roles decreases mental health. Nyman, Spak, and Hensing (2012) tested role-enhancement among women ages 30 – 55. The results support the theory. Over a 5-year period decreases in roles increased poor mental well-being with ($OR = 4.5$, 95% $CI = 1.8 – 11.0$) while increased roles decreased poor mental well-being ($OR = 0.4$, 95% $CI = 0.2 – 0.8$).

While certain roles help buffer stress, others, such as caregiving, are associated with increased stress and depression (Almeida & Horn, 2004). Many middle-aged women are primary caregivers to an elderly relative. The National Alliance for Caregiving (2009) estimates women make up 73% of the 15 million caregivers in the United States. An estimated 70 % of caregivers of older adults show signs of depression, and approximately 33% of those meet diagnostic criteria for clinical depression (Feinberg, Reinhard, Houser, & Choula, 2011).

One midlife transition, menopause, cannot change, but the attitude from the Baby Boomers has changed (Dillaway, 2006). Dare (2011) found that most women interviewed in her study denied the end of menses as a turning point in their lives, instead they reported menopause as simply inconvenient. However, there is a great deal of physical and emotional change associated with menopause. Changing levels of estrogen are associated with mood swings (Tucker & Earl, 2010) and depression (Strauss, 2011). Meta-analysis of menopausal transition and depression literature reveals a 14-times increase in onset of depression in the 24-months surrounding the last menstrual cycle (Schmidt, 2005). Bromberger et al.'s (2009) longitudinal sample of depressed women in midlife revealed that for 15.8% of participants, this was the first time they met criteria for depression.

The use of mental health services is known to be beneficial for reducing depressive and anxious symptoms (Schmidt, 2005). According to the National Institute of Mental Health (NIMH, 2005), 26.2% of adults in the United States met criteria for a mental health disorder. Yet, only 36% of those diagnosed with a disorder utilized mental health services (Wang et al., 2005). This percent drops to 22% when focusing on women

only (Rosen et al., 2007). Many factors influence the underutilization. These include accessibility, convenience, cost, cultural biases, education, income, knowledge about mental health services, perceived social support, severity of problem, and duration of problem (Gadalla, 2008; Gonzalez, Alegría, Prihoda, Copeland, & Zeber, 2011).

Given this information, it is evident that midlife can take a toll on women. Under circumstances of overwhelming caregiving and hormonal changes from menopause, the risk of depression is high. Unfortunately, the need of services outweighs the use of services. Less than 1 in 4 women meet criteria for anxiety or depression utilize services. The factors that affect utilization are varied but two factors are especially salient, education and personality traits. However, more research is needed to evaluate these factors among modern middle-aged women. This study will fill this gap as well as explore the effects of changes over a 10-year time span.

Education

Understanding the factors that predict use of services is beneficial for health care providers. As mentioned above, education level is a strong indicator of use of services. Studies have shown a clear divide between those with a high school degree and higher compared to less than a high school degree. Using a high school degree as a reference, those with less education were 18% less likely to believe services help while those with more than a high school degree were 50% more likely to believe services help (Gonzalez et al., 2011).

High school education exponentially increases the chance of a woman using mental health services. While the impact of education on use of mental health services has been studied, this study will add to the literature with its focus on the previously

unexplored areas of personality and mental health service utilization among middle-aged women.

<center>Personality</center>

Personality trait theory, as organized by McCrae and Costa (1997), is a framework of five universal domains that in concert form personality. Often referred to as the Big Five factors (BFF), these traits are neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. While previously thought to be stable after adolescence, data indicate that personality traits do not reach maximum consistency until the end of middle age (Costa et al., 2000; Herbst, McCrae, Costa, Feaganes, & Siegler, 2000). In fact, some researchers purport that following adolescence, the majority of personality trait changes occurs during midlife (Helson & Soto, 2005). Because personality traits are correlated with mental health issues (Jylhä & Isometsä, 2006; Seekles et al., 2012), and the use of mental health services (ten Have, Oldehinkel, Vollebergh, & Ormel, 2005), the changing levels of traits may have significant effects on use of services.

Neuroticism has been the subject of much research, particularly in the realm of mental health and mental health services. For example, neuroticism, a negative affect, relates to tendencies toward fear, worry, and irritability (Bates et al., 2010). It is also strongly correlated with depression, $r = .71$, $p < .001$, and anxiety, $r = .69$, $p < .001$ (Jylhä & Isometsä, 2006). In addition, neuroticism and service utilization are highly correlated even in the absence of a mental health disorder. Those with high levels of neuroticism have an odds ratio of 2.06 times more likely to use services even after adjusting for emotional disorders (ten Have et al., 2005).

While there is research examining all five personality traits and their association of perceived need of mental health services (McWilliams, Cox, Enns, & Clara, 2006; Seekles et al., 2012), there is little data on use of services associated with traits other than research on neuroticism and extraversion. In addition, there are conflicting data on the remaining three personality traits, conscientiousness, agreeableness, and open to experience, specifically regarding trait stability (Blonigen, Carlson, Hicks, Krueger, & Iacono, 2008) and mental health issues (Helson, Jones, & Kwan, 2002; Terracciano, McCrae, Brant, & Costa, 2005).

Conscientiousness, for example, was found to be negatively correlated with the likelihood of use mental health services for women (Goodwin, et al., 2000), yet Seekles et al. (2012) found positive correlations between conscientiousness and those who utilize services. It should be noted that Goodwin et al. (2002) utilized a short form personality test, the MIDI. While neuroticism ($\alpha = .74$), extraversion ($\alpha = .78$), agreeableness ($\alpha = .80$), and openness to experience ($\alpha = .77$) had high alpha values, conscientious was only moderate ($\alpha = .57$).

According to research, agreeableness is not associated with likelihood of use (Goodwin et al., 2002) or perceived need for services. However, Chien et al. (2007) report a negative association with neuroticism and mental disorders. Finally, openness to experience was significant for perceived need for services (Seekles et al., 2012) but insignificant in the likelihood of using services (Goodwin et al., 2002). Results from Seekles et al. (2012) are significant; however, the participants were from the Netherlands Study of Depression and Anxiety (NESDA; Penninx, et al., 2008). Cultural differences between Americans and Dutch may be a factor in the conflicting studies.

The study of middle-aged women is relatively new. In addition, the modern woman in midlife has had more opportunity and more responsibility than preceding cohorts. Longitudinal data are now available to study the impact of midlife on mental health, yet no studies have focused on middle-aged women, education, personality traits, and use of mental health services. Specifically, there is no research examining personality trait change and mental health service use among middle-aged women. This study addressed this gap in the literature.

## Purpose of the Study

The purpose of this study was to examine relationships between education level, personality traits, and utilization of mental health services for midlife women. These factors were examined at a specific point in time, 2005, as well as longitudinally over a 10-year period during midlife. This study contributes to the literature of personality traits by focusing specifically on middle-aged women, use of mental health services, education, and personality trait stability. Finally, this study provides new data on the personality trait levels of women over 10-years of middle age.

## Significance of the Study

Midlife can be a challenging time for many women. This phase is defined by a multitude of role transitions affecting social, emotional, and physical health, often in negative ways (Robins & Trzesniewski, 2005). Changes in family structure such as children leaving home and generational caregiving are associated with anxiety, depression, and a loss of social support (Pope, 2005; Sakraida, 2008; Williams, 2005). In addition, the physiological change of menopause is related to depression (Strauss, 2011). Although mental health services are effective in reducing mental health symptoms

(Schmidt, 2005), there are factors that influence the probability of women getting help (Rosen et al., 2007).

Personality traits are a strong predictor of service utilization (McWilliams et al., 2006), but because personality traits do not reach maximum consistency until the end of middle age (Helson & Soto, 2005; Specht, Egloff, & Schmuckle, 2011) there is the potential that women in midlife will have inconsistent use of services. Counselors can benefit from this study. Recognizing the impact of education and the potential of personality trait shifts during midlife will help counselors be cognizant of the changes in mental health service usage for women in midlife.

This study is significant not just because these variables have not been examined with middle-aged women, but because the results have practical implications. First, mental health advocates can address personality as a barrier for use of services as well as effective interventions. Secondly, Counselor educators can better prepare new counselors to work with middle-aged women, specifically how personality traits in middle-aged women are related to engaging in counseling services. Finally, practicing counselors can place more emphasis on personality traits knowing the impact they have on client engagement and continuation of services.

<div align="center">Research</div>

In an effort to add to the literature regarding women in midlife this study examined the relationships between education, personality traits, change in personality traits, and the use of mental health services among middle-aged women over a 10-year time span.

Questions

1.      How do education and personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) relate to the use of mental health services among middle-aged women?

2.      How do changes in personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) relate to the use of mental health services among middle-aged women?

 Design

        This study used logistic regression to test both research questions. The first regression was used to determine the relationship between education, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience and the use of mental health services among middle-aged women. Variables were entered in the order listed above. According to the literature, education is a known strong predictor of use of services. Therefore, this variable will be entered into the equation first. The personality traits are arranged from most variance to least based on known research of neuroticism, extraversion, and conscientiousness (Goodwin, Hoven, Lyons, & Stein, 2002). Agreeableness and openness to experience may have significant variance but these are unknown for this regression. The second regression was used to determine the relationships between education, change in neuroticism, change in extraversion, change in conscientiousness, change in agreeableness, and change in openness to experience and the use of mental health services among middle-aged women.

Delimitations

1. Participants examined in the longitudinal phase were required to have a working telephone at both sampling periods.

2. Participants were required to English speak.

3. Participants were able to hear over the telephone.

4. Participants averaged 30 minutes on the phone, which may have limited time to formalize responses to the questions.

5. Participants were required to read and write or have a proxy to complete the mailed survey forms.

6. Participants included only non-institutionalized individuals.

7. Participants ranged in age from 25 to 70 old in 1995.

8. Participants are from one United States cohort, Baby Boomers, born between 1945 and 1965.

Assumptions

1. Participants answered the surveys truthfully.

2. The instrument used to measure personality traits is valid and measures the correct constructs.

3. The archival data is free of erroneous information.

Limitations

1. No causal inferences can be made from the data.

2. Women who participated in both time points of the study may not be representative of women who only participated in the first time point.

3. Women in middle age between the years 1995 and 2005 may not be generalizable to women in middle age from a later cohort.

4.  Women in this study born between 1945 and 1965 reflect the population of their age in terms of minority distribution and willingness to participate, resulting in greater than 85% participants being Caucasian.

<div align="center">Validity</div>

Validity is the degree to which a measurement is assessing what it is intended to assess (Gerrig & Zimbardo, 2002). The validity of the archival data used for this research was confounded both internally due to time between samples and externally due to the historic context of this specific cohort. Therefore, steps were taken to ensure the validity of the constructs measured, sampling integrity, and data collected as much as possible (Lachman & Weaver, 1997).

Threats to Internal Validity

Internal validity includes construct validity, maturation, and regression to the mean. Construct validity of the personality trait measure assures that operationalization of trait definitions correctly translates to the instrument (Pelham, 2006). Correlation studies with The Midlife Development Inventory (MIDI) Personality Scales (Lachman & Weaver, 1997) and other valid personality measures (Goldberg, 1992; John, 1990) assured construct validity (Gravetter & Wallnau, 2008). There was a maturation threat where participants may change over time (Christ, 2007). Finally, there was the threat when using change scores that subsequent data will regress to the mean (Barnett, van der Pols, & Dobson, 2005).

Threats to External Validity

External validity refers to the extent to which the data can be generalized to other people or situations (Aronson, Wilson, Akert, & Fehr, 2007). In the original research project, measures were taken to ensure as much generalizability as possible for people, places, and time (Trochim, 2006). Generalizability in the original sample was accomplished by gathering participants through randomization with oversampling for men and older participants. Oversampling ensured the research agenda for the study was met (Huck, 2011). The researchers ensured generalizability for places by sampling a wide geographical base including coverage of rural and urban locations. However, generalizability for time may be compromised. This study is specific to women born between 1945 and 1965. Women from this cohort may carry a specific historical context; and therefore, data may not be generalizable to women of other cohorts.

<div style="text-align:center">Operational Definitions</div>

Midlife in the United States Study (MIDUS)

The MIDUS I study (Midlife in the U.S.) was supported by the John D. and Catherine T. MacArthur Foundation Research Network on Successful Midlife Development. The MIDUS II research was supported by a grant from the National Institute on Aging (P01-AG020166) to conduct a longitudinal follow-up of the MIDUS I investigation. The MIDUS study (Ryff & Davidson, 2011) began in 1995 surveying 7,108 English speaking, non-institutionalized adults in the United States who were at least 25 years old in 1995. The second survey, conducted in 2005, had a retention rate of 75% after adjusting for mortality. Approximately 800 women completed both time point surveys and met the age requirements of 40 to 60 in 1995.

Middle-Aged Women

The women sampled for this study participated in both Time 1 (1995) and Time 2 (2005) and indicated they were between the ages of 40 and 60 years old at Time 2.

Education

Education is defined by the highest level of formal education completed ranging from grade school or less to a graduate degree or more.

Mental Health Service Utilization

Service use is defined by a yes or no answer to the MIDUS question that read: "Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took someone else regarding their problems." The qualified professionals listed were psychiatrist, general practitioner, other medical doctor, psychologist, professional counselor, marriage therapist, social worker, or minister, priest, rabbi or other spiritual advisor (Brim et al., 2006).

Personality Traits

Personality traits are measurable, durable patterns of behavior and thought. The MIDI (Lachman & Weaver, 1997), based on McCrae and Costa's (1987) five-factor model of personality traits, was used to evaluate personality traits. The MIDUS survey requested participants to rate themselves between 1 (*not at all*) to 4 (*a lot*) regarding specific adjectives describing personality. The scores at each time point are continuous and vary based on number of items. Change scores for these variables will be calculated using the

Reliable Change Index (RCI; Christensen & Mendoza, 1986). Due to the small values of personality traits and the fact that there are only two sample points RCI is recommended to counter regression to the mean (Blonigen et al., 2008; Jacobson & Truax, 1991; Pullmann, Raudsepp, & Allik, 2006; Roberts, Caspi, & Moffitt, 2001). Personality trait values from Time 2 (2005) will be subtracted from Time 1 (1995) then divided by the standard error difference between the scores.

Neuroticism. This trait is associated with negative emotional states. People with this trait tend to have a negative response to stress and frequently express anxiety, guilt, and depression (Zimprich et al., 2012). The MIDI survey includes a 4-item scale (moody, worrying, nervous, and (not) calm); scores range from 4-16.

Extraversion. This trait is typified by positive emotional states. People with this trait tend to have external interest, and are sociable, gregarious, and active (Zimprich et al., 2012). The MIDI survey includes a 5-item scale (outgoing, friendly, lively, active, and talkative); scores range from 5-20.

Conscientiousness. This trait is associated with being hardworking, responsible, and organized (VandenBos, 2006). The MIDI survey includes a 5-item scale (organized, responsible, hardworking, and (not) careless); scores range from 5-20.

Agreeableness. This trait is associated with being thoughtful, unselfish, and cooperative (VandenBos, 2006). The MIDI survey includes a 5-item scale (helpful, warm, caring, softhearted, and sympathetic); scores range from 5-20.

Openness to experience. This trait is defined as open to intellectual experiences and new aesthetics (VandenBos, 2006). The MIDI survey includes a 7-item scale

(creative, imaginative, intelligent, curious, broad-minded, sophisticated, and adventurous); scores range from 7-28.

## Summary

In Chapter 1, some of the challenges faced by women in midlife were introduced. Research corroborates the associations between these issues and mental health symptoms. While women may need the use of mental health services, studies reveal that less than a quarter of women utilize services. Personality traits have strong correlations with mental health disorders (Jylhä & Isometsä, 2006) and use of mental health services (Have et al., 2005). Research also supports the theory that personality traits stability does not occur until late middle age (Roberts & DelVecchio, 2000; Zimprich et al., 2012). Further exploration of the effects of change in personality trait on use of mental health service utilization can provide insight for counselors. Therefore, the focus of this study was middle-aged women's use of mental health services and the relationship to education, personality traits, and the personality traits over time.

## Organization of the Study

There are five chapters presented in this dissertation. In Chapter 1, the statement of the problem, the specific research questions and hypotheses, the statistical overview, significance of the study, and definition of key terms were reviewed. A comprehensive literature review of the variables is provided in Chapter 2. In Chapter 3, the study design, including participants, instruments, and methods are discussed. The results are presented in Chapter 4, and the discussion, conclusions, limitations, and future research are in Chapter 5.

CHAPTER 2: REVIEW OF THE LITERATURE

Introduction

The purpose of this study is to examine factors related to use of services for

mental health issues among middle-aged women. More specifically, this study seeks to

explore how education, personality traits, and trait change over a 10-year period affect

the use of services among women in midlife. Therefore, the focus of this chapter is to

review both theoretical and empirical literature that underscores the need for this study.

This chapter will be divided into six main sections. The first section provides an

overview of mental health services, statistics of use of these services, and current

empirical research. The second section defines midlife and review pertinent theories. This

section also provides empirical literature related to midlife personality and midlife mental

health. The third section examines the association of education and the use of mental

health services including related empirical data. The fourth section provides a review of

personality theory and empirical data regarding the relationship between personality and

gender, aging, and mental health. Section four concludes with current research on

personality trait stability. The fifth section defines each of the five personality traits,

stability data pertaining to middle age, and empirical research on use of services for each

trait. The final section summarizes the chapter and highlights the key conclusions from

the extensive review of the empirical and theoretical literature.

Mental Health Services

This study attempts to understand factors related to the use of mental health services by women in midlife over time. While mental health services provide effective means of managing stress, women underutilize this resource (Rosen et al., 2007; Sareen et al., 2007; Schmidt, 2005; Wang et al., 2005). This section will first review the status of mental health services followed by current data on the underutilization of these services, thereby providing the basis for this study.

The fear and stigma of mental illness has remained well into the 21$^{st}$ century (Garcia, 2010). The prejudice has sustained in part due to a lack of effective treatments and affordable services. By 1990, only 2% of private insurance companies covered outpatient mental health services (Garcia, 2010). In an effort for equality between mental and physical health services, Senate Bill 2696 was set forth in 1992 (Garcia, 2010). Mental health parity legislation attempted to require insurance companies to match benefits for mental health services with other medical conditions. After many iterations of the act, the Mental Health Parity and Addiction Equity Act of 2008 became effective in 2010 (Garcia, 2010).

Despite better availability, mental health services continued to be devalued by those opposed to the Parity Act (Barry, Frank, & McGuire, 2006). The arguments include the moral hazard theory, which purports that coverage of mental health services or reduced consumer cost would increase the use of services, thereby increasing the cost to insurance companies, and without limit, would potentially bankrupt the system (Garcia, 2010). Although the emergence of managed health care has helped debunk this theory, the stigma surrounding mental illness and the potential abuse of insurance remains.

Another argument against mental health coverage is that of adverse selection. This addresses the fear that insured individuals are able to run up costs through excessive use of mental health and addiction treatments thereby increasing premiums for all insured people (Garcia, 2010). While these arguments are financially based, the message is that mental health problems will make health insurance unaffordable to all people.

Empirical Research

Possibly, because of stigma and insurance restrictions (Garcia, 2010), many people utilize primary care physicians for pharmaceutical treatment of mental health issues. A study by Young, Klap, Shoai, and Wells (2008) found that 1,642 adults who sought services for depression and anxiety did so 88% of the time with a primary care practitioner and only 22% of the time with a mental health professional. Gadalla (2008) reported similar findings. Women with major depressive disorder between the ages of 45 and 59 years old who sought treatment did so 62% of the time by primary care and 28% by mental health professionals.

The percentages listed above are for those who seek services but the vast majority of those who are in need of services do not utilize primary care or mental health professionals (Kessler et al., 2005; Sareen et al., 2007; Wang et al., 2005). The National Comorbidity Survey (NCS) examined use of services in a 12-month period by those with diagnosed mental illness (Wang et al., 2005). Although results showed a rise in use of services over the last 30 years from 19% to 25%, the numbers remain lower for women. The following section explores the empirical research addressing this underutilization.

The use of services for mental health issues has been proven effective for mental health and problems of daily living (Schmidt, 2005). Yet, in the United States, 30% of

women in need of services do not use these services (Rosen et al., 2007). Mojtabai (2011)

quoted statistics as low as 22%. Reasons for not seeking or using services fall into two

broad categories (Gonzalez, Alegria, Prihoda, Copeland, & Zeber, 2011; Mojtabai, 2011).

The first is intrinsic, relating to attitudes or perceptions. The second category is external,

involving structural barriers.

Intrinsic reasons emerge from value systems, biases, and self-awareness. For

example, many people who meet diagnostic criteria for mental disorders but do not seek

services do not perceive a need (Edlund, Unützer, & Curran, 2006; Gonzalez et al., 2011;

Mojtabai et al., 2011). In an investigation into perception of need, over 9,500 people were

surveyed (Edlund et al., 2006). Of those meeting criteria for substance abuse or mental

health problems, 63% did not recognize a need for treatment. Mojtabai et al. sampled

5,962 participants from The National Comorbidity Survey. Conducted between 2001 and

2003, the survey examined patterns of use of mental health services. Women were found

to be significantly less likely to perceive a need for help than men ($OR = 0.8$, 95% $CI =$

0.6 to 1.0, $p < .05$).

Of those who did not seek services, 97% cited attitudinal barriers such as stigma,

perceived ineffectiveness, or belief that the problem would go away Sareen et al. (2011)

used multivariate statistics to analyze survey data from multiple adult studies in North

America and the Netherlands. Embarrassment was a strong predictor against using

services ($AOR = 3.20$, 95% $CI = 1.20$ to 9.08, $p < .01$). In a survey by Gonzalez et al.

(2011), one third of the respondents said they would be embarrassed if their friends knew

they were seeking help for an emotional problem.

Gadalla (2008) found similar results in a Canadian study of women with major depressive episodes. The most frequently reported reason for not seeking services were negative attitudes toward utility of mental health services (69%). Sareen et al. (2011) found that after adjusting for age, gender, education, and marital status, lower income individuals are more likely to believe that services would not help (*AOR* = 5.97, 95% *CI* = 1.77 to 20.11, *p* < .01).

External reasons for not seeking services include structural barriers toward mental health services. The barriers cited varied by age. Pepin, Segal, and Coolidge (2009) surveyed 164 participants using the Barriers to Mental Health Services Scale (BMHSS). They divided the participants into two age groups, younger adults (ages 18 to 35 years) and older adults (ages 61 to 90 years). In rank order, the older group was most concerned with the ability to find a qualified psychotherapist, whereas the younger group was more concerned with insurance coverage. Gadalla (2008) surveyed Canadian women diagnosed with major depressive disorder. Of those who did not seek services, 69% reported competing demands on their time, 23% reported problems with service availability, and 15% reported cost. While these barriers are important, Mojtabai et al. (2011), using the National Comorbidity Survey Replication (NCS-R; Kessler et al. 2004), concluded from the 5,962 participants that intrinsic barriers far outweighed structural barriers. The results demonstrating initiating counseling services (97% to 22%), as well as continuing services (82% to 32%) are detailed in Figure 2.

**Barriers to Mental Health Services**
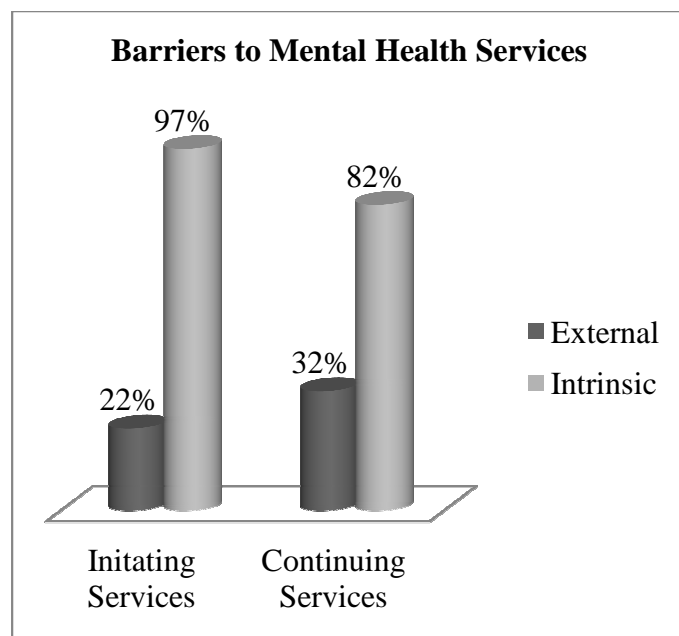


Figure 2. Barriers to Services
National Comorbidity Survey Replication (NCS-R; Kessler et al. 2004)

Finally, Currin, Hayslip, and Temple (2011) suggest that attitudes of individual cohorts regarding the availability and acceptability of mental health services are specific to each generation. Currin et al. made a historical comparison of three cohorts and found a difference in beliefs regarding mental health services. The younger two cohorts held much more positive beliefs about service utilization. The authors suggest that this shows greater education of the benefits of services in the more recent decades.

Summary

The body of research discussed above established a firm argument that mental health services are underutilized. The most cited reasons for not seeking services included availability, stigma, and belief in efficacy. While women are more likely than men are to seek services, the greatest attitudinal barrier cited by women is concern with finding qualified help. This is particularly true for older women.

Understanding women in midlife, however, is only just beginning (Lachman, 2004). What is unknown for this group is the extent and effect of personality trait changes during midlife. There is a lack of information about the relationship between these changes and the use of mental health services. One purpose of this research is to close this gap in this literature base. The following section will describe this specific segment of the population in detail providing context for further examination of the influence of education and personality on use of mental health services.

<center>Midlife</center>

Midlife as a developmental stage in human growth is a relatively new concept. It is the period between young and old which continues to increase in longevity, age normed events such as marriage, childbirth, and retirement are being redefined. While the generally accepted age range for midlife is 40 to 60 years of age, many add as much as 10 years on either end of the spectrum (Lachman, 2004). According to the current census, 50% of Americans are between the ages of 30 and 70 (United States Census Bureau, 2010). This period has become the longest yet most ambiguous period of human development.

People in midlife are often thought of as having reached some amount of emotional control (Helson & Soto, 2005). It is a time of freedom, a time to pursue personal interests unencumbered by family, finances, or health issues (Lachman, 2001). Helson and Soto define midlife as a time where people are able to socialize and mentor. Erikson (1968) labeled midlife as a time to evaluate stagnation versus generativity. For many women, however, midlife is a time of equal focus on generativity and identity development (Newton & Stewart, 2010).

The variability of women in midlife makes it difficult to state developmental generalizations. Midlife by definition is a time of change. Many of these changes are tied to chronological age such as menopause but many are not. Women have been afforded the freedom to go against tradition through education, work, and the ability to choose if and when to have a family. This freedom comes with stress. Research demonstrates that perceived control has been associated with subjective well-being (Lang & Heckhausen, 2001). The authors reported a strong correlation with perceived control and positive affect in middle age ($r = .77$), while it was negatively correlated with negative affect ($r = -.55$).

The following section provides the theoretical base for the midlife stage of life. The development models presented begin with the psychodynamic and end with the contextual issues with cohort theory. Empirical data will be presented regarding midlife personality and midlife mental health issues specifically relating to middle-aged women.

Midlife Theories

Historically, theories of human development have been studied from many points of view. Jung (1932) defined midlife as the culmination of the individuation process or completion of ego development, happening around age 50. According to Jung, the key to maturation is a full integration of the anima and animus, a physical evolution where middle-aged people become more androgynous. Jung writes, "A man consumes his large supply of masculine substance and has left over only the smaller amount of feminine substance, which he must now put to use. It is the other way around with a woman." (1932, p. 110). This evolved identity is then able to navigate the multiple roles of midlife.

Jung (1932) observed that middle-aged women were able to leave the softer, material aspects of self and enter the man's world with work and social responsibility. He felt the incorporation of masculine attributes was an awakening for women. This reversal, however, often was the impetus to a midlife crisis for men. Jung explained that it was difficult on the psyche for men to become feminine while observing their wives becoming masculine.

Erikson (1968) addressed midlife with a detailed stage model outlining identity development. Each stage represents a polarity of life. His psychosocial dilemmas are age specific. Stage 7, the transition in midlife, represents stagnation versus generativity. Erikson summarizes this period as one of contribution through raising a family, mentoring the young, or giving back to society. Success in this stage results in a feeling of productivity, achievement, and legacy. Erikson's theory, however, was based on research from older cohorts where women played a much more traditional role than they do today (Twenge, 2000).

Newton and Stewart (2010) tested the applicability of Erikson's work to women using data from the Radcliffe Longitudinal Sample. According to Erikson (1968), as people enter midlife, their focus on identity decreases while their focus on generativity increases. Newton and Stewart found this pattern in women who followed a traditional path of children then retirement; however, women's development was skewed by delayed family starts and career opportunities. Overall, as Erikson predicted, the data showed increasing levels of generativity between ages 43 and 62. However, the trajectories leading to age 62 differed by subgroups. As predicted, women with family only or women who added a family to an existing career decreased their focus on identity and

increased focus on generativity during midlife. Yet, those who added a career to an existing family or were career only increased their focus on identity during midlife with little increase on generativity. In fact, women who were career only expressed the lowest levels of generativity and highest focus on identity at 43 suggesting parenthood exerts a major influence in midlife development. Newton and Stewart found that over time women in all groups moved toward generativity, although those with careers maintained a higher focus on identity.

Levinson's (1986) original theory on midlife was based almost exclusively on men, which he revised the idea of crisis with transition. Occurring between 40 and 45 years of age, the transition represents the move from young adulthood to middle adulthood. Similar to Jung, one of the tasks of the transition is greater individuation. Levinson describes this process as a softening of personality, more compassionate and less oppressive. Midlife continues to about age 65. While health is on the downslide, generally people are able to enjoy all that they have worked for in young adulthood. Levinson adds that there is a sense of generativity through mentoring younger generations. Described by Helson and Soto (2005) and Lachman (2004), this period is one in which people are able to feel satisfied with their own development and are able to give back to society.

The theories that explain midlife development, however, need to be viewed within historical context. The cohort in which a person develops creates a distinctive set of values (Edmunds & Turner, 2005). Furthermore, women compared to men, have unique influences, conflicts, and transitions during midlife (Saucier, 2004). Past developmental models only partially fit.

This study explores personality development during midlife filling a gap in the literature. The following sections encompass the normative events as they relate specifically to the middle-aged women of this study born between 1945 and 1965. Cohort theory and role transitions provide a contextual basis for understanding the influences on this group.

Cohort Theory

Cohort theory (Edmunds & Tuner, 2005) places emphasis on generations connected through historical events and social changes. Events experienced during formative years result in fundamental shifts that come to symbolize a generation (Sessa, Kabacoff, Deal, & Brown, 2007). A cohort's values, attitudes, and beliefs are influenced by wars and resource shifts as well as cultural revolutions and symbolism.

People's attitudes toward mental health issues and use of services are intrinsically tied to their cohort. Currin et al. (2011) extended previous research to test the hypothesis that historical context contributes to use of services. For example, they theorized that children of the depression era valued being able to pick themselves up with no help from others. To test the cohort effect, Currin et al. examined interviews from adults at three times 1977, 1991, and 2000. They found that the younger generations had more positive attitudes toward mental health services than the 1977 cohort did. Gonzalez et al. (2011) used multivariate analysis of a cross sectional survey to compare adults between 18 to 34 years old and adults 50 to 64 years old. The study revealed the older age group was far less comfortable with the topic mental health than the younger age group ($OR = 0.27$, 95% $CI = 0.09$ to $0.84$, $p < .001$).

Cohort theory is apparent in personality trait shifts as well. Twenge (2000) evaluated data from a study about birth cohort and found that between 1952 and 1993 women have had substantial increases in neuroticism ($r = .53$, $p < .001$) and high increases in anxiety ($r = .58$, $p < .001$). The same study also revealed a correlation between decreasing social connectedness and increasing social dangers. Twenge suggests that these types of broad social trends influence cohort personality development.

Role Enhancement Theory

Midlife for women is often defined as a time of multiple role changes (Helson & Soto, 2005). These include family roles, social roles, and work roles. According to the role enhancement theory (Reid & Hardy, 1999), multiple roles can lead to mental well-being by providing greater opportunity for support and access to various resources. This theory is also balanced by role strain, which suggests that there is a threshold of the number and quality of roles a person can manage.

Helson and Soto (2005) utilized the Mills Study of Women's Adult Development to identify stages of midlife where the change in number of roles had the greatest impact. A sample of 123 women were studied at four intervals, ages 27, 43, 52, and 61. Women between 27 and 43 years of age had significant increases in their number of roles, which peaked at age 43. The numbers of roles decreased from age 43 to age 61. Child rearing accounted for the majority of role changes, 75% of women 43 to 51 years of age reported children in the home. This percentage dramatically drops to 23% by age 52. Work roles, however, peaked at age 52.

Nyman, Spak, and Hensing (2012) analyzed the association between changes in social roles for women and mental well-being. They found an increase in social roles

appear to guard against poor mental health. As the number of social roles increased the odds for poor mental health decreased ($OR = 0.4$, 95% $CI = 0.2$ to 0.8, $p < .05$). The converse was also established. As the number of roles in women's lives decreased, they were significantly more likely to have poor mental health ($OR = 4.5$, 95% $CI = 1.8$ to 11.0, $p < .05$) or psychiatric disorders ($OR = 2.6$, 95% $CI = 1.0$ to 6.8, $p < .05$).

In conclusion, the developmental theories, cohort theory, and role enhancement theory altogether present an inclusive platform for midlife development. Erikson's stages of development create a linear view of midlife, while the cohort theory adds the contextual component. The addition of role enhancement provides a means to view the individual within the psychosocial scheme of stage and context. This study will address these facets of development by examining specific age and gender in the context of midlife specifically relating to a unique cohort.

Midlife Mental Health

This proposed study attempts to understand factors related to the use of services for mental health issues among middle-aged women. The importance of this is based on the high prevalence of mental health problems among women. Using a large community sample, Wang, Berglund, and Kessler (2000) reported women having higher life time rates than men do for depression (17% to 10%), generalized anxiety disorder (4% to 2%), and panic disorder (9% to 4%). Further examination reveals midlife as a particularly vulnerable time for and mental health problems.

Kessler et al. (2009) used the National Comorbidity Survey Replication (NCS-R; (Kessler & Merikangas, 2004) to estimate 12-month prevalence of various forms of mood and anxiety disorders among specific age groups over the lifespan. The data in Figure 3

emphasizes the vulnerability of incidents of mild depression (dysthymia) and generalized

anxiety disorders (GAD) among this group.
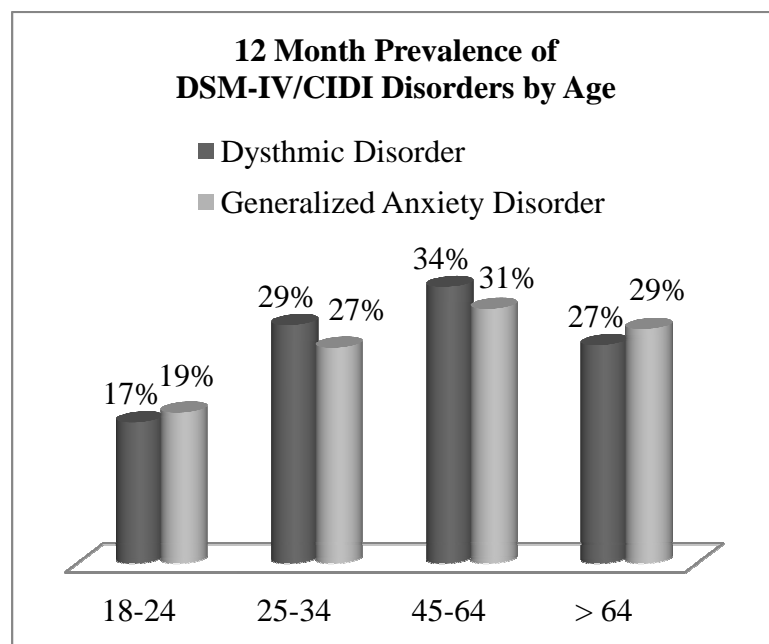


Figure 3. 12-Month Prevalence of Mental Disorders
National Comorbidity Survey Replication (NCS-R; (Kessler & Merikangas, 2004)
DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition;
CIDI, Composite International Diagnostic Interview.

The years surrounding menopause are one such time. Simpson and Thompson

(2009) define menopause as 12 consecutive months of no menses, and occurs on average

at 50 years of age ($SD = 4.75$). There is substantial research on menopause and

depression (Bromberger & Lanza di Scalea, 2009; Li et al. 2001; Strauss, 2011). Several

large studies support higher levels of depression during this period, more severe levels of

previous depression, and high incidents of first time symptoms (Bromberger et al.; Li et

al.). Straus (2011) cautions that the relationship among menopause, midlife, and

depression is a complex one yet worthy of study. Like Bromberger et al. (2009), Strauss

reported significant but small results. Strauss (2011) questioned whether variance due to the modest effect size resulted in erroneous results, whereas Bromberger et al. (2009) questioned their design choice of using a self-administered test relying on social desirability.

Menopause is responsible for many physical changes as well. Lovejoy, Champagne, Jonge, Xie, and Smith (2008) conducted longitudinal studies of body changes in women in the menopause transition. Increases in visceral fat and decreases in energy are associated with decreases in estrogen. Women in midlife are pressured to be fit and stay youthful yet menopause leads to weight gain. This is now being associated with late onset of eating disorders (Brandsma, 2007).

In addition to menopause, midlife is associated with role changes, which may elicit anxiety and stress (Simpson & Thompson, 2009). Wang et al. (2000) report the peak onset of panic disorders for women is between 45 to 54 year old. Weissman and Levine (2007) suggest that it is not uncommon to trigger anxiety disorders later in life, stating that psychosocial issues of midlife such as change in family structure and employment changes may elicit anxiety issues.

Summary

Middle-aged women are a diverse group; nevertheless, they share some common transitions that may create psychological distress leading to the need for mental health services (Lachman, 2004). As such, it is important to understand the variables that affect use of services. While research has been conducted in the field of epidemiology (Brandsma, 2007; Goodwin et al., 2002; Franco, 2007; Weissman & Levine, 2007) , there is little research within the field of mental health counseling specifically focused on

middle-aged women (Lachman, 2004). Women born between 1945 and 1965 are different from any cohort that precedes them. The confluence of longer lives, a multitude of role changes, and specific cohort values has resulted in a developmental stage that is only just now being studied (Lachman, 2004). Modern midlife is a period of stress and physical change which may create the need for mental health services but little is written about the how personality influences women now. This study specifically focuses on personality traits and changes among middle-aged women.

There is no historic context for what is considered normative development of midlife women. Longer life, more opportunity, and specific cohort experiences make it difficult to generalize this group. Data from studies described above come from various cohorts and previous periods in history. The models of development discussed in this section are based on research and observation from 40 to 50 years ago. Life expectancy and vitality have since increased. The elongation of middle age creates wide variably in where women are during midlife. Cohort theory suggests that the experiences of members of a group are anchored in time, yet midlife is defined as period of transition. As seen with role enhancement theory, the gains and losses of roles do influence mental health. The remainder of this chapter serves to explore other variables affecting the use of mental health services for this particular group of women.

<center>Education and Mental Health Services</center>

According to the literature, one of the strongest predictors of use of services for mental health issues is level of education (Currin et al., 2011; Gadalla, 2008; Gonzales et al., 2011; Goodwin et al., 2002). The following section highlights the empirical research

supporting the correlation between education level and use of services for mental health issues.

Education levels have increased over time as well as begun to equalize by gender. The level of education is vastly different for women born in 1945 versus 1965. The older women in this study were raised during a period where a high school degree was not the norm. According to the National Center for Education Statistics (2012), in 1940, half of the country's young adults had no more than an eighth grade education and only 6% of men and 4% of women completed a college degree. By contrast, the younger women in this study grew up in a time with more opportunity for further education. In 1960, American young adults had a 40% increase in high school completion and a 10% increase in college completion. The United States Census Bureau (2000) reported by the turn of the 21$^{st}$ century 85% of adults, age 25 years and older, had a high school degree or equivalent. In addition, 27% held college degrees. The most current statistics reveal that women had the biggest increases in education levels. The number of women with college degrees increased from 11% in 1970 to over 36% in 2010 (United States Census Bureau, 2010).

Empirical Research

Higher levels of education are consistently associated with a higher likelihood of use of services (Currin et al., 2011; Gadalla, 2008; Goodwin et al., 2002). While empirical research will demonstrate this, it is important to note that there is no correlation between education level and mental health problems. In a study by Gonzalez et al. (2011), there was no main effect between education level and mental health in multivariate models. Gadalla (2008) demonstrated this as well by calculating the

prevalence of major depressive episodes among women at varying levels of education. The variance was insignificant (0.6 %). However, the association with use of services and level of education is significant.

People with less than a high school degree were 18% less likely to believe services would be helpful while those with more than a high school degree were 50% more likely to believe services would be helpful (Gonzalez et al., 2011). This is consistent with Steele, Dewa, and Lee's (2007) findings which showed that those who did not graduate high school were less likely to utilize mental health services ($OR$ =0.65, 95% $CI$ = 0.45 to 0.93, $p$ < .05). Goodwin et al. (2002) provided supporting data. Those with a high school degree or more were more were much more willing to seek services. This level of education increased the likelihood of using services by one and one-half times ($OR$ = 1.5, 95% $CI$ = 1.3 to 1.7, $p$ < .05). The odds of utilizing services continue to increase as education levels increase. Gonzalez et al. (2011) reported a high willingness to seek mental health services by college educated people ($OR$ = 10.52, 95% $CI$ = 2.20 to 50.35, $p$ < .01).

Gonzalez et al. (2011) assert that due to economic or social constraints people with lower education levels have less exposure to the benefits of mental health treatment. Furthermore, they presume that a higher education level may increase awareness of the benefits of mental health services, improve attitudes toward mental health treatment, and reduce stigma associated with mental illness (Gonzalez et al., 2011).

Summary

The research demonstrates that while education is associated with the perceived efficacy and use of mental health services, it is not associated with mental health issues.

The more important connection may be related to the result of higher education. College degrees and higher education are associated with higher earning potential thus lowering external barriers related to finance or insurance. In addition, higher education leads to broader exposure to information, which lowers intrinsic barriers. The intrinsic barriers may be stigma, ignorance to efficacy, and knowledge of availability of services. Because of this important connection, education as a factor in this study is of great importance as it accounts for a large part of variance in the use of mental health services. This study seeks to support the correlation of education and use of services specifically with middle-aged women.

<div align="center">Personality</div>

Personality is an enduring pattern of emotions, thoughts, and behaviors (McCrae & Costa, 2003). The continuity in these patterns is attributed to genetics while the changes are a reflection of life events and aging (Allemand, Zimprich, & Hertzog, 2007). Personality is second only to education in its impact on use of services. Large community samples collecting data on mental health, use of services, and personality have created the opportunity to examine the associations of specific personality traits (Goodwin et al., 2002; Hayslip, Maiden, Thomison, & Temple, 2009; Jylhä & Isometsä, 2006; Lucas & Donnellan, 2011; Seekles et al., 2012; ten Have, Oldehinkel, Vollebergh, & Ormel, 2005). In order to provide a background for the discussion on specific traits and use of services, the next sections will describe (a) personality theory with a focus on trait theory, (b) personality research regarding age, gender, and mental health, and (c) personality trait stability.

Personality Theory

A progression of personality theory can be traced through the early 20th century psychologists. Freud, Jung, and Adler heavily influenced the understanding of personality from a psychodynamic and psychoanalytic theories perspective. All three posited that personality emerges from conflicts during ego development (Friedman & Schustack, 2006). Moreover, all three based much of the conflict on masculine and feminine dogma. Although their theories inform much of modern literature, they are reflective of the historical social context of the Victorian period where women were considered a deviation of men (Gilligan, 1982).

Personality according to Freud (1912) was a reflection of the coping style of the superego, which manages the conflict between the id and ego, and psychosexual stages of development. The main contribution to the female personality was the stress of not being a man. Freud believed women could not develop a strong moral sense because they did not experience the Oedipus complex (Gilligan, 1982). In a Neo-Freudian response, Horney (1991) countered with the idea that it is men's envy of motherhood leads to a depreciation of women.

Similarly, Jung's view of personality revolved around unconscious inner conflicts. As opposed to Freud's psychosexual conflicts, Jung (1921) theorized conflict as complexes. These complexes form around the collective unconscious archetypes, which follow strong gender lines with the anima and animus. Jung was more progressive than Freud was in that Jung believed people possess both feminine and masculine personas, but within a society that dictated the expression of personality.

The Victorian social norms were also apparent in Alder's theory of Individual

Psychology. Adler (1917) described ego development through the inner conflict of the

Inferiority Complex. Although more progressive in his views of women, Adler used the

language of the times when he stated that masculine protest was necessary to overcome

inferiority.

According to all three, ego development results in coping patterns, which become

the enduring qualities of personality. Jung and Adler, more than Freud, provided some of

the early frameworks of personality types. Jung (1921) conceptualized his theory of

internal dichotomies through the overarching typologies of introvert and extrovert. To

this he added thinking versus feeling and sensing versus intuiting, resulting in a matrix of

personality temperaments. Individual psychology framed personality types by ways of

acting (Mosak & Maniacci, 2011). The preferred style is to be socially useful, while the

inferiority complex drives the other three styles. These are the (a) ruling type, aggressive

and dominating; (b) the getting type, dependent and needy; and (c) the avoidant type,

socially inactive and evasive.

Common among the aforementioned psychoanalytic and neo-analytic theorists

was the notion that personality developed at a young age, largely based on early

experiences with authority figures. Erik Erikson's (1968) epigenesist of identity was the

first to consider identity or personality development over a lifespan. He also framed his

theory with opposing forces or crisis that required resolution before moving to the next

stage of life. The balance of opposing forces forms healthy personality. The first five

stages are based on Freud's (1912) psychosexual development. Erikson, however,

reframed these into psychosocial developments. These are (a) trust versus mistrust in

infancy, (b) autonomy versus shame and doubt in early childhood, (c) initiative versus guilt in early middle childhood, (d) industry versus inferiority during late middle childhood, and (e) identity versus role confusion in adolescence. Erikson added three more stages spanning early adulthood to old age, (f) intimacy versus isolation, (g) generativity versus stagnation, and (h) ego integrity versus despair.

Erikson's psychosocial stages of development provide a good framework to study life's stages but as a personality theory, he is in sharp contrast with trait theory. His main assertion in the field of personality development is that it continues to evolve. He states that inner and outer conflicts force the emergence of a healthy personality (Erikson, 1968).

Trait Theory

While not a new idea, Allport (1966) revived trait theory of personality. A wordsmith, Allport defined personality as an individual's unique set of tendencies that define a way of life. He described this dynamic organization with two separate constructs. The first was a cardinal disposition, the passion that rules an individual's life; and the second was a central disposition, the fundamental qualities seen by others. Allport acknowledged the difficulty in defining and measuring personality traits, yet he understood the value in scientific measure. The biggest challenge he saw was in the language and agreement of the trait dimensions. In 1966, Allport wrote that after four decades of research he proclaimed that methodological preoccupation could result in "unnamable factors, arbitrary codes, unintelligible interaction effects, and sheer flatulence from our computers" (p. 170).

Furthering trait theory, McCrae and Costa (1987) developed scales to scientifically qualify and measure personality traits. The researchers collapsed many of Allport's (1966) traits into a five-factor model that is the mainstay of this study. Originally, McCrae and Costa referred to their inventory as the NEO, which represented neuroticism, extraversion, and openness to experience; however, this was revised to include agreeableness and conscientiousness. Like Allport, the field of personality research recognized the need for consensus on personality vocabulary. Over the course of multiple studies specific personality descriptions referred to as facets were standardized (Krug, & Johns, 1986). The detailed descriptions provide a universal language for personality.

Empirical Research

Trait theory does not exclude previous theories from the masters. In fact, there are strong correlates between McCrae and Costa's (1989) big five traits and Jung's (1921) psychological types. McCrae and Costa analyzed longitudinal data from 468 men and women ranging in age from 19 to 93 years of age. When they compared Myers Briggs Type Indicator (MBTI; Myers, 1980) with the big five personality traits, they found strong correlations with extraversion, introversion, and openness. The data also revealed moderate correlations for conscientiousness and agreeableness. Nevertheless, McCrae and Costa distinguish trait models and typologies such as the MBTI. The former is a description of a personality trait, while the later proposes a dichotomous definition, which is not supported by research. For this reason, trait models are the more conventional method of examining personality. The studies that follow examine trait strength with gender, aging, and mental health.

Personality and Gender

Gender is defined by not only sexual orientation, identity, and social roles, but it also involves a psychological profile containing personality trait stereotypes (Gawali, 2012). Specifically, identity development is greatly influenced by personality (Marsh, Nagengast, & Morin, 2012). Goodwin and Friedman (2006) reported women consistently having higher levels of neuroticism than men do (2.35 vs. 2.15, $F_{(1, 2,619)} = 59.8$, $p < .0001$). Gawali found the same gender trends with neuroticism where women compared to men were higher on the trait (23.7 vs. 21.2, $t_{(1, 58)} = 2.19$, $p < .05$). Women were also significantly higher in conscientiousness than men were (3.41 vs. 3.31, $F_{(1, 2,619)} = 14.8$, $p < .0001$) (Goodwin & Friedman, 2006). Costa, Terracciano, and McCrae (2001) concur on a global level. Their cross-cultural examination of 36 countries also showed significance with women having higher levels than men in neuroticism and agreeableness. Goodwin and Friedman produced the same results. Women had significantly higher levels of agreeableness (3.36 vs. 3.6, $F_{(1, 2,619)} = 175.5$, $p < .0001$. Finally, openness to experience varied by gender and nationality. Openness to experience has been reported as higher in German women then German men, while British women were lower than British men were in Openness to experience (Marsh, Nagengast, & Morin, 2012).

Donnellan and Lucas (2008) reported gender differences in traits. In fact, the authors state that there are noticeable changes in personality across the entire lifespan. Because differences between genders occur, it is important to evaluate gender separately. This study not only focuses on women only, but it also narrows the gap in literature specifically to women in midlife.

Personality and Aging

There is a debate among researchers of the personality traits regarding the function of aging and trait stability (Carey, 2003; Hogan & Roberts, 2004; Hopwood et al., 2011; Leak & Leak, 2006; Marsh et al., 2012; Specht, Egloff, & Schmuckle, 2011). The leading theories focus on natural changes in traits over time and environmental conditioning over time. These theories focus on middle and late adulthood.

The maturity principle (Hogan & Roberts, 2004) suggests people experience increasing emotional maturity over a life span. Hopwood et al. (2011) and Specht, Egloff, and Schmuckle (2011) considered intrinsic maturation as a guiding principle with declines in negative affect and increases in stability. Over a life span, people become more dominant, agreeable, conscientious, and emotionally stable. The humanistic view explains this as self-actualization. On the other hand, Adlerian psychology equates maturity with community involvement and productivity (Leak & Leak, 2006). This includes becoming more deliberate and decisive, but also more giving and understanding. A review of longitudinal data found most people do appear to become more functionally mature with age, but data is inconsistent (Marsh et al., 2012).

According to the maturity principle, neuroticism should decrease with age while conscientiousness should increase with age (Hogan & Roberts, 2004). Donnellan and Lucas (2008), however, found the trajectories of neuroticism and conscientiousness were varied and nonlinear. Overall, studies found agreeableness to increase with age while extraversion decreased with age (Allemand, Zimprich, & Hendriks, 2008; Donnellan & Lucas, 2008; Srivastava, John, Gosling, & Potter, 2003). Marsh et al. (2012) conclude that these inconsistencies bring the maturity principle into question.

The cumulative continuity principle (Carey, 2003) is a model of personality stability. Personality, while generally fixed, is said to develop over the life span. This principle relies on three distinct factors. The first argues the genetic influences override short-term environmental effects on personality traits. Carey (2003) describes this through the set-point model, which states personality traits will return to their natural state after short-term deviations. A second explanation involves a niche-building process (Roberts & Robins, 2004). People will gravitate to environments that fit and preserve their personality. Along with this theory, Roberts and Caspi (2003) added that identity development and personality maintain a reciprocal tie that promotes continuity.

The combination of the continuity principle and the maturity theory more aptly describes personality evolution over a lifespan. Titled the corresponsive principle, this theory purports that personality continuity and change are not mutually exclusive over the lifespan (Roberts, Robins, Caspi, & Tzesniewski, 2003; Roberts & Robins, 2004). In other words, people choose environments that enhance specific personality traits. These life experiences result in personality changes.

Theories on aging vary as to how personality evolves. There is, however, consensus that midlife is a time of active personality change. Given the fact that there are gender differences in the midlife experience this study's focus on midlife for women only may shed light on the various principles of aging discussed in this section.

Personality and Mental Health

The association between personality and psychopathology has been well established (Bienvenu et al., 2004; Goodwin & Friedman, 2006; Harkenss, Bagby, Joffe, & Levitt, 2002; Jarvas et al., 2012; Jylhä & Isometsä, 2006; Kotov, Gamez, Schmidt, &

Watson, 2010; Lahey, 2009). The mental health issues discussed in the following section are mood and anxiety disorders. These are closely associated with personality and are especially common in women. According to the NCS-R study women, compared to men, are 70% more likely to experience depression and 60% more likely to experience an anxiety disorder over a lifetime (Kessler et al., 2005).

Neuroticism has been found to be highly associated with poor mental health. Several meta-analyses support this correlation (Lahey, 2009; Kotov et al., 2010). In both studies, results were standardized to effect sizes using Cohen's $d$., where positive effect sizes indicate high levels of a trait. Lahey (2009) published two meta-analyses describing the strong association between neuroticism and mood disorders ($d = 1.54$, $p < .0001$). Reviewing 175 studies, Kotovo et al. (2010) reported similarly strong associations with a range of anxiety disorders and neuroticism ($d = 1.82$ to $2.28$, $p < .0001$). The range of mood disorders had similarly high correlations with neuroticism ($d = 1.88$ to $2.53$, $p < .0001$). Jylhä and Isometsä's (2006) original research reported similar associations. Neuroticism and depression were strongly correlated ($r_s = 0.71$, $p < .001$) as were neuroticism and anxiety ($r_s = 0.69$, $p < .001$. Goodwin and Friedman (2006) reported depression ($r = 0.267$, $p < .0001$) and anxiety ($r = 0.232$, $p < .0001$) correlate with neuroticism.

Kotov et al. (2010) also found extraversion negatively associated with anxiety disorders ($d = -1.26$ to $-2.36$, $p < .05$). These results matched results from Jylhä and Isometsä (2006) with correlations of extraversion negatively associated with depression ($r_s = -0.47$, $p < .001$) and with anxiety ($r_s = -0.36$, $p < .001$). Similarly, Goodwin and Friedman (2006) reported significantly lower levels of extraversion among adults with

major depression ($r= .082$, $p < .0001$) and generalized anxiety disorder ($r = .051$, $p <$ .009) than those without disorders. Adding to the existing Hopkins Epidemiology of Personality Disorders study, Bienvenu et al. (2004) found low levels of extraversion and simple phobia, social phobia, and agoraphobia.

Goodwin and Friedman (2006) studied personality trait differences between people with and without specific mental disorders. In addition to supporting the above data on neuroticism and extraversion, they also noted significance with conscientiousness. Significantly lower levels of conscientiousness were found among those with major depression ($M = 3.31$, $SD = .48$) than those without depression ($M = 3.41$, $SD = .45$) ($p < .001$). Similarly, lower levels of conscientiousness were found among those with generalized anxiety disorder ($M = 3.27$, $SD = .49$) than those without anxiety ($M = 3.40$, $SD = .46$) ($p < .05$).

Chien, Ko, and Wu (2007), Harkness et al., (2002), Kotov et al. (2010), and Goodwin and Friedman (2006) found no significant mental health association with agreeableness as an individual trait; however, there does appear to be an interaction with agreeableness and neuroticism among those with depression. Chien et al. (2007) found over the course of two years of depression, a sample of 1,378 individuals with depression maintained small but significant negative correlation between neuroticism and agreeableness($r = -.29$; $p < .01$). Harkenss et al. (2002) found a similar association between high neuroticism and low agreeableness in those with depression. Analysis revealed significant main effects of time for neuroticism, ($F_{(1, 56)} = 43.49$, $p < .001$) and agreeableness ($F_{(1, 56)} = 4.37$, $p < .05$).

In an investigation into personality and positive mental health, Lamers, Westerhof, Kovacs, and Bohlmeijer (2012) surveyed 1,161 participants between the ages of 18 and 88 years. Positive mental health was which they defined as emotional, social, and psychological well-being. This construct was found to be positively correlated with two personality traits, extraversion and agreeableness, while negatively correlated with psychopathology ($r$ = - 0.52, $p$ < .001). More specifically, extraversion and agreeableness were highly correlated with positive mental health. Little research exists on conscientiousness and mental disorders; however, Freedman and Goodwin (2006) did find small but significant inverse relationships with both depression and anxiety. While Chien et al. (2007) found a similarly small inverse correlation with agreeableness and depression ($r$ = -.29, $p$ < .01). Little research exists on openness to experience and mental health. The notable exception is Bienvenu at al. (2004). They report a significant correlation with obsessive-compulsive disorder and openness to experience ($p$ ≤ .01).

A large body of research exists demonstrating the associations between emotional health and the personality traits extraversion and neuroticism. Conscientiousness and agreeableness also are reported to have an association; however, these correlations are not strong. It remains to be seen by this research whether change in the level of these traits are reflected in the use of services. Understanding if there is a connection between personality and mental health provides valuable information for treatment purposes.

Stability. There is evidence that personality traits continue to change over time (Roberts et al., 2006; Soto, John, Gosling, & Potter, 2010), and that change can have effects on health issues and outcomes (Helson et al., 2002; Terracciano et al., 2005; Turiano et al., 2012). There are four conventional ways to measure personality change:

rank order consistency, mean level change, individual level change, and ipsative stability (Roberts & DelVecchio, 2000). The first two measures, referring to change at the population level, are most often employed in personality research. Rank order refers to the consistency of personality of an individual relative to a group. In general, mean level focuses on average trait increases and decreases in a population, while individual level change refers to whether personality within an individual remains the same over time.

Rank order research shows a consistent linear increase in stability into midlife. Roberts and DelVecchio (2000) demonstrated the increase in personality stability with age. Stability correlations increased from childhood .36, college .54, adulthood .64, to a plateau in midlife with a correlation of .74. Moving into old age, personality stability appears to weaken. Martin, Long, and Poon (2002) evaluated rank order consistency in old age and found lower correlations of stability in people over 80 years of age even after controlling for cognitive decline. These correlations would indicate a curvilinear stable profile.

Specht et al. (2011) also reported rank order consistency as curvilinear with the peak of stability between 40 and 60 years of age. This was true for all traits except conscientiousness, which increased continuously with age. Blonigen et al. (2008) and Jarvas et al. (2012) also found increases in conscientiousness over time. Their results suggested older individuals were better able to regulate negative emotion than younger people were.

Mean level changes are used to report gains and losses in personality traits over time. Many studies have examined the longitudinal change and found mean level personality changes through a lifespan, yet do not account for individual variability

(Lucas & Donnellan, 2011; Roberts, Walton, & Viechtbauer, 2006; Terracciano et al., 2005). Roberts and Mroczek (2008) purport that the individual level change studies are what is needed to have a complete understanding of personality development.

There is strong evidence that mean level change scores may cancel out individual level changes (Roberts & Mroczek, 2008). Change scores vary by gender and age (Costa, Terracciano, & McCrae, 2001; Roberts & DelVecchio, 2000). They may also reflect mental health levels that are also subject to change (Turiano et al., 2012). Events such as marriage or divorce have an impact on personality traits, but as seen in Figures 4 and 5, these changes are effected by not only the event but also by gender (Costa, Terracciano, & McCrae, 2001). These difference support Turiano et al.'s (2002) suggestions that personality trait change results may only be relevant when presented as individual change rather than mean change. Based on this argument, the longitudinal data used in this study will be calculated on individual change by gender.
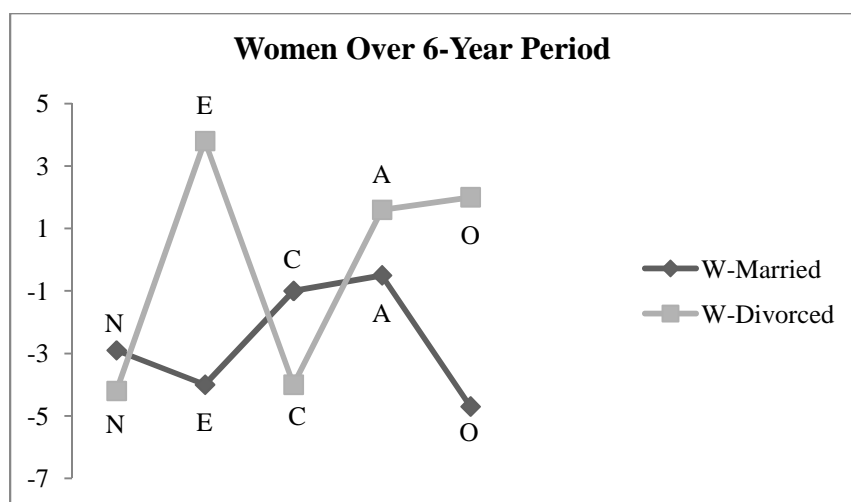


Figure 4. Women's marital status change over a 6-year period
Scale represents change scores of traits over a 6-year period.
N – neuroticism, E – extraversion, O – openness to experience,
A – agreeableness, C – conscientiousness

**Men Over 6-Year Period**
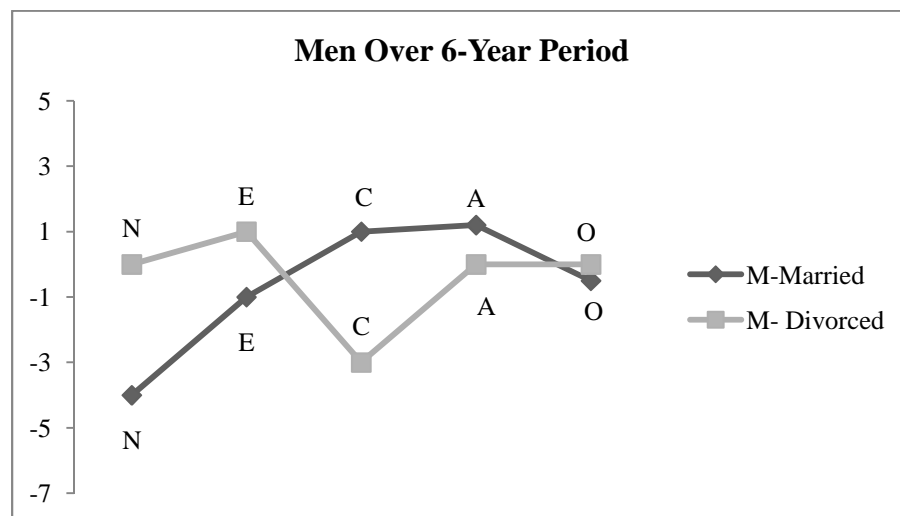


Figure 5. Men's marital status change over a 6-year period
Scale represents change scores of traits over a 6-year period.
N – neuroticism, E – extraversion, O – openness to experience,
A – agreeableness, C – conscientiousness

Summary

Neuroticism and extraversion are highly associated with mental health and both

traits show specific changes in women during midlife. Research shows that agreeableness

and openness to experience are also gender specific and have significance with mental

health. Conscientiousness increases over the life span. While there is no specific data on

its relationship to mental health, data presented later in this chapter reveal

conscientiousness has an influence on use of services. By focusing on a specific gender

and age, middle-aged women over a 10 year period, , this study seeks to identify trait

change effects on use of mental health services in a little studied population.

Personality Traits

The next sections further explore the personality traits. Each of the five traits are

defined, there is an examination of the empirical research of stability for each of the

traits, and the association of each trait is reviewed regarding perceived need of services, likelihood of use of services, and actual use of services. Perceived need is measured with a survey based on the participants' perspective. Seekles et al. (2012) used the Perceived Need for Care Questionnaire (PNCQ) to distinguish between those who do not perceive a need and those who do perceive a need but do not utilize services. This measure is different from results produced by Goodwin et al. (2002) who calculated odds ratios based on self-reported use of services.

Neuroticism

Those with high levels of neuroticism have the tendency to experience negative affect, depression, anxiety, and anger (Harkness, Tellegen, & Waller, 1995). The construct of neuroticism also includes a wide spectrum of behaviors including facets such as objectivity, impulsivity, and irrationality (McCrae & Costa, 1987). Included in the description are both anxious or fearful distress and irritable distress (Caspi et al., 2005). Often, this trait is referred to as emotional instability (Friedman & Schustack, 2006). Kardum and Hudek-Knezevic (2012) measured correlations of neuroticism with health-related personality traits such as negative affect and anxiety. In fact, the scales that measure neuroticism overlap with scales for anxiety ($r = .67$, $p < .001$), which can complicates the correlation between trait neuroticism and mental disorders (Jylhä & Isometsä, 2006).

Stability

Generally, mean levels of neuroticism are highest in late adolescence and decline through adulthood. The decline has been described alternately as significant (Turiano et al., 2011), moderate (Roberts & Mroczek, 2008), and slight with a plateau in old age

(Terracciano et al., 2005). Lucas and Donnellan (2011) also reported declines in neuroticism but only after slight increases in midlife.

Mean neuroticism scores for women are slightly but significantly higher than those for men (Costa et al., 2001). The mean level changes by gender also differ. Mroczek and Spiro (2003) reported a decline in male neuroticism throughout midlife but begin to increase slightly in the 70s. Small, Hertzog, Hultsch, and Dixon (2003) reported the increase in neuroticism for men at an earlier age, between 55 and 85.

Allemand et al. (2007) focused specifically on neuroticism levels in midlife. They reported a small to moderate effect size ($d = -.26$, $p < .05$) for a mean level decline in neuroticism between ages 42 and 46 years old. In a follow up study by Soto and John (2012), facet level changes were examined specifically in middle-aged women. The neurotic domains of depression and rumination showed significant declines; however, anxiety and irritability facets remained unchanged. Costa, Herbst, McCrae, and Siegler (2000) studied personality stability and maturity in a sample 495 women between the ages of 39 and 45 years old. While there were significant results, declines in neuroticism were very small (partial $\eta^2 = .02$ to .03).

Neuroticism is associated with emotional instability. Much of the literature reports that this trait declines with age as suggested by the maturity principle (Caspi et al., 2005). Alternatively, declines in neuroticism have been attributed to social interaction with the environment. As midlife is a time of transition, social interaction can be challenging. Negative perception of these events is associated with higher neuroticism. As the next section details, higher levels of neuroticism are linked with higher levels of use of services for mental health issues.

Use of Services

The use of services for mental health issues has been examined in relation to neuroticism using several large studies (Goodwin et al., 2002; Seekles et al., 2012; ten Have et al., 2005). These studies generally agree. High levels of neuroticism increase the perceived need for services, likelihood of seeking services, and actual use of services for mental health issues.

Perceived need for services studies report a strong correlation with neuroticism. Seekles et al. (2012) surveyed 762 patients who had been diagnosed with anxiety or depression. They found a slight but significant odds ratios for perceived need for counseling and neuroticism (*OR*=1.05, 95% *CI*=1.01 to 1.10, *p* < .01) regardless of whether or not this need was met.

Stronger than the perception of need is the likelihood of use of services. Goodwin et al. (2002) used a community-based sample of 2,885 participants from the Midlife Development in the United Sates Survey (MIDUS) for their research on personality factors and mental health services usage. The age range of participants was 25 to 74 years old. Using logistic regression, neuroticism was associated with a significant increased likelihood to use mental health services. The odds were slightly stronger for women than men, but both were substantial (average *OR* = 1.5, 95% *CI* = 1.2 to 1.9, *p* < .05). More significant was the association with neuroticism and likelihood of use of services in the absence of a mental disorder (*OR*=1.8, 95% *CI* = 1.3 to 2.4, *p* < .05). The authors suspect that high levels of neuroticism may be present in sub levels of mental disorders.

Surveys of current users of services had an even stronger odds ratio of having high levels of neuroticism. Using The Netherlands Mental Health Survey and Incident

Study (NEMESIS), ten Have et al. (2005) calculated the correlation of use of services and neuroticism among participants presently using mental health services. NEMESIS sampled a mixed gender group of participants between the ages of 18 and 64. Of those 388 were seen by primary care physicians for mental health concerns and 214 were seen by mental healthcare specialists. Neuroticism factored into the odds ratio of those seeking care from a primary physician ($OR = 3.51$, 95% $CI = 2.79$ to 4.40, $p < .001$). After controlling for the 64% who were diagnosed with an emotional disorder, the odds ratio remained high ($OR = 2.38$, 95% $CI = 1.87$ to 3.03, $p < .001$). Similar yet stronger results were true for those seeking care from a mental health specialist ($OR = 6.51$, 95% $CI = 4.62$ to 9.17, $p < .001$). As with the primary physician, even after controlling for emotional disorders neuroticism increased the odds of using the services of a mental health specialist ($OR = 3.40$, 95% $CI = 2.35$ to 4.90, $p < .001$) after controlling for emotional disorders.

Summary

Neuroticism levels are indicative of several issues surrounding the use of services. First, there is evidence of a strong correlation between neuroticism and perceived need for services. Second, there is agreement among researchers in the literature base purporting that high levels of neuroticism significantly correlate with the likelihood of seeking services. Finally, there is a very strong association between neuroticism levels and those using mental health services. All of these studies utilized large populations of mixed gender and wide age ranges. None specifically focused on women in midlife or longitudinal aspects exploring neuroticism and use of services. The gap in longitudinal

research will be addressed in this study through the examination of neuroticism trait stability in middle-aged women and use of services over time.

Extraversion

Extraversion is a personality trait related to interpersonal behavior. McCrae and Costa (1987) specify that the meaning of extraversion be aligned more closely with the contemporary definition than Jung's (1921) description of an internal dichotomy. Instead, four distinct facets define extraversion, social inhibition, sociability, dominance, and activity level (Caspi et al., 2005).

Stability

The continuum of this trait is based on the amount of social stimulation people desire (Costa, McCrae, & Dye, 1991). Costa et al. (2000) examined mean level extraversion stability in a longitudinal sample of 2,274 middle-aged participants ($M = 45$ years of age). Over a period of 6 to 9 years, there were changes in levels of extraversion. Srivastava et al.'s (2003) results demonstrate a difference by gender. Women between the ages of 21 to 30 years old demonstrated increases in levels of extraversion ($\beta = .09$, $p < .05$). Yet, women between 31 and 60 years old decreased in extraversion ($\beta = -.07$, $p < .05$). This trend appears to be gender specific. In the same study by Srivastava et al., men in the younger age group's level of extraversion increased more than women ($\beta = .14$, $p < .05$). Differing from women, men continued a small but positive increase between ages 31 and 60 ($\beta = .05$, $p < .05$).

A subsample of Costa et al.'s (2000) study compared middle-age women who married between Time 1 and Time 2 with women who divorced between the same two time points. Extraversion mean change scores during this period increased for divorced

women (2.5, $p < .05$). Conversely, women who divorced in this period experienced a drop in extraversion mean change scores (- 4.0, $p < .05$).

While overall, extraversion levels increase over the lifespan (Srivastava et al., 2003), this appears to be gender specific. The level of extraversion in men continually increases over time, while extraversion in women begins to decline around age 40 (Costa et al., 2000). This change, however, may be situational. Costa et al. (2000) note that significant events such as marriage and divorce effect levels of extraversion. The decrease in extraversion is consistent for married women, but divorce has been shown to increase levels of extraversion.

Use of Services

Extraversion and use of mental health services, like neuroticism, has been the focus of several large studies (Goodwin et al., 2002; Jylhä and Isometsä, 2006; Seekles et al., 2012; ten Have et al., 2005). The consensus among the studies is that high levels of extraversion are correlated with low use of services for mental health issues.

Use of services, however, is distinctly different from perceived need of services. In the case of extraversion, the perceived need for services appears unrelated to levels of extraversion. Even in the presence of mental health issues, Seekles et al. (2012) reported an insignificant association among 762 participants for perceived need of services and extraversion ($OR = 1.01$, 95% $CI = 0.96$ to 1.05, $p = .78$).

Extraversion does have an effect on the likelihood of use of services. Goodwin et al. (2002) used logical regression to examine the odds ratios of likelihood of use of services. Extraversion has an odds ratio that indicates a significant decrease in likelihood of use of services ($OR = 0.7$, 95% $CI = 0.5$ to 0.98, $p < .05$). Women with high

extraversion may reflect a tendency to rely on current social supports, such as family and friends, for help with mental problems rather than seeking professional help (Goodwin et al., 2002).

Jylhä and Isometsä (2006) measured extraversion and actual use of services. They found a moderate negative correlation in use in the previous 12-month ($r_s = -.14$, $p = .004$) suggesting that higher levels of extraversion are met with lower uses of services. Based on the external side of Rotter's Internality-Externality Scale (Žitný & Halama, 2012), extraversion is negatively correlated ($r = -.23$, $p < .001$) with a powerful others locus of control. McWilliams et al. (2006) predicted a negative use of services with logistic regression. The odds ratio for extraversion was significant ($OR = 1.13$, 95% $CI = 1.01$ to $1.26$, $p < .05$).

Summary

The available research suggests that high levels of extraversion have a negative correlation with the likelihood of use of services but no association with a perceived need or actual use of services. Research on extraversion stability demonstrates that extraversion decreases in women in midlife, which may be significant in this study if decreases in extraversion increase the likelihood of using services. The aforementioned studies focused on broad community samples as well as some smaller specific populations. However, none has specifically focused on women in midlife nor have they examined longitudinal aspects of extraversion and use or likely use of services. This study will focus on this gap in the research.

Conscientiousness

Conscientiousness is a higher order personality trait that incorporates ideals such as competence, orderliness, and self-control (Javaras et al., 2012). Like extraversion, this trait positively correlates with the health-related personality traits including optimistic control ($r = .33$, $p < .001$) and self-efficacy ($r = .35$, $p < .001$) (Kardum & Hudek-Knezevic, 2002). Conscientiousness has two domains. The first is proactive referring to the drive for achievement and responsibly, and the second is inhibitive relating to cautiousness and dependability (Roberts, Chernyshenko, Stark, & Goldberg, 2005). These two domains support the reconceptualization of conscientiousness by Costa et al. (1991). Their correlation studies of 1,539 participants determined that this trait involves order, dutifulness, achievement striving, self-discipline, and deliberation.

These positive attributes inversely correlate with negative affect and its associated conditions of depression and anxiety (Javaras et al., 2012). People with high levels of conscientiousness appear to be able to regulate emotion and recover more easily from negative stimuli possibly reducing symptoms of anxiety and depression (Caspi, Roberts, & Shiner, 2005; Javaras et al 2012).

Stability

There is consensus that conscientiousness increases for the majority of the lifespan but has an overall curvilinear shape. Soto and associates (Soto & John, 2012; Soto, John, Gosling, & Potter, 2010) found an increasing trend in conscientiousness beginning in young adulthood and maintaining the positive trend through midlife. Donnellan and Lucas (2008) and Costa et al. (2000) report the same increase; however, they detected a negative mean level change after age 65, creating the curvilinear shape.

Use of Services

There is little research published on conscientious and use of mental health services. The few existing studies have conflicting results regarding the perceived need for services. Goodwin et al. (2002) found that conscientiousness in women was significantly associated with a lower likelihood of using services. These results were true for women with and without a mental disorder ($OR$ = .40, 95% $CI$ = .20 to .70, $p$ < .05). There was no significance with men for use of services based on conscientiousness. Seekles et al. (2012) reported higher levels of consciousness among those who met a perceived need for counseling ($OR$=1.05; 95% $CI$ =1.01 to 1.08; $p$ = .01).While these measures are slightly different they appear contradictory.

Summary

The variability in use or likelihood of use of services based on conscientiousness may be related to variability in stability data for conscientiousness. Because this trait is curvilinear over the lifespan results will be specific to individuals. By narrowing the population to women and specifying the developmental stage to midlife, this study seeks to clarify conscientiousness and its association with use of services for women during midlife.

Agreeableness

This trait is most evident in interpersonal behavior that describes the spectrum from compassion to resentment (Costa et al., 1991). Agreeableness seems to influence self-image and shape a person's social philosophy of life. Based on vocabulary correlations from various personality scales, Costa et al. narrowed the construct for agreeableness to trust, straightforwardness, altruism, compliance, modesty, and tender-

mindedness. People who score high on this dimension are usually trusting of others, are concerned with others wellbeing, and value honesty while those who score low on empathy are more skeptical, and less friendly. These latter people tend to behave in manipulative and competitive ways.

Stability

Most agree that agreeableness increases up to midlife and some report increases over a lifespan (Allemand et al., 2007; Turiano et al., 2012). Costa et al. (2000) also found increases up to midlife ($d = .30$, $p < .05$), after which there was no significant increase. Srivastava et al. (2003) examined gender and age regarding mean level changes in personality. They found a rapid increase in agreeableness for women from the late 20s to about age 40. While this trait continued to increase throughout the lifespan, the increase was not as rapid. Contrary to Srivastava et al., Lucas and Donnellan (2011) found a decrease around age 60. While Mõttus, Johnson, and Deary (2012) reported significant declines in agreeableness after age 80 but only in women ($d = 0.64$, $p < .01$).

Use of Services

Seekles et al. (2012) surveyed 762 participants from the from the Netherlands Study of Depression and Anxiety (NESDA) study using the Perceived Need for Care Questionnaire (PNCQ). They found no significant relationship between agreeableness and perceived need for mental health services. Goodwin et al. (2002) found no association between agreeableness in women and use of services with or without the presence of a mental health diagnosis.

Summary

Overall, the body of literature finds that agreeableness increases throughout midlife, then begins a decrease around age 60. Although there is no correlation to use of services in cross sectional studies, this study will be the first to examine longitudinal effects of change of on use of services in middle-aged women.

Openness to Experience

Openness to experience is the least understood of the five personality traits (McCrae & Costa, 1987). Openness includes imagination and creativity, as well as aspects of intelligence such as insight and cleverness (Caspi et al., 2005). These qualities allow for divergent thinking, ability to consider new ideas, and intellectual curiosity (Oluyinka, 2011). Hayslip et al. (2009) describe the trait of openness as allowing people to experience life fully. The lack of openness results in people being conventional and conservative.

Stability

Lucas and Donnellan (2011) examined mean level changes in openness to experience; results showed a linear decline, which dramatically declined by more than one standard deviation beginning at age 60. While Roberts et al. (2006) found openness to experience demonstrated a significant increase in mean levels during college years ($d =$ .37, $p < .05$), they also saw the level of openness to experiences decreases in old age ($d =$ -.19, $p < .05$).

Use of Services

Seekles et al. (2012) found a significant relationship between the perceived need for counseling and openness to experience ($OR =1.04$, 95% $CI =1.01$ to $1.07$, $p =.01$). People with high levels of this trait were more likely to have a perceived need for care,

regardless of actual use of services. Greenidge and Daire (2010) measured perceived need through emotional openness. This measure, which is defined as degree of comfort a person has when talking to other about personally distressing information, is correlated with openness to experience ($r = .33$, $p < .05$) (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990). Greenidge and Diare's research supported emotional openness as a positive significant predictor in attitudes toward seeking services ($F_{(1, 493)} = 55.67$, $p < .01$).

Research demonstrates a difference between perceived need of services and the likelihood of use of services. Despite Seekles et al.'s (2012) findings of positive association between openness to experiences and perceived need, Goodwin et al. (2002) found openness to experiences to be insignificant in the actual likelihood of utilizing services. Furthermore, Greenidge and Daire (2010), while they did find emotional openness to predict students perceived need for mental health services, only approximately 3% actually sought services. This highlights the important difference in perceived need and likelihood of actually using services as they relate to openness to experiences.

Very little research has been completed on openness to experience and use of services. However, one recent article did focus on this personality trait. Oluyinka (2011) examined attitudes of seeking mental health services. Openness to experience was moderately related to seeking mental health services ($r = .54$, $p < .001$).

Summary

Openness to experience appears to be associated with use of services, but with weak and contradicting results. The research supports the weak association of high

openness and a greater perception on the need for services, however, most studies found the correlation between openness and likelihood of using services to be insignificant. Examining those engaged in services the literature reports moderate to high levels of openness. However, no study to date has evaluated change in openness to experience, which tends to decline in midlife, and use of services. This study will address the gap of whether changes in openness to experience during midlife affect women's use of mental health services.

<div align="center">Conclusion</div>

Chapter 2 provided a statistical overview of mental health service usage, thereby emphasizing the underutilization of services by women. There was also a comprehensive review of literature related to midlife with a specific focus on this study's cohort. These women are better educated and more involved in the workforce than any preceding generation. As others before them, they also balance a multitude of roles during midlife. This group of women experience personality shifts which this study seeks to connect with their use of mental health services.

Two variables, education and personality, were reviewed in this chapter. Empirical data indicate strong associations between use of services and these variables. This chapter provided an in-depth examination of personality theory, personality and mental health, and finally personality stability in middle-aged women. Finally, empirical data on each of the five personality traits demonstrated mean level changes in midlife for neuroticism, extraversion, and conscientiousness. Each of these traits also correlates with use of mental health services.

This study is the first of its kind in the mental health counseling literature. It fills a noteworthy gap relating to factors effecting middle-aged women's use of mental health services. As such, this research attempts to expose changes in use of services based on increases or decreases in for neuroticism, extraversion, and conscientiousness. This data can help counselors better understand potential dropout rates of mental health services in middle-aged women. While agreeableness and openness to experience have not demonstrated an association with the likelihood of use of services, no studies to date have examined the effects on women's use of mental health services in the presence of changes in these traits during midlife.

CHAPTER 3: METHODOLOGY

Chapter 3, which details the methodology used in this study, is presented in six sections. The first, participants, contains a description of the archival data and participants. By definition, archival data is information that has been previously collected, and in this case, coded and ready for use by statistical software (Jones, 2010). The second section outlines the procedures for obtaining and cleaning the data. The third section details the original instrumentation used to obtain the data. The remaining three sections detail the research design, research questions, data analysis, and chapter summary.

Participants

The archival data used in this study were generated by an interdisciplinary research team funded by The John D. and Catherine T. MacArthur Foundation. The primary objective of the Research Network on Successful Midlife Development (Brim et al., 1996) has been to collect and study empirical data relating to midlife development in America. Using surveys, the researchers hope to gain a better understanding of the behavioral, social, psychosocial, biological, and neurological factors that influence the health and well-being of adults in midlife.

The project's participants were non-institutionalized English speaking adults who had a working telephone. They ranged in age from 25 to 75 years of age. The first sample

was surveyed in 1995 and the second was in 2005. The interval between times was 7.8 to

10.4 years. Radler and Ryff (2010) evaluated the retention between the two waves of

sampling. Approximately 70% of the participants from the Midlife Development in the

United Sates Survey (MIDUS) I also participated in MIDUS II. When adjusted for

mortality this corresponds to a 75% retention.

<center>Procedures</center>

The dataset was obtained from The National Archive of Computerized Data on

Aging (NACDA), located within the Inter-university Consortium for Political and Social

Research (ICPSR; http://www.icpsr.umich.edu/icpsrweb/NACDA/studies/28683/detail).

According to University Policy #306, this study is exempt from an institutional review

board (IRB) application because the data is publicly available and the subjects cannot be

identified directly or through identifiers linked to the subjects.

The data was downloaded onto a password-protected computer. The initial

dataset included 2,353 variables. The variables of interest were isolated using the

codebook of questions from the MIDUS Survey Instrument (Brim et al., 1996)). The

inclusion criteria was women who were ages 40 to 60 in 2005. Data was sorted using the

Statistical Package for Social Sciences 21 (IBM SPSS Statistics Standards, 2012).

<center>Instrumentation</center>

In 1995, the first wave of the MIDUS study interviewed 7,108 participants. The

researchers sampled with equal probability using a 30-minute telephone survey and two

mailed self-administered questionnaires. The sampling method was a random-digit

dialing (RDD) procedure drawn from 48 contiguous states and from oversampling of five

metropolitan areas.

The MIDUS survey questioned participants on their frequency of use of mental health services. The MIDUS survey posed to participants the following question. "Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took someone else regarding their problems." The qualified professionals were listed in five separate questions: (B1SA54A) psychiatrist, (B1SA54B) general practitioner, or other medical doctor, (B1SA54C) counselor for mental health, (B1SA54D) minister, priest, rabbi or other spiritual advisor, (B1SUSEMH) mental health professional, marriage therapist, or social worker (Brim et al., 2006). The categories of qualified professionals will be collapsed into one variable and recoded ($1$ = yes and $0$ = no).

The MIDUS survey assessed education level through one question containing 12 levels of education from which to choose. The question from the survey was, "What is the highest grade of school or year of college you completed?" The data shown in Table 1, was recoded into four categories resulting in an ordinal variable.

Table 1. Highest education level completed

| MIDUS Levels | Proposed Levels | New Levels | Levels of Education |
|---|---|---|---|
| 1 | | | No school / some grade school(1-6) |
| 2 | 1 | | 8<sup>th</sup> grade / junior high school (7-8) |
| 3 | | 1 | Some high school (9-12 NO diploma / no GED) |
| 4 | 2 | | GED |
| 5 | | | Graduated from high school |
| 6 | 3 | | 1 to 2 years of college, no degree yet |
| 7 | | 2 | 3 or more years of college, no degree yet |
| 8 | 4 | | Graduated from 2-year college, vocational school, or associate degree |
| 9 | | 3 | Graduated from a 4- or 5-year college or bachelor's degree |
| 10 | 5 | | Some graduate school |
| 11 | | 4 | Master's degree |
| 12 | 6 | | Professional degree (PH.D., ED.D., MD, DDS, LLB, LLD, JD, or other) |

The personality traits were measured with the Midlife Development Inventory Personality Scales (MIDI; Lachman & Weaver, 1997). The MIDI was piloted in 1994 specifically for use in the MIDUS surveys. The test was developed using 574 valid cases from 1,000 mixed gender participants, ages 30 to 70 years old. Regression analysis determined the smallest number of adjectives to describe each of the five personality traits, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience. The resulting list accounts for more than 90% of scale variance.

A second investigation was conducted in an exploratory sample of 862 participants and an analysis sample of 3,000 participants (Lachman & Weaver, 1997). A five-factor structure was used to verify consistency across 10 age groups. Internal consistency alphas for exploratory and sample analysis were .75 and .74 for neuroticism,

.75 and .78 for extraversion, .53 and .58 for conscientiousness, .83 and .80 for

agreeableness, and .78 and .77 for openness to experience (Lachman & Weaver, 1997).

The MIDI uses a Likert-scale of 1-4 to score 26 adjectives associated with personality traits (Table 2). Mean level scores were calculated for each trait based on the sum of the Likert scores divided by the number of items associated with that trait.

Table 2. Personality Traits

| Personality Trait | Score Range | Number of Items | Items |
| --- | --- | --- | --- |
| Neuroticism | 4 to 16 | 4 | Moody, Worrying, Nervous, and (not) Calm |
| Extraversion | 5 to 20 | 5 | Outgoing, Friendly, Lively, Active, and Talkative |
| Conscientiousness | 5 to 20 | 5 | Organized, Responsible, Hardworking, and (not) Careless |
| Agreeableness | 5 to 20 | 5 | Helpful, Warm, Caring, Softhearted, and Sympathetic |
| Openness to Experience | 7 to 28 | 7 | Creative, Imaginative, Intelligent, Curious, Broad-minded, Sophisticated, and Adventurous |

Individual level change scores were based on data from 1995 and 2005. As

personality change values are small, there was a need to avoid regression to the mean

(Turiano, 2012). The Reliable Change Index (RCI; Christensen & Mendoza, 1986) is the

accepted method of calculation (Blonigen et al., 2008; Jacobson & Truax, 1991;

Pullmann, Raudsepp, & Allik, 2006; Roberts, Caspi, & Moffitt, 2001).

The RCI (Christensen & Mendoza, 1986) measures individual change against the

established pattern of individual personality trait change over the life span. Individual

change values are equal to the difference between times 2 and 1 divided by the difference

in standard error ($S_{diff}$) between the two scores. $S_{diff}$ provides the distribution of scores as

though no change has occurred. It represents the pooled standard deviations from both

periods and is calculated using the following formula, $S_{diff} = \sqrt{|(SEM\ T1)^2 + (SEMT2)^2|}$, where SEM is the standard error of measurement.

## Research Design

Logistic regression analysis was utilized to determine the predictive power or odds ratio of each variables in the research questions (Tabachnick & Fidell, 2007). Variables were entered simultaneously. As mentioned in chapter 2, education accounts for the largest percent of variance in use of services (Currin, Hayslip, &Temple, 2011; Gadalla, 2008; Gonzales et al., 2011; Goodwin, Hoven, Lyons, & Stein, 2002). Empirical research has demonstrated the highest prediction value from neuroticism (Goodwin et al., 2002; Seekles et al., 2012; ten Have), followed by extraversion (Jylhä & Isometsä, 2006; McWilliams et al., 2006). Conscientiousness has weaker yet significant value in the prediction of use of services (Seekles et al.; McWilliams et al.). Finally, agreeableness and openness to experiences were expected to account for the least amount of variance (Goodwin et al.; Hayslip et al., 2010).

## Research Questions

1.     How do education, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience relate to the use of mental health services among middle-aged women?

2.     How do change in neuroticism, change in extraversion, change in conscientiousness, change in agreeableness, and change in open to experience relate to the use of mental health services among middle-aged women?

Logistic regression was used to assess the probability of use of services at Time 2, 2005, and over time between Time 1, 1995, and Time 2, 2005. These statistical analyses

produced odds ratios predicting a discrete outcome. In this case, the outcome was the odds of use of services (Tabachnick & Fidell, 2007).

The first question used Time 2 data. This procedure was, in part, an extension of the work by Goodwin et al. (2002). Their research, based on the 1995 data set, used logistic regression to examine mental disorders, personality traits, and use of mental health services from a broad sample of men and women. This study also employed logistic regression, however the data was from 2005 not 1995 and the focus was on middle-aged women only. Rather than limiting education to a dichotomous category of completing $12^{th}$ grade or not, this study evaluated four levels of education.

The second research question used both the Time 1, 1995, and Time 2, 2005, data longitudinally. The focus was on personality trait changes and middle-aged women's use of services over a 10-year period. Personality trait changes were calculated as individual level change scores. The resulting data was used in the logistic regression analysis.

Data Analysis

The IBM SPSS Statistics package was used for the descriptive statistics and logistic regression analysis. Logistic regression does not assume linearity of relationship between the predictors and the dichotomous outcome, nor does it require normally distributed variables, and finally, it does not assume homoscedasticity. The observations, however, must be independent. Lastly, the predictors must be linearly related to the logit of the outcome (Tabachnick & Fidell, 2007). The success of the logistic regression was assessed using the Wald $\chi2$ statistic, which demonstrates goodness-of-fit. The strength of the model was assessed using Cox and Snell $R^2$ (1989) and Nagelkerke $R^2$ (1991). The

resulting odds ratios (*OR*) indicated the degree to which personality predicts the

likelihood of use of mental health services among middle-aged women.

<div align="center">Summary</div>

The purpose of this chapter was to provide the methodological framework used in

this research study. The sections within this chapter provided details regarding the data

source, participants, procedures, instrumentation, research design, research analysis, and

the summary. Logistic regression provides the probability of use of mental health

services for each level of education and each personality trait.

CHAPTER 4: RESULTS

The purpose of this research study was to examine the relationship between level of education, personality traits, and use of mental health services among middle-aged women. The first research question addressed how education, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience relate to the use of mental health services among middle-aged women. The second research question was longitudinal and used change in personality traits and use of mental health services over a 10-year span. This chapter presents the results of this study in five sections. The first section in this chapter provides a description of the participants in this study. The second section addresses education, personality traits, and the use of mental health services in 2005 at Time 2. The third section focuses on current use of services in relation to personality trait changes that may have occurred between 1995, Time1, and 2005, Time 2. The chapter concludes with a summary.

## Description of Participants

The participants for this study were surveyed at two time points as part of the MIDUS study (Lachman & Weaver, 1999). The participants selected for this study were females born between 1945 and 1965. A common identification number was used to merge both time point datasets from 1995 and 2005. The resulting combined database ($N$ = 1421) was further reduced after sorting and screening using the Statistical Package for Social Sciences 21 (IBM SPSS Statistics Standards, 2012). Cases were excluded that had

incomplete data for the five personality factors or for the use of services. This reduced the data set to 1110 women. Demographic information, including race, age, education, employment status, marital status, and caregiving status, are reported in Table 3.

Table 3. Descriptive Statistics at Time 2

|  | Percent | *n* |
|---|---|---|
| Race |  |  |
| Caucasian | 90% | 1003 |
| African American | 5% | 54 |
| Other | 4% | 49 |
| Missing | 0% | 4 |
| Age |  |  |
| 40 - 50 | 49% | 547 |
| 50 - 60 | 51% | 563 |
| Education |  |  |
| HS or Less | 30% | 338 |
| Some College or 2-yr Degree | 21% | 234 |
| College Degree | 29% | 326 |
| Higher Education | 19% | 210 |
| Missing | 0% | 2 |
| Employed |  |  |
| Working | 67% | 741 |
| Not Working | 33% | 365 |
| Missing | 0% | 4 |
| Marital Status |  |  |
| Married | 71% | 787 |
| Separated | 2% | 22 |
| Divorced | 15% | 168 |
| Widowed | 3% | 35 |
| Never Married | 9% | 95 |
| Missing | 0% | 3 |
| Caregiving Status |  |  |
| Caregiving | 16% | 181 |
| Not Caregiving | 83% | 924 |
| Missing | 0% | 5 |

The demographic data indicate that the majority of women in this study are Caucasian, married, and working. Approximately one-third of the women completed at least a college degree. Less than one in five of the participants were actively caregiving. Finally, the age range is equally distributed.

The use of mental health services referred to seeking attention for an emotional problem within the 12-months prior to the survey. The level of use remained consistent during the 10-year period between Time 1 (32.1%) and Time 2 (34.7%). While one-third of the women did utilize a mental health service, the numbers do not necessarily indicate that it was the same women at each time point.

The MIDI assessment instrument uses 26 self-descriptive adjective items to measure the five personality traits (Lachman & Weaver, 1997). The adjectives associated with each trait are, neuroticism (moody, worrying, nervous, calm [reverse scored]), extraversion (outgoing, friendly, lively, active, talkative), conscientiousness (organized, responsible, hardworking, careless [reverse scored]), agreeableness (helpful, warm, caring, softhearted, sympathetic), and openness to experience (creative, imaginative, intelligent, curious, broadminded, sophisticated, adventurous). Using a 4-point Likert scale, participants indicate how well each adjective describes them. The total for each personality trait was then divided by the number of items associated with that trait. This provided a standardized continuous score of 1 to 4 for each trait. The descriptive statistics for each trait are listed in Table 4. The trait scores, minimum, maximum, and standard deviations are included for Time 1, 1995, and Time 2, 2005.

Table 4. Descriptive statistics for personality traits at Time 1 (1995) and Time 2 (2005)

|  |  | N | Range | Min | Max | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| T1 | Neuroticism | 1110 | 3.00 | 1.00 | 4.00 | 2.38 | .67 |
| T2 |  | 1109 | 3.00 | 1.00 | 4.00 | 2.22 | .64 |
| T1 | Extraversion | 1110 | 2.60 | 1.40 | 4.00 | 3.18 | .57 |
| T2 |  | 1110 | 2.80 | 1.20 | 4.00 | 3.08 | .58 |
| T1 | Conscientiousness | 1110 | 2.50 | 1.50 | 4.00 | 3.49 | .42 |
| T2 |  | 1110 | 3.00 | 1.00 | 4.00 | 3.52 | .43 |
| T1 | Agreeableness | 1110 | 2.80 | 1.20 | 4.00 | 3.55 | .43 |
| T2 |  | 1110 | 2.20 | 1.80 | 4.00 | 3.55 | .45 |
| T1 | Openness | 1110 | 3.00 | 1.00 | 4.00 | 2.95 | .54 |
| T2 |  | 1110 | 2.86 | 1.14 | 4.00 | 2.85 | .56 |

Results of Research Question 1

The first research question was: How do education and personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) relate to the use of mental health services among middle-aged women at Time 2, 2005?

Use of mental health services was recoded into a dichotomous variable ($0$ = no use of services and $1$ = use of services) and used as the outcome variable. Education levels were also recoded. The original survey had 12 levels of education. Although six were proposed for this study, ultimately four levels were used. This change was made because fewer than 3% of the participants had less than a high school education. In addition, two of the top three levels of education had 3% each. The categories with low numbers were collapsed to create four categories, high school degree, some college or a 2-year degree, college degree, and more than a college degree. The lowest level of

education, a high school degree, was used as the reference group. The remaining levels of education were dummy coded before they were added to the logistic regression. The personality trait data were used directly from the survey data.

A logistic regression analysis was performed using SPSS (2012). A test of the full model versus a model with intercept only was statistically significant, $\chi^2$ (8, $N = 1110$) = 47.379, $p < .001$, indicating that the personality traits reliably distinguished between women who use mental health services and women who do not use mental health services. The variance between the use of services and the covariates were weak, with Cox and Snell $R^2$ equal to .043 and Nagelkerke $R^2$ equal to .060. Only 14.0% of women who used services correctly identified. The overall success rate was low, rising from 65.3% to 66.7% on the full model.

In Table 5, regression coefficients, Wald statistics, statistical significances, and odds ratios are reported for the eight covariates: three levels of education and five personality traits. There was no significance with any level of education and use of services. Neuroticism ($OR = 1.82$, $p < .001$) and openness to experience ($OR = 1.51$, $p < .05$) were significant, both increasing the likelihood of use of services. The odds ratio indicated that for every point increase in neuroticism women were 1.82 times more likely to use mental health services; in other words, for every unit increase on the Likert scale for neuroticism there was an 82% increase in odds for using services. The odds ratio indicated that for every point increase on the Likert scale for openness to experience women were 1.51 times more likely to use mental health services, or a 51% increase in odds for using services. Additionally, the model was significant for conscientiousness ($OR = .65$, $p < .05$). Every point increase on the Likert scale for conscientiousness

indicated a 53% less likelihood of using services. There was not a significance

relationship between extraversion or agreeableness and use of mental health services.

Table 5. Logistic Regression of Time 2 Covariates

|  | B | S.E. | Wald$\chi^2$ | df | Sig. | Exp(B) |
|---|---|---|---|---|---|---|
| Education Level | | | | | | |
| High School or < (Reference Group) | | | | | | |
| Some College | -.13 | .17 | .59 | 1 | .44 | .88 |
| College Degree | .05 | .19 | .06 | 1 | .80 | 1.05 |
| College Degree or > | .09 | .20 | .20 | 1 | .66 | 1.09 |
| Personality Traits | | | | | | |
| Neuroticism | .60 | .11 | 29.73 | 1 | <.01 | 1.82 |
| Extraversion | -.14 | .14 | 1.01 | 1 | .31 | .87 |
| Conscientiousness | -.43 | .16 | 6.83 | 1 | <.05 | .65 |
| Agreeableness | .26 | .17 | 2.31 | 1 | .13 | 1.30 |
| Openness | .41 | .15 | 7.90 | 1 | <.05 | 1.51 |
| Constant | -2.12 | .81 | 6.84 | 1 | .01 | .12 |

Results of Research Question 2

The second research question was: How do changes in personality traits

(neuroticism, extraversion, conscientiousness, agreeableness, and openness to

experience) relate to the use of mental health services among middle-aged women

between T1, 1995, and Time 2, 2005?

Personality Trait Change Scores

Using the reliable change index, SPSS (2012) calculated the personality trait

change scores between Time 1, 1995, and Time 2, 2005 (RCI; Christensen & Mendoza,

1986). These RCI scores reflect an individual level change for each personality trait

between 1995 and 2005. The descriptive results are reported in Table 6. The scores are

small reflecting no reliable change.

Table 6. Descriptive Statistics for RCI Change Scores

| RCI Scores | N | Min | Max | Mean Change | Std. | Skew | Kurtosis |
|---|---|---|---|---|---|---|---|
| Neuroticism | 1109 | -2.43 | 2.16 | -.17 | .58 | -.13 | .98 |
| Extraversion | 1110 | -1.98 | 2.22 | -.12 | .55 | .12 | .85 |
| Conscientiousness | 1110 | -2.07 | 2.07 | .04 | .60 | -.07 | 1.18 |
| Agreeableness | 1110 | -2.56 | 2.24 | -.01 | .63 | .13 | 1.38 |
| Openness | 1110 | -2.01 | 2.20 | -.14 | .54 | .11 | 1.24 |
| Valid N | 1109 | | | | | | |

Logistic Regression

The second research question was longitudinal and examined personality trait changes over a 10-year period. Utilizing SPSS (2012), a logistic regression analysis was performed. The outcome variable was use of mental health services (coded $0$ = no use of services and $1$ = use of services). The five covariates were the continuous RCI scores.

A test of the full model versus a model with intercept only was not statistically insignificant, $\chi^2$ (5, $N$=1110) = 4.321, $p$ =.504, indicating that the personality trait change scores did not reliably distinguished between women who did use mental health services and women who did not use mental health services. The variance in personality traits and use of services was weak, with Cox and Snell $R^2$ equal to.004 and Nagelkerke $R^2$ equal to .005. Table 7 shows the regression coefficients, Wald statistics, statistical significances, and odds ratios for each of the five change scores.

Table 7. RCI Change Scores Logistic Regression

| Covariates | B | S.E. | Wald$\chi^2$ | df | Sig | Odds Ratio |
|---|---|---|---|---|---|---|
| RCI Neuroticism | -.03 | .11 | .09 | 1 | .76 | .97 |
| RCI Extraversion | -.06 | .14 | .17 | 1 | .68 | .94 |
| RCI Conscientiousness | -.21 | .11 | 3.82 | 1 | .05 | .81 |
| RCI Agreeableness | .09 | .12 | .61 | 1 | .44 | 1.00 |
| RCI Openness | .03 | .14 | .05 | 1 | .83 | 1.10 |
| Constant | -.63 | .07 | 82.66 | 1 | .00 | .53 |

## Summary

The purpose of this research study was to examine how education and personality traits relate to use of mental health services among women in middle age. An analysis of the demographic data indicated that the majority of the participants were married, working, Caucasian, and one-third of these women used mental health services in the prior 12 months. The logistic regression model for the Time 2 personality traits and levels of education was insignificant; however, three traits were significant. Neuroticism was associated with greater likelihood of use of mental health services. Conscientiousness was associated with a lower likelihood of use of services. Openness to experience was associated with a higher likelihood of use of services. Extraversion and agreeableness were not significant. A second logistic regression was used to examine whether personality trait changes between Time 1, 1995, and Time 2, 2005, were predictive of use of services at Time 2. The personality trait change scores were small. When entered in the logistic regression model, the model failed, meaning the RCI scores could not predict use of services by women in 2005.

CHAPTER 5: DISCUSSION

This research study examined how education and personality traits relate to use of mental health services among women in middle age. Specifically, this study explored the relationship between level of education, neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience and use of services. The results of this study are discussed in this chapter. The chapter opens with an overview, followed by a four-part discussion of results. The first subsection describes the demographic data; the second subsection describes the logistic regression results of research question 1. The third subsection focuses on the personality trait change values over a 10-year period, and the fourth subsection describes the logistic regression results for research question 2. Following the discussion of results are the contributions of the study, conclusions of the study, and implications of the findings. The chapter closes with the limitations of the study, recommendations for future research, and concluding remarks.

Overview

Middle age can be a challenging time for many women. This period is filled with many transitions that affect social, emotional, and physical health (Robins & Tzesniewski, 2005). It is also the time of life where women experience the highest levels of depression and anxiety (Centers for Disease and Prevention, CDC, 2007). Despite meeting criteria for a mental disorder, 30% of women do not seek help (Rosen et al.,

2007). Although effective treatments are available (Schmidt, 2005), 97% of women who do not initiate services cite attitudinal factors while only 22% cite external factors (Kessler et al., 2004). It is important to have a better understanding of what factors may be influencing women's decisions about using services. The factors of interest for this study are education and personality traits, which contribute to the limited amount of research in this area.

The data for this study is from the MIDUS study (Ryff et al., 2012), funded by the National Institute on Aging. MIDUS is an ongoing study that began in 1995 surveying 7,108 English speaking, non-institutionalized adults in the United States who were at least 25 years old in 1995. The second survey, conducted in 2005, had a retention rate of 75% after adjusting for mortality. The participants in this dissertation study consisted of 1110 women from Time 2 who met the age requirements of 40 to 60 in 2005. As discussed in Chapter 3, this study utilized logistic regression to determine the odds ratios or likelihood of use of mental health services among middle-aged women based on education and personality traits. The traits were examined from Time 2 (2005) and as change scores between Time 2 (2005) and Time 1 (1995).

<div align="center">Discussion of the Results</div>

Demographics

The descriptive statistics described many of the life experiences of female baby boomers in middle age. Few of the women were actively caregiving. Only 16% of women between 40 and 60 years of age reported having cared for another in the preceding 12 months. Di Scalea et al. (2012) also found lower numbers reporting 11.2% of middle-aged Caucasian women were currently providing care for an older or disabled

family member. The participants in this study were overwhelmingly Caucasian (90%) and married (71%). The individuals were also highly educated. In 2005, roughly half of the women had at minimum a college degree. This is slightly higher than the Bureau of Labor Statistics (2011) for 2005 estimating 33% of American women between the ages of 25 and 64 years old had a college degree. The Bureau of Labor Statistics also reported that in 2010, 73% of American women between age 40 and 60 years old worked. The statistics from this study showed that in the same age group in 2005, 67% of women sampled worked.

Results of Research Question 1

How do education and personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) relate to the use of mental health services among middle-aged women at Time 2, 2005?

Education and the use of services were not significant in the first logistic regression, despite an abundance of literature supporting the association (Gonzalez et al., 2011; Goodwin et al., 2002; Steele, Dewa, & Lee, 2007). Several reports using high school as the reference group found those with less than a high degree would be less likelihood to believe services help. The predictions ranged from 18% less likely (Gonzalez et al., 2011) to 35% less likely (Steele, Dewa, & Lee, 2007) to believe services help. While those with more than a high school degree were exponentially more likely to believe services help. The odds are 50% more likely for those with a high school degree (Goodwin et al., 2002) and 100% more likely for those with a college degree (Gonzalez et al., 2011).

The absence of significance may be cohort related. Other studies used a wider range of ages, greater racial diversity, and mixed gender (Goodwin et al., 2002; Gonzales et al., 2011). In fact, 16% of the participants in Gonzalez et al. study (2011) had less than a high school degree. The sample used for this study was a well-educated group, 70% had more than a high school degree. The lack of significance in the logistic regression could be accounted for by the fact that the education level was relatively high and homogenous.

Neuroticism was the strongest predictor of use of services of all the personality traits. The results from this study are higher ($OR = 1.8$) than that in the literature. For example, Goodwin et al. (2002) reported a slightly lower odds ($OR = 1.5$), but this was reflective of a mixed gender sample. The higher results for women are supported by Gawali (2012) who reported greater levels of neuroticism in women than men (23.7 vs. 21.2, $t_{(1, 58)} = 2.19$, $p < .05$). The higher results for middle-aged women in this study may reflect personality trend research that reports an increase for women in neuroticism during middle age (Lucas & Donnellan, 2011; Soto & John, 2012). Finally, the increase in neuroticism for women in middle age may be related to mental health. There is an increase in depression and anxiety (CDC, 2007) during middle age. These forms of mental distress are also highly correlated with high levels of neuroticism (Jylhä & Isometsä, 2006; Kotov et al., 2010; Lahey, 2009).

Extraversion and use of services was not significant in this study because the level of extraversion among middle-aged women was the same for those who use services ($X = 3.08$, $SD = .57$) and those who do not use services ($X = 3.08$, $SD = .59$). These results are unexpected given the literature. Jylhä and Isometsä (2006) reported a weak negative correlation between extraversion and use of services ($r_s = -.14$, $p = .004$) suggesting that

those using services would have lower levels of extraversion. Goodwin et al. (2002) also found this trend with logistic regression ($OR = .70$). They proposed that higher levels of extraversion might be associated with stronger support network, lessening the need for professional counseling services (Goodwin et al., 2002). While the theory is logical, it was not supported in this research. It could be that by middle age, the women in this sample have a stable support network which is reflected in the moderate to high level ($X = 3.08$) of extraversion found in this study.

Conscientiousness was associated with significantly lower rates of mental health service use. Results from this study indicate that those with high levels of conscientiousness are 53% ($OR = .65$) less likely to use mental health services. Similar findings in the literature support this (Javaras et al., 2012). Goodwin et al. (2002) had slightly stronger odds ratios ($OR = .40$) when evaluating females only. Results by Seekles et al. (2012), while significant, were very different ($OR = 1.05$). There are two issues most likely affect their results. The first is that rather than measuring probability of use, Seekles et al. measured perceive need for services. This difference may be more significant for conscientiousness than for the other personality traits. According to trait theory research, people high in this trait may perceive a need for services but feel they must take care of their problems themselves (Roberts et al., 2005). A second difference with the Seekles et al. study was that it included men and women in the sample. Women are reportedly higher in conscientiousness than men (3.41 vs. 3.31, $F_{(1, 2,619)} = 14.8$, $p < .0001$); therefore, having men in the sample might dilute any practical significance (Gawali, 2012).

Agreeableness was not associated with use of services in this study. Similar findings are found in the literature. Seekles et al. (2012) examined surveys from those with anxiety or depression and their perceived need for mental health services. There was no association with agreeableness. Goodwin et al. (2002) also found no association between agreeableness and the likelihood of using services. These results are logical based on the description of agreeableness trait construct. Costa et al. (1991) describe the trait as a spectrum spanning from resentment to compassion. The MIDUS survey used adjectives such as altruism and tender mindedness, which are unlikely to influence the decision to use services. Results from this study confirm the extant research.

Openness to experience was the final personality trait to be examined. The results in this study were significant. Those with high levels of openness to experience had a higher likelihood of use of mental health services ($OR = 1.5$). Others report positive correlates ($r = .54$, $p < .01$) supporting openness and the perceived need for services (Greenidge & Daire, 2010; Oluyinka, 2011; Seekles et al., 2012). However, Goodwin et al. (2002), using this same MIDUS data as this study did not find significance. Openness to experience trait begins to increase in young adulthood and continue to rise through middle age (Lucas & Donnellan, 2011). It is possible that the middle-aged women in this study had the most variance, as openness to experience begins to decline in middle age. The existing literature does highlight women, however, not this specific age range. For example, Goodwin et al. used a sample of women ages 25 to 74 years of age, which may have produced a neutral net effect.

The results of the first research question provide insight into personality and use of services at a specific moment in time. First, high neuroticism is predictive of a greater

likelihood of use of services among middle-aged women. Second, high conscientiousness is predictive of a declining likelihood of use of services among middle-aged women. Finally, the significance of high openness to experience and an increased likelihood of use of services is a new finding. The specificity of the sample, middle-aged Caucasian women, may be a key to this association and deserves further research.

Results of Research Question 2

How do changes in personality traits (neuroticism, extraversion, conscientiousness, agreeableness, and openness to experience) relate to the use of mental health services among middle-aged women?

The focus of research question 2 was on personality changes over a 10-year period during middle age. Change values were calculated using the reliable change index (RCI; Christensen & Mendoza, 1986). Values of ±1.96 are considered reliable. In this study, only 0.5% of data points were above or below 1.96. The remaining 99.5% of participants had no reliable change. According to trait theory research, neuroticism, extraversion, and openness to experience should decrease over time (Hogan & Roberts, 2004). Conscientiousness and agreeableness are thought to increase with age (Allemand et al., 2008). Although other research with RCI values have supported these theories (Roberts & Caspi, 2005; Pullman, Raudsepp, & Allik, 2006), the change scores in this study reflected no change.

The lack of significance may be due to an absence of true change in personality traits during middle age. Other studies using RCI have yielded change scores that represented true change. Roberts and Caspi (2005) measured change in personality in young adults between 18 and 26 years of age. The researchers reported 10% to 27% of

the individuals had reliable change. Pullman et al. (2006) investigated personality trait change in children. Using the RCI scores, they found 11.9% had reliably changed on neuroticism. The aforementioned studies were on a younger sample than those in this research. Although personality changes throughout the lifespan, this study found no change in personality traits for women during middle age.

Another explanation for the lack of apparent change could be in the MIDI instrument used in the MIDUS study. Recently, the MIDI scale was evaluated in terms of cross loading on the adjectives used to describe personality (Zimprich et al., 2012). Five items touched on more than one personality trait. The suggested blend of traits might result in a test that is less sensitive to change.

<div align="center">Contribution of the Study</div>

Previous studies examined a wider age range of women. This study adds to the literature base with empirical data specific and unique to women in middle age. Not only does this research study supported existing data on the likelihood of use of services with neuroticism and conscientiousness, but adds new data on the relationship of openness to experience and use of services among baby boomer women between 40 and 60 years of age.

Although there were no findings for personality change and the use of mental health services during middle age, this highlights the need for a better understanding of changes for women in middle age. Women are experiencing changes but maybe not the traditional ones thought of as middle age. The survey showed that women are working through the majority of middle age. They are not engaged as caregivers to the extent that the Bureau of Labor and Statistics (2011) estimates. Their personalities appear stable, if

not increasing in emotional stability. However, that does not necessarily equate to Erikson's (1968) stage of generativity. Newton and Stewart (2010) found women in middle age to differ greatly on whether generativity or identity development was their primary focus. This 20 to 30 year period called middle age needs to be better defined, specifically for women, if counselors are to service this population.

<div align="center">Implications of the Findings</div>

There are several important implications from these findings. The first is that neuroticism, conscientiousness, and openness to experience have predictive value in the use of mental health services among middle-aged women. Those with high levels of neuroticism and openness are more likely to use services. Conscientious women, who tend to be organized, responsible, and hardworking, are less likely to use services. These findings support the hypothesis that there are more issues than external and intrinsic barriers related to use of mental health services. The influence of personality is an important factor to consider. Mental health advocates can use this information to target women who may need services but because of high conscientiousness choose not to initiate services.

Counselor educators could also benefit from better understanding how personality traits in middle-aged women are related to engaging in counseling services. During new counselor training, educators can place a stronger focus on trait theory and the impact of conscientiousness and openness to experience relative to using mental health services. While neuroticism is well studied, these other two traits are not often considered when discussing the impact on personality and clients initiating and continuing counseling services.

In addition, traditional developmental models need to be updated to reflect the developmental stage of women in middle age. Educators can no longer assume a woman is age appropriate for Erikson's (1968) stage eight or Jung's (1932) position of middle age androgyny. Counselor educators need to be able to prepare counselors in training for working with a middle-aged population. Education needs to incorporate contextual theories such as Bronfenbrenner's theory along with the linear stage models. The variability of life experiences by baby boomer women creates varied, yet interdependent, ecological systems. A contextual approach shifts development from age specific development to environmentally adjusted development. Personality in this context will be reflective of stage, not age.

Preparing new counselors to work with this population is critical. Over one-third of the female population is currently between 40 and 65 years of age (Rogerson & Kim, 2005). Practicing clinicians who understand the contextual issues of middle age can better understand the structure of personality and its relationship to use of services.

Limitations of the Study

The main limitation of this study is that it was based on archival data. The inability to adjust or re-conceptualize the protocol is a distinct disadvantage in using this data set. For example, the sample population was not optimal. Although the researchers took care to use random selection, there was a lack of diversity among middle-aged women. Furthermore, the respondents who followed through at Time 2 were those who were willing to repeat the surveys. The time commitment to complete the telephone interview (30 – 45 minutes) and two self-administered questionnaires (1½ hours) may

have skewed the variety of personality types in the sample. Generalizability, therefore, is specific to this narrow sample.

Methodology issues in archival data present another limitation. A specific example is the construction of the Midlife Development Inventory Personality Scales (MIDI; Lachman & Weaver, 1997) portion of the MIDUS survey. The MIDI scale is a 4-point Likert scale and provides significantly less variance than more in-depth scales that have at least five options (Credé, Hams, Niehorster, & Gaye-Valentine, 2012). Dawes (2006) explained the typical Likert scale has an odd number with a balance of positive or negative responses. The fewer the options, the more likely data will be negatively skewed. Pullman et al. (2006) used a 5-point Likert scale (NEO-FFI; Allik et al., 2004; Costa & McCrae, 1992) to examine personality trait change in adolescents. The difference in the Likert scale forced a wider response. The resulting RCI values in that study were significant and could reliably demonstrate change. Given that MIDUS is an ongoing longitudinal study, this limitation will continue.

A third limitation to consider is the concept of personality testing. Personality tests, in general, were developed to measure the stable aspects of personality traits and to have high test-retest reliability (Lachman & Weaver, 1999). As discussed by Mroczek and Spiro (2003), personality tests of this nature are relatively insensitive to change. Therefore, it is likely that personality trait instruments underestimate change (Nesselroade, 1989). It may be that personality change is better understood through instruments with scales that include the facets of personality traits, which provide a more detailed assessment of personality (McCrae & Costa, 1987).

A fourth limitation was potential confounding variables. Transitions in marital status, caregiving status, or work status might affect the relationship between personality and use of services. In addition, the type of mental health service received may influence the relationship between personality and use of services. For example, changes in personality traits may be a result of improved emotional health due to counseling or medication. Neuroticism scores are based on the following adjectives: moody, worrying, nervous, and not calm. Not only is counseling effective in helping address problems in these areas, but psychotropic medications such as mood stabilizers are also effective. This brings into question whether trait changes, or the lack thereof, are artificially affected through medications or externally influenced through counseling.

<div align="center">Future Research</div>

The conclusions, along with the study limitations, suggest several opportunities for future research. The first is continued research with the MIDUS study. The significant findings from the first research question can be extended by incorporating the 2015 survey information. The added survey data will allow for further investigation into whether the significance of openness and use of services is reproducible as the next cohort reaches middle age and whether openness remains significant for the women in this study. While the results for neuroticism and conscientiousness from 2005 confirmed previous results, replicating this study with the 2015 sample will provide further confirmation of these results.

A second area for future research would include an examination of the association of specific service type (e.g., individual counseling, spiritual counseling, psychiatric medication, group work) and confounding variables (e.g., marital status, working status,

and caregiving status) with personality traits. Personality traits could be measured with an odd number Likert scale having at least five options and includes personality facet subscales in order to capture subtle changes. For example, Soto et al. (2011) studied longitudinal personality trait stability using the Big Five Inventory (BFI; John et al., 1991; Soto & John, 2009). They found unique distinguishable and unique age trends based on facet level results. Zimprich et al. (2012), using factor analysis, evaluated the MIDI scale in terms of facet level changes. Extraversion has two facets, social dominance, and social vitality. Roberts et al. (2003) report an inverse relationship in these facets over time, yet the MIDI is a stronger measure for social vitality than dominance. In addition to a more sensitive instrument for measuring traits, data generated could be richer using path analysis.

Finally, further research is needed with a sample diverse in race, ethnicity, education, and gender. While membership in a specific cohort can be influential, there are more within group differences than between groups (Allport, 1954).The impact of external barriers such as poverty and oppression need to be considered. This research could result in a wider generalizability.

<div align="center">Concluding Remarks</div>

The aim of training new counselors and providing research to the counseling literature has always been to meet the needs of the clients. Yet, the field of counseling has neglected the widening stage of middle age. The 20 to 30 year phase of middle age is rarely addressed in counselor education. Consequently, counselors are entering the field with little academic background on this population.

The results of this research imply that personality traits, specifically neuroticism, conscientiousness, and openness to experience have predictive value in the likelihood of use of services. Further exploration of individual changes in personality and the impact on initiating or discontinuing use of mental health services requires further study. Continued study will only better prepare counselor educators to train counselors to work with this growing population and better prepare practitioners to serve the needs of middle-aged women.

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APPENDIX A: IRB EXEMPTION

From: Runden, Cat <CatRunden@uncc.edu>
Date: Tue, Feb 19, 2013 at 7:49 AM
Subject: RE: Update - Re: IRB exemption
To: "Berwick, Amy" <aberwick@student.uncc.edu>
Cc: "Post, Phyllis" <ppost@uncc.edu>
Hi Amy,

To clarify, what we have determined is that your project is not human subjects. This is not the same thing as being exempt from IRB. Rather no IRB review at all is required for your project. Exempt is a category of IRB review.

Research with human subjects requires IRB review. This IRB review can be Exempt, Expedited, or Full.

In your case, your project is research but is NOT human subjects. As such, there is no IRB review requirement at all. If there is no IRB review requirement, there is no IRB Exempt approval, Expedited approval, or Full approval.

Both regulatory definitions must be met for IRB review – Exempt, Expedited, or Full – to be required. You project meets only one of the definitions.

The attached email is your documentation that IRB review is not needed. Because there is no IRB review and approval requirement, there is no need to submit an IRB protocol application.

 I'm happy to discuss this further by phone if you like.

Thanks.

Cat

-------------------------------------------------------------------------

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- If the confidentiality of human subjects has been violated, the case may be reported to the Federal Office for Human Research Protections. This may result in an investigation of the user's institution, which can result in institution-wide sanctions including the suspension of all research grants.
- A court may award the payment of damages to any individual(s)/organization(s) harmed by the breach of the agreement.

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    A faculty member, staff member, or student at a member institution
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Member institution:
    An institutional member of ICPSR
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    An individual appointed to represent a university's interests in ICPSR. This individual is also charged with providing user support to campus users.
Promise of confidentiality:

A promise to a respondent or research participant that the information the respondent provides will not be disseminated without the permission of the respondent; that the fact that the respondent participated in the study will not be disclosed; and that disseminated information will include no linkages to the identity of the respondent. Such a promise encompasses traditional notions of both confidentiality and anonymity. Names and other identifying information regarding respondents, proxies, or other persons on whom the respondent or proxy provides information, are presumed to be confidential.

Research subject:

A person or organization observed for purposes of research. Also called a respondent. A respondent is generally a survey respondent or informant, experimental or observational subject, focus group participant, or any other person providing information to a study or on whose behalf a proxy provides information.

APPENDIX C: MIDUS CODE BOOK

**ICPSR** | INTER-UNIVERSITY CONSORTIUM FOR POLITICAL AND SOCIAL RESEARCH

ICPSR 4652

**National Survey of Midlife Development in the United States (MIDUS II), 2004-2006**

Codebook

# National Survey of Midlife Development in the United States (MIDUS II), 2004-2006

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## M2ID

MIDUS 2 ID NUMBER

| Valid | Invalid | Min | Max |
|-------|---------|-------|-------|
| 4963 | 0 | 10001 | 19193 |

## B1PAGE_M2

AGE DETERMINED BY SUBTRACTING DOB_FINAL FROM B1IPIDATE

| Value | Label | Frequency |
|-------|---------|-----------|
| 98 | REFUSED | 1 |

## B1PB1

HIGHEST LEVEL OF EDUCATION COMPLETED

Question: What is the highest grade of school or year of college you completed?

| Value | Label | Frequency |
|-------|-------|-----------|
| 1 | NO SCHOOL/SOME GRADE SCHOOL (1-6) | 14 |
| 2 | EIGHTH GRADE/JUNIOR HIGH SCHOOL (7-8) | 65 |
| 3 | SOME HIGH SCHOOL (9-12 NO DIPLOMA/NO GED) | 230 |
| 4 | GED | 61 |
| 5 | GRADUATED FROM HIGH SCHOOL | 1266 |
| 6 | 1 TO 2 YEARS OF COLLEGE, NO DEGREE YET | 885 |
| 7 | 3 OR MORE YEARS OF COLLEGE, NO DEGREE YET | 209 |
| 8 | GRAD. FROM 2-YEAR COLLEGE, VOCATIONAL SCHOOL, OR ASSOC. DEGR | 390 |
| 9 | GRADUATED FROM A 4- OR 5-YEAR COLLEGE, OR BACHELOR'S DEGREE | 957 |
| 10 | SOME GRADUATE SCHOOL | 152 |
| 11 | MASTER'S DEGREE | 498 |
| 12 | PH.D., ED.D., MD, DDS, LLB, LLD, JD, OR OTHER PROFESS'NL DEG | 229 |
| 97 | DON'T KNOW | 7 |
| 98 | REFUSED | 0 |
| 99 | INAPP | 0 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|-------|---------|-----|-----|-------|--------|
| 4956 | 7 | 1 | 12 | 7.195 | 2.517 |

# B1PF8A

RACIAL BACKGROUND #1

Question: Which do you feel best describes your racial background? White, Black or African American, American Indian or Alaska Native, Asian, or Native Hawaiian or Pacific Islander? FIRST RESPONSE.

| Value | Label | Frequency |
|-------|-------|-----------|
| 1 | WHITE | 127 |
| 2 | BLACK AND/OR AFRICAN AMERICAN | 59 |
| 3 | NATIVE AMERICAN OR ALASKA NATIVE ALEUTIAN ISLANDER/ESKIMO | 9 |
| 4 | ASIAN | 4 |
| 5 | NATIVE HAWAIIAN OR PACIFIC ISLANDER | 3 |
| 6 | OTHER (SPECIFY) | 6 |
| 7 | DON'T KNOW | 2 |
| 8 | REFUSED | 0 |
| 9 | INAPP | 4753 |

| Valid | Invalid | Min | Max |
|-------|---------|-----|-----|
| 4963 | 0 | 1 | 9 |

# B1SA54A

# TIMES PSYCHIATRIST FOR MENT HLTH (12MO)

Question: Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took some one else regarding their problems. (If none, please enter "0".) - A PSYCHIATRIST.

| Value | Label | Frequency |
|-------|-------|-----------|
| 998 | REFUSED | 128 |
| 999 | INAPP | 0 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|-------|---------|-----|-----|------|--------|
| 3913 | 1050 | 0 | 52 | 0.199 | 1.584 |

# B1SA54B

# TIME GENERAL DOCTOR FOR MENTL HLTH(12MO)

Question: Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took some one else regarding their problems. (If none, please enter "0".) - A GENERAL PRACTITIONER OR OTHER MEDICAL DOCTOR.

| Value | Label | Frequency |
|-------|-------|-----------|
| 998 | REFUSED | 153 |
| 999 | INAPP | 0 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|-------|---------|-----|-----|------|--------|
| 3888 | 1075 | 0 | 36 | 0.713 | 2.027 |

# B1SA54C

# TIME COUNSELOR FOR MENTAL HLTH (12 MO)

Question: Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took some one else regarding their problems. (If none, please enter "0".) - A PSYCHOLOGIST, PROFESSIONAL COUNSELOR, MARRIAGE THERAPIST OR SOCIAL WORKER.

| Value | Label | Frequency |
|---|---|---|
| 998 | REFUSED | 137 |
| 999 | INAPP | 0 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 3904 | 1059 | 0 | 140 | 0.735 | 5.59 |

# B1SA54D

# TIME RELIGIOUS FOR MENTAL HLTH (12 MO)

Question: Please indicate how many times you saw each of the following professionals in the past 12 months about a problem with your emotional or mental health or about personal problems, such as problems with marriage, alcohol or drugs, or job stress. Include both individual visits and group sessions regarding your own problems, but not visits when you took some one else regarding their problems. (If none, please enter "0".) - A MINISTER, PRIEST, RABBI OR OTHER SPIRITUAL ADVISOR.

| Value | Label | Frequency |
|---|---|---|
| 998 | REFUSED | 228 |
| 999 | INAPP | 0 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 3813 | 1150 | 0 | 300 | 0.264 | 5.082 |

# B1SUSEMH

NUMBER TIMES SAW MENTAL HLTH PROFSNL (12MO)

| Value | Label | Frequency |
|---|---|---|
| 998 | NOT CALCULATED (Due to missing data) | 68 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 3973 | 990 | 0 | 307 | 1.869 | 8.61 |

# B1SAGREE

AGREEABLENESS PERSONALITY TRAIT

| Value | Label | Frequency |
|---|---|---|
| 8 | NOT CALCULATED (Due to missing data) | 30 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 4011 | 952 | 1 | 4 | 3.448 | 0.502 |

# B1SEXTRA

EXTRAVERSION PERSONALITY TRAIT

| Value | Label | Frequency |
|---|---|---|
| 8 | NOT CALCULATED (Due to missing data) | 29 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 4012 | 951 | 1 | 4 | 3.105 | 0.573 |

# B1SNEURO

NEUROTICISM PERSONALITY TRAIT

| Value | Label | Frequency |
|---|---|---|
| 8 | NOT CALCULATED (Due to missing data) | 32 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 4009 | 954 | 1 | 4 | 2.07 | 0.627 |

# B1SCONS1

CONSCIENTIOUSNESS PERSONALITY TRAIT (PARALLEL M1 ITEMS)

| Value | Label | Frequency |
|---|---|---|
| 8 | NOT CALCULATED (Due to missing data) | 29 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 4012 | 951 | 1 | 4 | 3.461 | 0.451 |

# B1SOPEN

OPENNESS PERSONALITY TRAIT

| Value | Label | Frequency |
|---|---|---|
| 8 | NOT CALCULATED (Due to missing data) | 66 |

| Valid | Invalid | Min | Max | Mean | StdDev |
|---|---|---|---|---|---|
| 3975 | 988 | 1 | 4 | 2.904 | 0.538 |

APPENDIX D: MIDUS SURVEY

**ICPSR** | INTER-UNIVERSITY CONSORTIUM FOR POLITICAL AND SOCIAL RESEARCH

ICPSR 4652

**National Survey of Midlife Development in the United States (MIDUS II), 2004-2006**

SAQ Questionnaires 1 and 2

MIDUS 2 Self-Administered Questionnaire

## Questionnaire 2

This is the second booklet we would like you to complete. It includes several categories of questions that will help us understand aspects about your life, like your work and your relationships. There are no right or wrong answers to any of these questions.

This booklet has several different kinds of questions that appear in different formats. We may ask you to circle a number, check a box, or write in an answer in the space provided. Below are examples of how to do this.

**Circle the appropriate number.**

1    2    3   (4)   5

**Check one.**

☑ Yes

OR

☒ Yes

☐ No      ☐ No

We realize that there are many questions to answer. If at any time you find yourself getting tired, we recommend that you take a break for a while and then come back to it. Please be sure that you choose the response that comes closest to how you feel. Be sure to look at the different answer choices before answering.

Some of the questions may seem redundant to you. There are other questions that may require you to look up information. Please bear with us through these questions and answer them as best you can. We need all of the information to best understand differences among the many people in our study.

Finally, we prefer that you answer this questionnaire on your own, without input from anyone else.

Thank you so much for contributing your time to complete this booklet! It is because of people like you that this national study has been possible.

E6.  Please indicate how well each of the following describes you.

| | A lot | Some | A little | Not at all | | | A lot | Some | A little | Not at all |
|---|---|---|---|---|---|---|---|---|---|---|
| a. Outgoing | 1 | 2 | 3 | 4 | q. Imaginative | 1 | 2 | 3 | 4 |
| b. Helpful | 1 | 2 | 3 | 4 | r. Softhearted | 1 | 2 | 3 | 4 |
| c. Moody | 1 | 2 | 3 | 4 | s. Calm | 1 | 2 | 3 | 4 |
| d. Organized | 1 | 2 | 3 | 4 | t. Outspoken | 1 | 2 | 3 | 4 |
| e. Self-confident | 1 | 2 | 3 | 4 | u. Intelligent | 1 | 2 | 3 | 4 |
| f. Friendly | 1 | 2 | 3 | 4 | v. Curious | 1 | 2 | 3 | 4 |
| g. Warm | 1 | 2 | 3 | 4 | w. Active | 1 | 2 | 3 | 4 |
| h. Worrying | 1 | 2 | 3 | 4 | x. Careless | 1 | 2 | 3 | 4 |
| i. Responsible | 1 | 2 | 3 | 4 | y. Broad-minded | 1 | 2 | 3 | 4 |
| j. Forceful | 1 | 2 | 3 | 4 | z. Sympathetic | 1 | 2 | 3 | 4 |
| k. Lively | 1 | 2 | 3 | 4 | aa. Talkative | 1 | 2 | 3 | 4 |
| l. Caring | 1 | 2 | 3 | 4 | bb. Sophisticated | 1 | 2 | 3 | 4 |
| m. Nervous | 1 | 2 | 3 | 4 | cc. Adventurous | 1 | 2 | 3 | 4 |
| n. Creative | 1 | 2 | 3 | 4 | dd. Dominant | 1 | 2 | 3 | 4 |
| o. Assertive | 1 | 2 | 3 | 4 | ee. Thorough | 1 | 2 | 3 | 4 |
| p. Hardworking | 1 | 2 | 3 | 4 | | | | | |

55

PERSONALITY TRAITS  Scales/Items:

Respondents were asked how much each of 31 self-descriptive adjectives described them (Section E, Question 6, a - ee). The adjectives measure six personality traits as follows:

Neuroticism [B1SNEURO] (M1 scale name: A1SNEURO):

4 items; Self-Administered Questionnaire, Section E, Question 6 (c, h, m, s)

Adjectives: Moody, Worrying, Nervous, Calm (R)

Extraversion [B1SEXTRA] (M1 scale name: A1SEXTRA):

5 items; Self-Administered Questionnaire, Section E, Question 6 (a, f, k, w, aa)

Adjectives: Outgoing, Friendly, Lively, Active, Talkative

Openness to Experience [B1SOPEN] (M1 scale name: A1SOPEN):

7 items; Self-Administered Questionnaire, Section E, Question 6 (n, q, u, v, y, bb, cc)

Adjectives: Creative, Imaginative, Intelligent, Curious, Broad-minded, Sophisticated, Adventurous

Conscientiousness [B1SCONS1] (M1 scale name: A1SCONS):

4 items; Self-Administered Questionnaire, Section E, Question 6 (d, i, p, x)

Adjectives: Organized, Responsible, Hardworking, Careless (R),

Conscientiousness [B1SCONS2] (MIDUS-II Scale)

5 items; Self-Administered Questionnaire, Section E, Question 6 (d, i, p, x, ee)

Adjectives: Organized, Responsible, Hardworking, Careless (R), Thorough (added at MIDUS-II)

Agreeableness (communion) [B1SAGREE] (M1 scale name: A1SAGREE):

5 items; Self-Administered Questionnaire, Section E, Question 6 (b, g, l, r, z)

Adjectives: Helpful, Warm, Caring, Softhearted, Sympathetic

Coding: 1 A lot; 2 Some; 3 A little; 4 Not at all.

Scaling: Personality traits scales are constructed by calculating the mean across each set of items. All items except ones marked with (R) were reverse-coded so that high scores reflect higher standings in each dimension.

Missing Values: The scales are computed for cases that have valid values for at least half of the items on the particular scale. Scale scores are not calculated for cases with fewer than half of the items on the scales, and coded as "8" for "NOT CALCULATED (Due to missing data)."

Neuroticism [B1SNEURO]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (3998) | .74 | 2.07 | .63 |

Extraversion [B1SEXTRA]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (4001) | .76 | 3.10 | .57 |

Openness to Experience [B1SOPEN]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (3964) | .77 | 2.98 | .54 |

Conscientiousness [B1SCONS1]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (4001) | .58 | 3.46 | .45 |

Conscientiousness [B1SCONS2]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (4030) | .68 | 3.38 | .46 |

Agreeableness [B1SAGREE]:

| Sample (N) | Alpha | Mean | Std. dev |
|---|---|---|---|
| M2 Total Sample (4000) | .80 | 3.45 | .50 |