# Attitudes toward Menopause

by

Melissa M. Pope

A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Approved April 2017 by the
Graduate Supervisory Committee:

Mary H. Burleson, Chair
Deborah L. Hall
Nicole A. Roberts

ARIZONA STATE UNIVERSITY

May 2017

ABSTRACT

Menopause is a complex biopsychosocial phenomenon that is influenced by women's attitudes, the attitudes of their partners, families, and friends, and societal norms. Previous research has shown that attitudes can be influenced by many factors, such as age and menopausal status. This study examined men's and women's attitudes toward several facets of menopause, including fertility, attractiveness, personal growth, emotional stability, and sexuality, using an Amazon Mechanical Turk sample of 194 females and 151 males. Results revealed that women and men differed significantly in their attitudes toward fertility, attractiveness, personal growth, and sexuality, with women having more positive attitudes on every dimension except sexuality. For females, age was a significant positive predictor for fertility, personal growth, and emotional stability; knowledge was a significant positive predictor for personal growth; and education was a significant positive predictor for emotional stability. For males, age was a significant positive predictor for fertility, and knowledge was a significant negative predictor for fertility. These results indicate that men typically have more negative attitudes toward menopause than do women, and that more potential predictors of menopause attitudes should be explored in future work to provide insight into the reasons for this difference.

For my family and the friends who became my family.

I couldn't have done it without you.

ACKNOWLEDGMENTS

I am forever grateful to Dr. Mary Burleson, Dr. Nicole Roberts, and Dr. Deborah Hall for their tireless support, encouragement, and unwavering willingness to share their knowledge and skills with me throughout my time in the graduate program, and particularly during the process of creating this thesis.

TABLE OF CONTENTS

Page

Page

APPENDIX

LIST OF TABLES

Table Page

## Introduction

Menopause is a complex biopsychosocial phenomenon, influenced by myriad factors. Physical changes interact with changes in life phases and roles to create a transition that, while experienced by all women who reach the appropriate age, differs widely from woman to woman. Stereotypical views of menopause paint it as an extremely negative time in a woman's life, marked by mood swings and hot flashes, but women's lived experiences seldom correspond with this view (Atwood, McElgun, Celin, & McGrath, 2008). Women's attitudes toward menopause, as well as the attitudes of those close to them, can exert a strong influence on the way they experience menopause (Avis & McKinlay, 1991; Papini, Intrieri, & Goodwin, 2002). Attitudes toward menopause are nuanced, and assessing these attitudes in a time when attitudes toward women's health issues in general are changing quickly can provide valuable insight.

### The Basics of Menopause

Menopause is the cessation of menstruation – defined retrospectively after one year without a menstrual period (National Institute on Aging [NIA], 2008). On average, women reach menopause at age 51 (NIA, 2008). However, the menopausal transition, or perimenopause, is a years-long process marked by hormonal fluctuations and changes in the menstrual cycle. The word menopause is commonly used to refer to the entire transition rather than used in its more technically appropriate sense.

A set of guidelines for evaluating the entire transition was developed by researchers at the Stages of Reproductive Aging Workshop + 10 (STRAW + 10), and these guidelines are widely accepted as the standard (Harlow et al., 2012). The primary criteria used to define STRAW + 10 stages are changes in the menstrual cycle. Hormones, including follicle stimulating hormone, luteinizing hormone, estrogen, and progesterone, fluctuate regularly during the menstrual cycle, unpredictably during

perimenopause, and stabilize during postmenopause (NIA, 2008). These variations, combined with the relative expense of testing hormone levels, make menstrual cycle changes a much more convenient parameter for estimating menopausal phase. Under the STRAW + 10 guidelines, perimenopause lasts from the beginning of the menopausal transition to one year after menopause. The early menopausal transition is marked by a persistent difference in the length of cycles of seven days or more. The late menopausal transition is marked by the absence of menstruation over a 60-day time period, and often the emergence of vasomotor symptoms. After 12 months without menstruation, menopause has been achieved; postmenopause refers to the entire time span after menopause.

This series of stages is typical of natural menopause, but does not describe the experiences of all women. Women may experience menopause differently for several reasons, such as undergoing a bilateral oophorectomy. These women's experiences are usually quite different from those of women who go through natural menopause.

**Symptoms**

The natural menopausal experience varies widely between individuals, and across cultures. Some women experience many symptoms; some women experience almost none. No universal menopause syndrome has been found to occur either across or within ethnic groups (Avis et al., 2001). Women living in non-Western cultures report fewer symptoms than those in Western cultures (Hunter & Rendall, 2007). Whereas women report a wide range of symptoms while going through the menopausal transition, and many of these symptoms are perceived to be caused by menopause, very few can be definitively attributed to menopause. Some commonly reported symptoms of menopause include hot flashes, night sweats, sleep disturbance, vaginal atrophy, vaginal dryness, urinary leakage, forgetfulness, heart pounding or racing, irritability, stiffness or

soreness, feeling tense or nervous, and feeling depressed or blue (Avis et al., 2001; Gold et al., 2000). Of these symptoms, hot flashes are probably the most stereotypically associated with menopause; hot flashes are also one of the few well-validated symptoms of menopause (Greendale, Lee, & Arriola, 1999). Hot flashes and night sweats are jointly referred to as vasomotor symptoms. In one study of almost 4,000 United States women of multiple ethnic and racial backgrounds, vasomotor symptoms increased throughout the menopausal transition – 25.2% of those aged 40-43 reported hot flashes or night sweats, and 46.4% of those aged 52-55 reported them (Gold et al., 2000). It is interesting to note that not even half of the women surveyed reported hot flashes, the most widely accepted symptom of menopause.

Psychosocial symptoms, such as depression and irritability, are also difficult to attribute entirely to menopause. In a longitudinal study of over 2,000 women, the best predictor of depression during menopause was prior depression; women who spent longer in the perimenopausal phase experienced more depression during that phase, although postmenopausal women's depression scores improved (Avis, Brambilla, McKinlay, & Vass, 1994). Matthews (1992) suggests that increased depression during the menopause transition may be the result of symptoms, particularly more disruptive ones such as sleep disturbance. Perimenopausal women experience significantly more sleep disturbance than premenopausal women (Baker, Simpson, & Dawson, 1997). Vasomotor symptoms are connected to both increased sleep disturbance and a more negative mood, but sleep disturbance only explains a small portion of this relationship, suggesting that sleep disturbance caused by vasomotor symptoms is not one of the primary causes of menopausal women's negative moods (Burleson, Todd, & Trevathan, 2010). Nevertheless, Avis and colleagues (1994) found that increased symptomatology was associated with more depression, so another mechanism or set of symptoms may be

explaining the connection. At any rate, depression and other psychological symptoms may be a correlate of menopause, rather than a result of it (Deeks, 2003). Menopause often coincides with life changes and events that may influence mental health, such as children leaving the home, parents passing away, job changes or retirement (Deeks, 2003). It can be difficult to establish a causal relationship between menopause itself and many of the commonly reported symptoms of menopause, whether in psychosocial or physiological realms.

Menopause and its associated symptoms do not require treatment unless they are troublesome or interfere with a woman's quality of life. The medical community is now shifting to this perspective, but in times past menopause was viewed as a "deficiency disease." Instead of a natural change in hormonal levels that occurs over time, it was seen as an absence of something that should be there – an unnatural, abnormal development that should be cured (Blumberg et al., 1996). When symptoms do negatively affect quality of life, hormone replacement therapy is frequently an effective treatment for some issues, such as hot flashes (Nelson, 2008). Even when menopause is not viewed as a deficiency disease, women have difficulty communicating with medical professionals about their concerns; doctors can be dismissive and fail to fully explain issues related to menopause (Buchanan, Villagran, & Ragan, 2001). Communication between doctors and patients is essential to help women understand and effectively treat any symptoms they may experience.

**Stereotypes and Taboos**

In the past, menopausal women were regarded as emotionally unstable; the end of fertility was seen as devastating, and almost a death knell – although shorter life expectancies made the latter somewhat accurate (Atwood et al., 2008; Matthews, 1992). While perceptions of menopause have improved in modern times, stereotypical views of

menopause and menopausal women still abound (Atwood et al., 2008). In two studies examining stereotype content, Marcus-Newhall, Thompson, and Thomas (2001) found that compared to both midlife women and men, menopausal women are seen negatively – particularly in terms of having more negative emotions, not having positive traits, and not being active. Additionally, they found that men have more negative perceptions of menopausal women than do women. Marván, Islas, Vela, Chrisler, and Warren (2008) asked college students to describe menopausal women, and students most frequently chose words or phrases such as irritable, old, moody, and having hot flashes. Male and female students did not differ in their overwhelmingly negative perception of menopausal women.

These views are reinforced by depictions of menopause in the popular media. One study, by Gannon and Stevens (1998), reviewed articles published in popular sources between 1981 and 1994. They found that the vast majority of articles discussed negative aspects of menopause, emphasized a need for medical treatment, and minimized or dismissed the impact of other factors on the menopausal transition, such as diet and exercise. Many of the articles offered incorrect or contradictory information, such as stating that hormone replacement therapy both caused and treated several conditions (Gannon & Stevens, 1998). On a mildly encouraging note, the number of articles on menopause did increase over time. Unfortunately, the number was still far below the number of articles on other topics that affect a far smaller number of women. Gannon and Stevens (1998) concluded that the advice given in the articles they reviewed was representative of the medical view of menopause as an unnatural and negative experience that should be treated, especially with hormone replacement therapy.

Rostosky and Travis (1999) agree with Gannon and Stevens' perspective, arguing that the way menopause is depicted in the media is a result of the medical view of

menopause, which has in turn been shaped by our negative cultural view of aging women, creating a circular influence that continually reinforces the perception of menopause as a miserable time for all women.

Stereotypes both represent our understanding of the world and set the norms for how members of certain groups should behave (Marván et al., 2008). They exert a powerful influence. Menopause is a ubiquitous experience for women, yet the popular view of menopause remains limited and inaccurate; even women tend to accept this depiction. This discrepancy between stereotype and reality may be partially the result of women's unwillingness to share their own experience of menopause with others. Nosek, Kennedy, and Gudmundsdottir (2010) interviewed women and found that those who tried to reach out to others for information during menopause were often rejected - not only by their friends who were also going through menopause, but even their own mothers, who are traditionally an important source of information about bodily changes for women. This lack of communication between mothers and daughters concerning menopause seems to be common (Walter, 2000).

**Social Support**

Receiving social support from intimate partners and close others can have a powerful effect on the menopausal transition. Women who did not or were not able to talk about menopause with their friends felt isolated during menopause, while those who could talk comfortably with their friends felt validated by these conversations (Wood, Mansfield, & Koch, 2007). A woman's attitudes toward menopause were correlated with the number of friends and family members she reported being able to speak comfortably with about menopause – the more people she was comfortable with, the more positive her attitudes (Theisen, Mansfield, Seery, & Voda, 1995). Additionally, women with low social support report more severe menopause symptoms (Bauld & Brown, 2009), and

social support predicts better quality of life overall for menopausal women (Avis, Assmann, Kravitz, Ganz, & Ory, 2004).

Mansfield, Koch, and Gierach (2003) found that the majority of husbands in their sample attempted to provide support to their wives during menopause, but several mentioned their lack of knowledge about menopause as an impediment to their ability to provide support. Another study, conducted in Brazil, found similar results (Reale Caçapava Rodolpho, Cid Quirino, Akiko Komura Hoga, & Lima Ferreira Santa Rosa, 2016). Some participants in the Brazilian study reported trying to seek out information from their wives or from others, but several would not ask for information because they felt it was too personal and private to inquire about. These men's perceptions of menopause may have affected their ability and desire to provide support to their significant others.

A partner's or friend's perception of menopause can also strongly influence a woman's perspective on menopause and how she chooses to deal with symptoms. One qualitative study found that some women were pushed by their partners and family to seek treatment for symptoms they did not initially view as troublesome; one woman reported that her husband did not believe her symptoms were real, leading her to avoid mentioning her symptoms again and to avoid seeking treatment for them (Dillaway, 2008).

**Men's Attitudes toward Menopause**

Men's attitudes clearly can influence women's experience of menopause, but men's attitudes remain understudied. The little extant literature does support the idea that a male partner's attitudes may be influenced by his female partner's experience of menopause. In a Turkish sample of menopausal women and their husbands, Aksu, Sevinçok, Kücük, Sezer, and Oğurlu (2011) found that greater menopausal symptom

severity for wives was related to more negative attitudes on their husbands' part; they also found no significant differences in attitudes within spousal pairs, with both husbands and wives having generally positive attitudes. In a United States sample, men's attitudes were negatively correlated with their wives' symptom severity, and men had more negative attitudes toward menopause compared to women (Papini et al., 2002). Because both of these studies assessed attitudes only after women had reached menopause, the direction of the relationship between mens' attitudes and their partners' symptom severity is not clear. Another study also showed that men had more negative attitudes compared to women, but no information was collected about the men's partners – the men may or may not have been partnered with menopausal women (Gannon & Ekstrom, 1993).

**Women's Attitudes toward Menopause**

Unlike the limited research on men's attitudes, studies of women's attitudes abound. The topic has been repeatedly studied since at least the early 1960s, when Neugarten, Wood, Kraines, and Loomis (1963) published an influential study. Generally, women's attitudes toward menopause range from neutral to positive, which is particularly reassuring in light of the influence attitudes may have on the menopause experience (Avis & McKinlay, 1991; Sommer et al., 1999; Wilbur, Miller, & Montgomery, 1995).

In a systematic review of research on women's attitudes, 13 out of 16 studies found that women who reported more negative attitudes reported experiencing more symptoms (Ayers, Forshaw, & Hunter, 2010). All but one of these studies were cross-sectional, limiting conclusions about the direction of the relationship between attitudes and experiences; those who have more negative experiences would presumably have more negative attitudes after the fact. The sole longitudinal study, however, did support

a causal relationship between attitudes and experiences. Women who had more negative attitudes prior to menopause reported more symptoms during menopause (Avis & McKinlay, 1991). Women who had negative attitudes before menopause also tended to report improvements in attitude toward the end of the menopausal transition, with their attitudes becoming neutral or even positive, suggesting that personal experience may lead to more positive attitudes (Avis & McKinlay, 1991).

Several different factors have been explored as predictors of menopause attitudes, although few have been shown to reliably account for a great deal of variance in attitudes. Age is one of the few factors that has consistently predicted menopause attitudes. Starting with Neugarten and colleagues (1963), younger women have been shown to have more negative attitudes than older women. This finding has been replicated repeatedly (Bowles, 1986; Gannon & Ekstrom, 1993; Morrison, Sievert, Brown, Rahberg, & Reza, 2010; Sommer et al., 1999; Theisen et al., 1995). Some studies conflate age and menopause status, but although age and menopause status are highly positively related, age is not an exact determinant of when women go through menopause. In large samples of women ranging from 45 to 60 years of age, it is possible to tease apart these two characteristics.

When menopause status is determined separately from age, postmenopausal women tend to have more positive attitudes than premenopausal women (Morrison et al., 2010; Sommer et al., 1999; Wilbur et al., 1995). Younger and premenopausal women may have more negative attitudes because they have less knowledge of the menopausal transition. Considering the lack of communication from other women, and the stereotypical depiction of menopause as time when women are crazy and constantly experiencing hot flashes, it is not surprising that women without personal experience would have a negative view of menopause.

Education has also been linked to attitudes, although results are inconsistent. Morrison and colleagues (2010) found that higher levels of education were associated with both higher ratings of positive dimensions of menopause attitudes and higher ratings of negative dimensions, such that women with lower education levels had more neutral attitudes toward menopause than women with higher education levels. Frey (1982) noted that more educated women had more positive attitudes toward menopause, but Avis and McKinlay (1991) reported that more educated women had more negative attitudes. Several studies have found no relationship between education and attitudes (Neugarten et al., 1963; Theisen et al., 1995; Wilbur et al., 1995). These contradictory results indicate that more research is needed to clarify the relationship between education levels and attitudes toward menopause.

**Facets of Menopause Attitudes**

Most literature addresses menopause attitudes solely from a valence perspective, on a spectrum from negative to positive. This can be limiting, as menopause is a complex and multi-layered phenomenon and menopause attitudes are no different. Women may have vastly different perspectives on different elements of menopause attitudes, particularly if their experience, or the information they have received from others, was more negative in one area and more positive in another. Parsing out aspects of attitudes can provide a more nuanced understanding of how individuals perceive menopause.

**Fertility.** The loss of fertility is a primary feature of the menopausal transition. Depending on the importance of fertility to a woman, her intimate partners, her close others, and her culture, this can be a momentous occasion or simply a blip on the radar. In traditional cultures, where fertility is often highly valued, menopause may have more negative connotations (Hall, Callister, Berry, & Matsumura, 2007). From an evolutionary perspective, fertility also plays an important role in men's perceptions of women,

particularly for younger men who are more focused on reproductive success (Buss, 1989). Some women feel that their lack of ability to reproduce does limit their attractiveness to potential mates and might reduce their femininity (Dillaway, 2005). Despite this view, most women retrospectively reported feeling relieved at their last menstrual cycle, and very few reported feeling regret (Avis & McKinlay, 1991). Menopause does indicate the end of fertility, but it is also the end of the hassles of monthly menstruation and brings freedom from worries about contraception or pregnancy (Hvas, 2001; Sommer et al., 1999).

**Attractiveness.** Physical attractiveness is closely linked with fertility and youth in evolutionary history (Buss, 1989). Visual cues that are considered attractive are typically indicative of potential fertility and good health, such as smooth skin and full lips (Buss, 1989; Thornhill & Gangestad, 1999). As men and women age, these features tend to fade away, but the consequences of this transition are more acute for women. Women's attractiveness is perceived as declining at a faster rate than men's with age (Deutsch, Zalenski, & Clark, 1986). Some women report feeling less attractive after menopause (Dillaway, 2005; Winterich & Umberson, 1999), but postmenopausal women are less concerned about attractiveness compared to premenopausal women (Strauss, 2013). Women may develop different relationships with their bodies during the menopausal transition.

**Personal growth.** Menopause is stereotypically depicted as a solely negative time, and researchers typically focus on negative aspects of menopause. In contrast to this approach, many women experience menopause as a time of personal growth. Neugarten and colleauges (1963) noted that some women reported positive feelings after menopause, such as having more energy and being in better spirits; another study found that postmenopausal women reported reduced inhibitions and an improved

understanding of themselves (Hvas, 2001). Menopause can overlap with several life transitions, such as children leaving home and changing or reduced responsibilities in other realms, leaving women feeling more free to pursue their own interests and with more time for themselves (Atwood et al., 2008). Postmenopausal women's more positive attitudes when compared to premenopausal women may be reflective of these positive elements.

**Emotional stability.** Women's emotional experiences and mood changes are often attributed to hormone-triggered mood swings no matter which phase of reproductive life they happen to be in, and menopause is no exception (Buchanan et al., 2001). For centuries, emotional lability has featured heavily in views of menopausal women (Atwood et al., 2008). Women do report experiencing emotional lability during menopause (George, 2002; Millette, 1981), but again, a direct causal relationship between menopause and mood swings has not clearly been established. For some women, changes in hormone levels may cause mood changes, but this has not been widely established. Depression and mood changes that do occur during menopause may be the effect of symptoms or of other concurrent situations (Deeks, 2003; Nelson, 2008).

**Sexuality.** Women frequently experience changes in sexual functioning and desire, including increased vaginal dryness and decreased desire for sex, during the menopausal transition (Dennerstein, Alexander, & Kotz, 2003). Some of these changes are attributable to decreased estrogen levels (Greendale et al., 1999), but some may be more accurately attributed to other sources, such as aging itself or individual and societal expectations (Wood et al., 2007). Some research has found that menopausal women report decreased desire for and enjoyment of sex (Dennerstein et al., 2003), but other studies have found that some menopausal women experience an increase in desire for and enjoyment of sex (Leiblum & Swartzman, 1986; Winterich, 2003). Some aspects of

menopause, such as the end of concerns about pregnancy, even led to a more positive view of sex. Postmenopausal women who communicated clearly with their partner about sex continued to have fulfilling and enjoyable sex lives after menopause (Winterich, 2003). These women typically acknowledged that there were changes in how their bodies responded, including drops in libido and increased time to orgasm, but reported adapting to their changing bodies and continuing their sex lives much as before (Winterich, 2003). These contrasting findings again serve to illustrate the range of variability in individual women's experiences of menopause.

**Changes and Gaps**

Social mores surrounding women's experiences and issues related to reproductive health and aging are beginning to shift, and as Baby Boomers move through menopause, a new generation is approaching the transition (Utz, 2011). Baby Boomers held different attitudes toward menopause than their mothers, and the next generation will have a different perspective as well (Utz, 2011). A broad sample of current attitudes is needed. In recent years, studies of menopause attitudes have been focused on increasingly specific groups of people, such as Macedonian women living in Australia (Strezova et al., 2017). More research on men's attitudes in comparison to women's attitudes could also provide important information about women's experiences during menopause, and additional research on predictors of attitudes for both women and men could support earlier findings or serve as a source of new insight.

**Current Study**

The current study aims to evaluate men's and women's current attitudes toward menopause in a broad United States sample; to compare men's and women's attitudes; and to explore potential predictors of attitudes for both men and women. Specifically, it is hypothesized that men's attitudes will be more negative than women's; that younger

people of both genders will have more negative attitudes than older people; that those who are less knowledgeable about menopause will have more negative attitudes; that those who are less educated will have more negative attitudes than those with higher levels of education; and for women, those who are at an earlier reproductive aging stage will have more negative attitudes than those who are at a later stage.

## Method

### Participants

The study included 345 participants between the ages of 18 and 75 ($M$ = 37.7, $SD$ = 12.5), recruited through Amazon Mechanical Turk (MTurk) and compensated with 50¢. See Appendix A for demographic information and correlations between variables of interest. The majority of participants were female ($n$ = 194, 56.2%); straight ($n$ = 310, 89.9%); White ($n$ = 287, 83.2%); non-Hispanic/Latino ($n$ = 305, 88.4%); had a bachelor's degree or higher level of education ($n$ = 179, 51.9%); and were married or living with their significant other ($n$ = 187, 54.2%). The study was approved by the Arizona State University Institutional Review Board.

### Procedure

After viewing an advertisement for the survey via MTurk, participants were provided with a link to complete the online survey via Qualtrics. The survey began with a consent letter. Continuing on with the survey after reading the consent letter was taken as the participant's consent. The Menopause Attitudes Inventory (MAI) items were presented in randomized blocks. Each participant filled out the MAI, followed by demographics information. Participants who responded "Yes" to the item "Have you ever had a menstrual period?" were directed to a series of questions about their menstrual cycle, birth control use, experience of menopause symptoms, and use of hormone replacement therapy. Those who responded "Yes" to "Has someone close to you (such as

a friend or relative) experienced menopause?" answered questions about their friend or relative's experience.

**Measures**

The survey is provided in its entirety in Appendix B.

**Menopause attitudes.** For the current study, a broad menopause attitudes scale designed to be useful in a variety of contexts was developed based on several previous scales (Ayranci, Ozgul, Ozlem, Arslan, & Emeksiz, 2010; Khademi & Cooke, 2003; Leiblum & Swartzman, 1986; Lindh-Åstrand, Brynhildsen, Hoffmann, Liffner, & Hammar, 2007; Neugarten et al., 1963; Sommer et al., 1999). Additional items were generated to cover topics not addressed by previous work. The final scale (the MAI) comprised 26 items grouped into five content categories: fertility, attractiveness, emotional stability, personal growth, and sexuality. Items on the Fertility subscale relate to women's feelings about the loss of fertility associated with menopause. The Attractiveness subscale focuses on changes in women's sexual and physical attractiveness after menopause. Emotional Stability addresses women's emotional lability and negative emotional states during menopause. Personal Growth examines women's positive emotional experiences after menopause. The Sexuality subscale includes items related to women's physical comfort with and desire for sex after menopause. For all subscales, higher scores indicate more positive attitudes toward menopause. Participants were asked to provide their rating of each item on a seven-point scale, ranging from *strongly disagree* to *strongly agree*.

**Menstrual cycle and hormone usage.** Participants who reported ever having a period answered questions about their cycle's typical length and regularity; if they had experienced hot flashes or night sweats; and their use of hormone replacement therapy. The information about menstrual cycles was matched with the criteria developed by the

Stages of Reproductive Aging Workshop +10 (STRAW) to determine participants' menopausal stage as either premenopausal, early transition, late transition, or postmenopausal (Harlow et al., 2012).

**Menopause knowledge and experience.** All participants rated their own knowledge of menopause on a five-point scale, from *not knowledgeable at all* to *extremely knowledgeable*. Participants who reported that a friend or relative had gone through the menopausal transition answered questions about how much information about menopause their friend or relative had shared with them, if their friend or relative's experience with menopause was positive or negative, and if their friend or relative had used hormone replacement therapy.

## Results

Based on completion times in pilot testing, 143 participants who took fewer than five minutes to complete the survey were removed from the sample. Five participants who did not complete the survey, two who did not report their age, and one who reported gender as "other" also were removed. All analyses were conducted using the remaining sample of 345 participants.

### Preliminary Analyses

Reliability analyses were conducted to determine if the theoretical grouping of the MAI items into subscales was supported by the data. The Cronbach's alpha for each subscale was good or acceptable. The Fertility subscale included five items and $\alpha = .72$; Attractiveness also included five items and $\alpha = .72$; Personal Growth included six items, $\alpha = .77$; Emotional Stability included six items and $\alpha = .82$; and Sexuality included four items, with $\alpha = .73$.

To examine gender differences in the MAI subscales, independent samples *t*-tests were used. Scores on Fertility, Attractiveness, Personal Growth, and Sexuality did show

significant differences between males and females, with females reporting more positive attitudes than males on every subscale except Sexuality, on which males reported more positive attitudes. Scores on Emotional Stability did not significantly differ between males and females.

Table 1

*Means, Standard Deviations, and Differences for Menopause Knowledge and MAI Subscales*

| | Females | | Males | | |
|---|---|---|---|---|---|
| Measure | *Mean* | *SD* | *Mean* | *SD* | $p_{diff}$ |
| Menopause knowledge | 2.89 | 1.09 | 1.97 | .80 | <.001 |
| Fertility (MAI) | 5.23 | .98 | 4.57 | .9 | <.001 |
| Attractiveness (MAI) | 4.57 | .86 | 4.30 | .93 | .006 |
| Personal Growth (MAI) | 4.23 | .87 | 3.95 | .65 | .001 |
| Emotional Stability (MAI) | 4.12 | 1.09 | 4.03 | 1.02 | .415 |
| Sexuality (MAI) | 3.59 | .99 | 3.92 | .76 | .001 |

*Note.* $p_{diff}$ = significance (two-tailed) of the difference in means for each measure. Female $n$ = 194; male $n$ = 151. Possible scores for MAI subscales range from 1-7; knowledge ranges from 1-5.

**Main Analyses**

To further tease apart predictors of menopause attitudes for males and females, the data were separated by gender, and multiple regression analyses with age, menopause knowledge, and education as predictors of each of the MAI subscales were conducted separately for males and females (see Tables 3 and 4 for individual parameter estimates). STRAW status was also included as a predictor for females.

**Predictors of women's attitudes.** Together, age, menopause knowledge, education, and STRAW status predicted about 9% of the variance in Fertility, $R^2$ = .09, $F(4, 185) = 4.77$, $p$ = .001. Age was the only significant predictor when controlling for all other variables; as women's ages increased, their attitudes toward the loss of fertility associated with menopause were increasingly positive, $B$ = 0.01, $SE\ B$ = .01, $p$ = .03.

About 15% of the variance in Personal Growth was explained, $R^2 = .15$, $F(4, 185) = 8.29$, $p < .001$. Age was a significant predictor, $B = 0.02$, $SE\ B = .01$, $p = .01$, with older women having more positive attitudes; knowledge significantly predicted attitudes as well, $B = 0.14$, $SE\ B = .06$, $p = .03$, with more knowledgeable women having more positive attitudes. For Emotional Stability, approximately 7% of the variance was explained, $R^2 = .07$, $F(4, 185) = 3.62$, $p = .01$. Age was a significant predictor, $B = 0.02$, $SE\ B = .01$, $p = .05$, such that older women report more positive attitudes toward emotional stability during menopause. Education was also a significant predictor, $B = 0.12$, $SE\ B = .04$, $p = .004$, with more educated women having more positive attitudes. Age, knowledge, education, and STRAW status did not explain a significant amount of variance in Attractiveness, $R^2 = .02$, $F(4, 185) = .84$, $p = .50$, or Sexuality, $R^2 = .01$, $F(4, 185) = .59$, $p = .67$.

Table 2

*Multiple Regression Results for Females*

| Subscale | Predictor | *B* | *SE B* | *β* | *p* |
|---|---|---|---|---|---|
| Fertility | | | | | |
| | Age | 0.014 | .007 | .198 | .033 |
| | Knowledge | 0.014 | .074 | .016 | .850 |
| | Education | 0.042 | .036 | .081 | .251 |
| | STRAW Status | 0.077 | .055 | .116 | .162 |
| Attractiveness | | | | | |
| | Age | 0.007 | .006 | .110 | .251 |
| | Knowledge | -0.031 | .069 | -.039 | .649 |
| | Education | 0.021 | .033 | .047 | .525 |
| | STRAW Status | 0.024 | .050 | .041 | .635 |
| Personal Growth | | | | | |
| | Age | 0.051 | .006 | .228 | .011 |
| | Knowledge | 0.141 | .064 | .178 | .028 |
| | Education | -0.022 | .031 | -.050 | .468 |
| | STRAW Status | 0.036 | .047 | .062 | .437 |
| Emotional Stability | | | | | |
| | Age | 0.015 | .007 | .184 | .050 |
| | Knowledge | -0.148 | .084 | -.1148 | .079 |

| | | | | | |
|---|---|---|---|---|---|
| | Education | 0.119 | .040 | .210 | .004 |
| | STRAW Status | -0.025 | .061 | -.034 | .685 |
| Sexuality | | | | | |
| | Age | -0.002 | .007 | -.026 | .790 |
| | Knowledge | 0.014 | .079 | .015 | .861 |
| | Education | 0.011 | .038 | .022 | .768 |
| | STRAW Status | -0.068 | .058 | -.102 | .241 |

**Predictors of men's attitudes**. For men, age, knowledge, and education together explained about 7% of the variance in Fertility, $R^2 = .07$, $F(3, 144) = 3.60$, $p = .02$. Age and knowledge were significant predictors of Fertility, with older men having more positive attitudes, $B = 0.02$, $SE\ B = .01$, $p = .02$, and more knowledgeable men having less positive attitudes, $B = -0.23$, $SE\ B = .09$, $p = .01$. Attractiveness ($R^2 = .004$, $F(3, 144) = .22$, $p = .89$), Personal Growth ($R^2 = .02$, $F(3, 144) = .87$, $p = .46$), Emotional Stability ($R^2 = .02$, $F(3, 144) = 1.11$, $p = .35$), and Sexuality ($R^2 = .02$, $F(3, 144) = 1.16$, $p = .33$) were not significantly predicted by age, menopause knowledge, or education for men.

Table 3

*Multiple Regression Results for Males*

| Subscale | Predictor | *B* | *SE B* | *β* | *p* |
|---|---|---|---|---|---|
| Fertility | | | | | |
| | Age | 0.018 | .007 | .206 | .015 |
| | Knowledge | -0.232 | .092 | -.209 | .012 |
| | Education | 0.011 | .039 | .023 | .781 |
| Attractiveness | | | | | |
| | Age | 0.004 | .008 | .043 | .621 |
| | Knowledge | -0.003 | .099 | -.003 | .974 |
| | Education | -0.029 | .042 | -.059 | .486 |
| Personal Growth | | | | | |
| | Age | 0.005 | .005 | .082 | .339 |
| | Knowledge | 0.050 | .068 | .063 | .462 |
| | Education | -0.028 | .029 | -.081 | .335 |
| Emotional Stability | | | | | |
| | Age | 0.000 | .008 | .004 | .959 |
| | Knowledge | -0.187 | .106 | -.149 | .080 |

| | | | | | |
|---|---|---|---|---|---|
| | Education | 0.009 | .045 | .017 | .836 |
| Sexuality | | | | | |
| | Age | -0.012 | .006 | -.160 | .064 |
| | Knowledge | 0.035 | .081 | .036 | .669 |
| | Education | 0.009 | .034 | .023 | .787 |

## Discussion

This study was intended to provide insight into men's and women's attitudes toward menopause by comparing attitudes between genders and exploring predictors of various aspects of menopause attitudes. Some hypotheses were partially supported. Significant differences were found in men's and women's attitudes toward menopause, with women generally having more positive attitudes; however, the predictors explained very little of the variance in menopause attitudes, indicating that additional predictive factors should be explored.

The most consistently supported hypothesis concerned gender differences. It was hypothesized that compared to women, men would have more negative attitudes on all dimensions. Men had significantly more negative attitudes than women on Fertility, Attractiveness, Personal Growth, and Sexuality, but not on Emotional Stability. One possible explanation for the lack of significant difference in attitudes about Emotional Stability is that emotional lability features so strongly in the stereotype of menopause that it overwhelms any other factors, such as the personal experiences women might have. Men's attitudes were more negative than women's on Fertility, Attractiveness, and Personal Growth, but were more positive on Sexuality. Men's lack of familiarity with women's sexuality during any life phase may have contributed to their more positive attitudes on Sexuality.

The hypothesis that younger people would have more negative attitudes than older people was partially supported. Younger women did have significantly more negative attitudes about Fertility, Personal Growth, and Emotional Stability compared to

older women. The lack of a significant age difference for women on Attractiveness and Sexuality may be due to older women's more negative views of their own attractiveness and sexuality. Younger men had more negative attitudes about Fertility than did older men, which fits with the conception of fertility as being more salient to younger men. Men may have more similar attitudes on other dimensions regardless of age because their knowledge comes primarily from stereotypes and media depictions, rather than personal experience.

The hypothesis that more knowledgeable people would have less negative attitudes than less knowledgeable people was partially supported, such that less knowledgeable women had less positive attitudes about Personal Growth. However, more knowledgeable men had less positive attitudes toward Fertility, which contradicts the hypothesis. This may be reflective of the use of a self-report measure of menopause knowledge. Participants may have similar perceptions of their level of knowledge, and these perceptions may not be accurate when compared to reality.

The hypothesis that more educated people would have more positive attitudes than less educated people was partially supported. More educated women did have more positive attitudes about Emotional Stability. Very few participants in this sample had a low level of education. Approximately 85% of participants had at least some college education, which may have affected the results. Variation in attitudes attributed to education may also be the result of some other unknown variable, which could help explain the mixed results across previous studies.

Menopausal status was not predictive of any MAI subscales when controlling for other factors, which stands in contrast to previous research. Age, knowledge, and menopause status each have strong positive relationships; controlling for age and knowledge in the analyses may have reduced the effect of menopause status on attitudes.

There were several limitations inherent to this study. The sample was not diverse in terms of ethnicity or education, reducing the ability to draw conclusions about differences in these areas. Menopause knowledge was assessed via self-report, which may have provided an inaccurate measure of actual awareness about menopause. A more objective measure of menopause knowledge could reveal more information. Participants were not asked about their partner's menopausal status or experience, preventing an assessment of partner attitudes. Additionally, participants were not asked about their sources of information about menopause, which could have allowed for a greater understanding of influences on attitudes. The predictors of attitudes explored in this study were limited; age, knowledge, education, and menstrual status explained only a small amount of variance in attitudes.

This study provided more evidence that women's attitudes toward menopause are typically more positive than men's, and provided some insight into factors that may influence attitudes. Age, education, and knowledge can all predict menopause attitudes, but there are clearly other factors at play. Future research should explore other predictors of menopause attitudes in order to assist in changing these attitudes for the better and improving communication about issues related to menopause. Attitudes toward women's reproductive health issues in general should be improved with the spread of more accurate information to dispel stereotypes, decrease stigma and change the negative connotation of words such as menopause. Increased communication about these issues can improve women's outcomes during the menopausal transition and throughout their lives.

## References


Aksu, H., Sevinçok, L., Kücük, M., Sezer, S. D., & Oğurlu, N. (2011). The attitudes of menopausal women and their spouses towards menopause. *Clinical and Experimental Obstetrics and Gynecology*, *38*(3), 251–255.

Atwood, J. D., McElgun, L., Celin, Y., & McGrath, J. (2008). The socially constructed meanings of menopause: Another case of manufactured madness? *Journal of Couple & Relationship Therapy*, *7*(2), 150–174. http://doi.org/10.1080/15332690802107156

Avis, N. E., Assmann, S. F., Kravitz, H. M., Ganz, P. A., & Ory, M. (2004). Quality of life in diverse groups of midlife women: Assessing the influence of menopause, health status and psychosocial and demographic factors. *Quality of Life Research*, *13*(5), 933–946.

Avis, N. E., Brambilla, D., McKinlay, S. M., & Vass, K. (1994). A longitudinal analysis of the association between menopause and depression: Results from the Massachusetts women's health study. *Annals of Epidemiology*, *4*(3), 214–220. http://doi.org/10.1016/1047-2797(94)90099-X

Avis, N. E., & McKinlay, S. M. (1991). A longitudinal analysis of women's attitudes toward the menopause: results from the Massachusetts Women's Health Study. *Maturitas*, *13*(1), 65–79. http://doi.org/10.1016/0378-5122(91)90286-Y

Avis, N. E., Stellato, R., Crawford, S., Bromberger, J., Ganz, P., Cain, V., & Kagawa-Singer, M. (2001). Is there a menopausal syndrome? Menopausal status and symptoms across racial/ethnic groups. *Social Science & Medicine*, *52*(3), 345–356. http://doi.org/10.1016/S0277-9536(00)00147-7

Ayers, B., Forshaw, M., & Hunter, M. S. (2010). The impact of attitudes towards the menopause on women's symptom experience: A systematic review. *Maturitas*, *65*(1), 28–36. http://doi.org/10.1016/j.maturitas.2009.10.016

Ayranci, U., Ozgul, O., Ozlem, O., Arslan, G., & Emeksiz, D. F. (2010). Menopause status and attitudes in a Turkish midlife female population: An epidemiological study. *BMC Women's Health*, *10*(1).

Baker, A., Simpson, S., & Dawson, D. (1997). Sleep disruption and mood changes associated with menopause. *Journal of Psychosomatic Research*, *43*(4), 359–369. http://doi.org/10.1016/S0022-3999(97)00126-8

Bauld, R., & Brown, R. F. (2009). Stress, psychological distress, psychosocial factors, menopause symptoms and physical health in women. *Maturitas*, *62*(2), 160–165. http://doi.org/10.1016/j.maturitas.2008.12.004

Blumberg, G., Kaplan, B., Rabinerson, D., Goldman, G. A., Kitai, E., & Neri, A. (1996). Women's attitudes towards menopause and hormone replacement therapy. *International Journal of Gynecology & Obstetrics*, *54*(3), 271–277. http://doi.org/10.1016/0020-7292(96)02723-3

Bowles, C. (1986). Measure of attitude toward menopause using the semantic differential model. *Nursing Research*, *35*(2), 81–85.

Buchanan, M. C., Villagran, M. M., & Ragan, S. L. (2001). Climacteric women, menopause, and (Ms.) information: Communication about the climacteric. *Health Communication*, *14*(1), 99–119. http://doi.org/10.1207/S15327027HC1401

Burleson, M. H., Todd, M., & Trevathan, W. R. (2010). Daily vasomotor symptoms, sleep problems, and mood: using daily data to evaluate the domino hypothesis in middle-aged women. *Menopause (New York, N.Y.)*, *17*(1), 87–95. http://doi.org/10.1097/gme.0b013e3181b20b2d

Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, *12*(1989), 1–49. http://doi.org/10.1017/S0140525X00023992

Deeks, A. A. (2003). Psychological aspects of menopause management. *Best Practice & Research Clinical Endocrinology & Metabolism*, *17*(1), 17–31. http://doi.org/10.1016/S1521-690X(02)00077-5

Dennerstein, L., Alexander, J. L., & Kotz, K. (2003). The menopause and sexual functioning: A review of the population-based studies. *Annual Review of Sex Research*, *14*(1), 64–82.

Deutsch, F. M., Zalenski, C. M., & Clark, M. E. (1986). Is there a double standard of aging? *Journal of Applied Social Psychology*, *16*(9), 771–785. http://doi.org/10.1111/j.1559-1816.1986.tb01167.x

Dillaway, H. E. (2005). (Un)changing menopausal bodies: How women think and act in the face of a reproductive transition and gendered beauty ideals. *Sex Roles*, *53*(1–2), 1–17. http://doi.org/10.1007/s11199-005-4269-6

Dillaway, H. E. (2008). "Why can't you control this?" How women's interactions with intimate partners define menopause and family. *Journal of Women & Aging*, *20*(1), 47–64. http://doi.org/10.1300/J074v20n01

Frey, K. A. (1982). Middle-aged women's experience and perceptions of menopause. *Women & Health*, *6*(1/2), 25–36. http://doi.org/10.1300/J013v06n01

Gannon, L., & Ekstrom, B. (1993). Attitudes toward menopause: The influence of sociocultural paradigms. *Psychology of Women Quarterly*, *17*(3), 275–288.

Gannon, L., & Stevens, J. (1998). Portraits of menopause in the mass media. *Women & Health*, *27*(3), 1–15.

George, S. A. (2002). The Menopause Experience: A Woman's Perspective. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *31*(1), 77–85.

Gold, E. B., Sternfeld, B., Kelsy, J. L., Brown, C., Mouton, C., Reame, N., … Stellato, R. (2000). Relation of Demographic and Lifestyle Factors to Symptoms in a Multi-Racial/Ethnic Population of Women 40-55 Years of Age. *American Journal of Epidemiology*, *152*(5), 463–473. http://doi.org/10.1093/aje/152.5.463

Greendale, G. A., Lee, N. P., & Arriola, E. R. (1999). The menopause. *The Lancet*, *353*(9152), 571–580. http://doi.org/10.1016/S0140-6736(98)05352-5

Hall, L., Callister, L. C., Berry, J. A., & Matsumura, G. (2007). Meanings of menopause: Cultural influences on perception and management of menopause. *Journal of*

*Holistic Nursing*, *25*(2), 106–118. http://doi.org/10.1177/0898010107299432

Harlow, S. D., Gass, M., Hall, J. E., Lobo, R., Maki, P., Rebar, R. W., … De Villiers, T. J. (2012). Executive summary of the stages of reproductive aging workshop + 10: Addressing the unfinished agenda of staging reproductive aging. *Journal of Clinical Endocrinology and Metabolism*, *19*(4), 1159–1168. http://doi.org/10.1210/jc.2011-3362

Hunter, M., & Rendall, M. (2007). Bio-psycho-socio-cultural perspectives on menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *21*(2), 261–274. http://doi.org/10.1016/j.bpobgyn.2006.11.001

Hvas, L. (2001). Positive aspects of menopause - A qualitative study. *Maturitas*, *39*(1), 11–17. http://doi.org/10.1016/S0378-5122(01)00184-0

Khademi, S., & Cooke, M. S. (2003). Comparing the attitudes of urban and rural Iranian women toward menopause. *Maturitas*, *46*(2), 113–121.

Leiblum, S. R., & Swartzman, L. C. (1986). Women's attitudes toward the menopause: An update. *Maturitas*, *8*(1), 47–56.

Lindh-Åstrand, L., Brynhildsen, J., Hoffmann, M., Liffner, S., & Hammar, M. (2007). Attitudes towards the menopause and hormone therapy over the turn of the century. *Maturitas*, *56*(1), 12–20. http://doi.org/10.1016/j.maturitas.2006.05.002

Mansfield, P. K., Koch, P. B., & Gierach, G. (2003). Husbands' support of their perimenopausal wives. *Women & Health*, *38*(3), 97–112. http://doi.org/10.1300/J013v38n03

Marcus-Newhall, A., Thompson, S., & Thomas, C. (2001). Examining a gender stereotype: Menopausal women. *Journal of Applied Social Psychology*, *31*(4), 698–719. http://doi.org/10.1111/j.1559-1816.2001.tb01409.x

Marván, M. L., Islas, M., Vela, L., Chrisler, J. C., & Warren, E. A. (2008). Stereotypes of women in different stages of their reproductive life: Data from Mexico and the United States. *Health Care for Women International*, *29*(7), 673–687.

Matthews, K. A. (1992). Myths and realities of the menopause. *Psychosomatic Medicine*, *54*(1), 1–9.

Millette, B. M. (1981). Menopause: A survey of attitudes and knowledge. *Health Care for Women International*, *3*(4), 263–276.

Morrison, L. a, Sievert, L. L., Brown, D. E., Rahberg, N., & Reza, A. (2010). Relationships between menstrual and menopausal attitudes and associated demographic and health characteristics: The Hilo Women's Health Study. *Women & Health*, *50*(5), 397–413. http://doi.org/10.1080/03630242.2010.507721

National Institute on Aging. (2008). Menopause time for a change. (DHHS Document No. 08-6143). Washington, DC: U.S. Government Publishing Office.

Nelson, H. D. (2008). Menopause. *The Lancet*, *371*(9614), 760–770. http://doi.org/10.1016/S0140-6736(08)60346-3

Neugarten, B. L., Wood, V., Kraines, R. J., & Loomis, B. (1963). Women's attitudes toward the menopause. *Vita Humana*, *6*(3), 140–151.

Nosek, M., Kennedy, H. P., & Gudmundsdottir, M. (2010). Silence, stigma, and shame: A postmodern analysis of distress during menopause. *Advances in Nursing Science*, *33*(3), E24–E36. http://doi.org/10.1097/ANS.0b013e3181eb41e8

Papini, D. R., Intrieri, R. C., & Goodwin, P. E. (2002). Attitude toward menopause among married middle-aged adults. *Women and Health*, *36*(4), 55–68. http://doi.org/10.1300/J013v36n04

Reale Caçapava Rodolpho, J., Cid Quirino, B., Akiko Komura Hoga, L., & Lima Ferreira Santa Rosa, P. (2016). Men's perceptions and attitudes toward their wives experiencing menopause. *Journal of Women & Aging*, *28*(4), 322–333. http://doi.org/10.1080/08952841.2015.1017430

Rostosky, S. S., & Travis, C. B. (1999). Sexuality, society, and feminism. In C. Brown Travis & J. W. White (Eds.), *Sexuality, Society, and Feminism* (pp. 181–209). Washington, D.C.: American Psychological Association.

Sommer, B., Avis, N., Meyer, P., Ory, M., Madden, T., Kagawa-Singer, M., … Adler, S. (1999). Attitudes toward menopause and aging across ethnic/racial groups. *Psychosomatic Medicine*, *61*(6), 868–875.

Strauss, J. R. (2013). The baby boomers meet menopause: Fertility, attractiveness, and affective response to the menopausal transition. *Sex Roles*, *68*(1–2), 77–90. http://doi.org/10.1007/s11199-011-0002-9

Strezova, A., O'Neill, S., O'Callaghan, C., Perry, A., Liu, J., & Eden, J. (2017). Cultural issues in menopause: An exploratory qualitative study of Macedonian women in Australia. *Menopause*, *24*(3), 308–615.

Theisen, S., Mansfield, P., Seery, B., & Voda, A. (1995). Predictors of midlife women's attitudes toward menopause. *The Journal of Health Behavior, Education, and Promotion*, *19*(3), 22–31.

Thornhill, R., & Gangestad, S. W. (1999). Facial attractiveness. *Trends in Cognitive Sciences*, *3*(12), 452–460. http://doi.org/10.1016/S1364-6613(99)01403-5

Utz, R. L. (2011). Like mother, (not) like daughter: The social construction of menopause and aging. *Journal of Aging Studies*, *25*(2), 143–154. http://doi.org/10.1016/j.jaging.2010.08.019

Walter, C. A. (2000). The psychosocial meaning of menopause: Women's experiences. *Journal of Women & Aging*, *12*(3), 117–131. http://doi.org/10.1300/J074v12n03

Wilbur, J., Miller, A., & Montgomery, A. (1995). The influence of demographic characteristics, menopausal status, and symptoms on women's attitudes toward menopause. *Women & Health*, *23*(3), 19–39.

Winterich, J. A. (2003). Sex, menopause, and culture: Sexual orientation and the meaning of menopause for women's sex lives. *Gender & Society*, *17*(4), 627–642. http://doi.org/10.1177/0891243203253962

Winterich, J. A., & Umberson, D. (1999). How women experience menopause: The importance of social context. *Journal of Women & Aging*, *11*(4), 57–73. http://doi.org/10.1300/J074v11n04

Wood, J. M., Mansfield, P. K., & Koch, P. B. (2007). Negotiating sexual agency: Postmenopausal women's meaning and experience of sexual desire. *Qualitative Health Research*, *17*(2), 189–200. http://doi.org/10.1177/1049732306297415

# APPENDIX A

# PARTICIPANT DEMOGRAPHIC INFORMATION AND INTERCORRELATIONS FOR VARIABLES OF INTEREST

Table A1

*Participant Demographic Information*

| Characteristic | *n* | % |
|---|---|---|
| Gender | | |
| Female | 194 | 56.2% |
| Male | 151 | 43.8% |
| Race/Ethnicity | | |
| White | 287 | 83.2% |
| Black/African American | 29 | 8.4% |
| American Indian or Alaska Native | 4 | 1.2% |
| Asian | 12 | 3.5% |
| Multiracial | 9 | 2.6% |
| Other | 4 | 1.2% |
| Hispanic/Latino | | |
| Yes | 35 | 10.1% |
| No | 305 | 88.4% |
| Missing | 5 | 1.4% |
| Highest education attained | | |
| Some or no high school | 3 | 0.9% |
| High school diploma/GED | 44 | 12.8% |
| Technical school | 6 | 1.7% |
| Some college | 74 | 21.4% |
| Associate's degree | 39 | 11.3% |
| Bachelor's degree | 118 | 34.2% |
| Some graduate school | 13 | 3.8% |
| Master's degree | 33 | 9.6% |
| Ph.D. or professional degree | 15 | 4.3% |
| Sexual orientation | | |
| Straight | 310 | 89.9% |
| Gay/Lesbian | 16 | 4.6% |
| Bisexual | 16 | 4.6% |
| Other | 3 | 0.9% |
| Relationship status | | |
| Single | 90 | 26.1% |
| Dating steady significant other, not living together | 37 | 10.7% |
| Living with significant other | 50 | 14.5% |
| Married | 137 | 39.7% |
| Divorced | 26 | 7.5% |
| Other | 3 | 0.9% |

*Note.* $n = 345$.

Table A2

*Correlations between Age, Knowledge, Education, STRAW Status, and MAI Subscales*

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Age | - | .217** | .155 | - | .177* | .046 | .068 | -.011 | -.147 |
| 2. Knowledge | .532** | - | -.037 | - | -.165* | .009 | .083 | -.149 | .001 |
| 3. Education | .111 | .051 | - | - | .053 | -.056 | -.062 | .016 | -.003 |
| 4. STRAW Status | .530** | .348** | .075 | - | - | - | - | - | - |
| 5. Fertility (MAI) | .284** | .173* | .112 | .237** | - | .523** | 0.77 | .548** | .268** |
| 6. Attractiveness (MAI) | .123 | .039 | .068 | .092 | .513** | - | .242** | .571** | .499** |
| 7. Personal Growth (MAI) | .319** | .302** | -.003 | .235** | .172* | .290** | - | .030 | .375** |
| 8. Emotional Stability (MAI) | .128 | -.040 | .197** | .031 | .425** | .410** | .023 | - | .414** |
| 9. Sexuality (MAI) | -.075 | -.036 | .018 | -.110 | .248** | .419** | .258** | .199* | - |

*Note*. Correlations above the diagonal line are for males; correlations below the line are for females. For males, *n* ranges from 148 to 151. For females, *n* ranges from 191 to 194.

**$p < .01$; *$p < .05$.

# APPENDIX B

# SURVEY

The survey consists of a series of statements about menopause. Please read each statement carefully and select the answer that most accurately reflects your opinion about the statement.

We are interested in your opinion on each statement; there are no right or wrong answers.

Women are less attractive after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are much the same before and after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women going through menopause are often irrational or do things that they do not understand.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause symptoms can often be relieved through lifestyle changes (e.g., sleeping habits or exercise).

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women often feel better after menopause than they have for a long time.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause is generally a positive experience for women.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women lose part of their value when they lose their ability to have children.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

All women experience problems while going through menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are more attractive after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women find sex more physically comfortable after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Female romantic partners of menopausal women find them less sexually desirable after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are less competent after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women tend to have more trouble with menopause if they were expecting menopause to be difficult.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women going through menopause are more irritable than they used to be.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Male romantic partners of menopausal women often see them differently after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are often happier after they go through menopause than they were before menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause is a sign of aging.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Since menopause is the result of decreased hormone levels, menopausal women should receive hormone replacement therapy.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause is generally a negative experience for women.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Male romantic partners of menopausal women find them less sexually desirable after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are more competent after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women feel regret when they have their last period.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women dread menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Trouble during menopause is caused by uncontrollable changes within women's bodies.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women experience less sexual desire after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women going through menopause are often depressed.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

After menopause, women are relieved because they do not have to deal with menstrual periods.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women should seek medical treatment for menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women feel worse about themselves as they age.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

A woman often has a better relationship with her romantic partner after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are often self-centered while going through menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are less sexually desirable after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause is one of the biggest changes that happens in a woman's life.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women find life more interesting after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women feel less feminine after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women often get more involved in the community after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause signals a loss of womanhood.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are more confident after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women often don't know what to expect during menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Female romantic partners of menopausal women often see them differently after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women who keep themselves busy often don't experience menopause symptoms.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women who experience menopause symptoms should seek medical treatment.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

There are some physical changes associated with menopause, but women are mostly the same before and after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Aging comes with many benefits for women.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are more sexually desirable after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women should seek medical treatment to relieve menopause symptoms if they want to.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Divorce is more likely during menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women often experience a decrease in mental clarity while going through menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women are in the prime of their lives after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women tend to lose their minds while going through menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women feel better about themselves as they age.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Difficulties with menopause are more often the result of other life changes that occur around the same time (e.g., children leaving home, death of parents) than the result of hormonal changes.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Sex is less physically comfortable for women after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women experience a sense of freedom after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Menopause is a natural process that is part of life.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Post-menopausal women would like to regain their ability to have children.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women without romantic partners have more difficulty with menopause than those who have romantic partners.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women experience more sexual desire after menopause.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

It’s a relief for women to no longer have to worry about pregnancy or contraception.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Women often use their menopausal transition to get attention.

| Strongly disagree | Disagree | Somewhat disagree | Neither agree nor disagree | Somewhat agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|

Next, we'd like to ask you a few demographic questions.

What is your age in years?

What is your gender?

Male

Female

Other

What is your ethnicity?

Hispanic / Latino

Non-Hispanic / Non-Latino

What is your racial background?

White

Black / African American

American Indian or Alaska Native

Asian

Hawaiian or Pacific Islander

Multiracial (please specify)

Other (please specify)

Please indicate the category that best describes your current relationship status.

Single

Dating steady significant other, not living together

Married

Living with significant other

Divorced

Widowed

Other (please describe)

How would you best describe your sexual orientation?

Heterosexual / Straight

Gay / Lesbian

Bisexual

Other (please specify, if comfortable sharing)

What is the highest level of education that you have completed?

Some or No High School (< 12 years)

High School Diploma / GED

Technical School

Some College

2-Year College Degree / Associate of Arts Degree (A.A.)

4-Year College Degree / Bachelor's Degree (B.A., B.S.)

Some Graduate School

Master's Degree (M.A., M.S.)

Ph.D. or Professional Degree (Ph.D., M.D., J.D., etc.)

Other (please specify)

How knowledgeable would you say you are about menopause?

| Extremely knowledgeable | Very knowledgeable | Moderately knowledgeable | Slightly knowledgeable | Not knowledgeable at all |
|---|---|---|---|---|

Have you ever had a menstrual period?

Yes

No

Has someone close to you (such as a friend or relative) experienced menopause?

Yes

No

The following questions are about your friend or relative's experience during menopause. If you know more than one person who has gone through menopause, please think of the person who shared the most about their experience with you while you answer these questions.

How much information did your friend or relative share about their experience of menopause with you?

| None at all | A little | A moderate amount | A lot | A great deal |
|---|---|---|---|---|

Would you describe your friend or relative's experience with menopause as positive or negative?

| Extremely negative | Moderately negative | Slightly negative | Neither positive nor negative | Slightly positive | Moderately positive | Extremely positive |
|---|---|---|---|---|---|---|

Did your friend or relative use hormone replacement therapy (HRT)?

Yes

No

I don't know

The following questions are about your experience with menstruation and/or menopause.

Which of these statements accurately describe your menstrual periods? Select any that apply.

Most of the time, my periods are or were regular (less than seven days of variation in my cycle).

Most of the time, my periods are or were irregular (my cycle is or did vary by at least seven days).

My periods have been regular over the last 10 months.

My periods have been irregular (my cycle has been off by at least a week) at least twice in the last 10 months.

In the last year, there has been a two month time span (60 days) when I have not had a period.

It has been at least a year since my last period (please specify how many years it has been).

I have had a hysterectomy or other medical procedure that caused my periods to stop.

Not applicable or other (please describe).

Do you experience hot flashes or night sweats? Select all that apply.

Hot flashes

Night sweats

None of the above

Have you taken hormone replacement therapy (HRT) at any time to relieve menopause symptoms?

Yes

No

Not applicable (please specify)

# APPENDIX C

## INFORMED CONSENT

July 13, 2016

Dear Participant:

We are researchers in the School of Social & Behavioral Sciences at Arizona State University. We are conducting a study to investigate men's and women's attitudes and beliefs about health. We are inviting your participation, which will involve answering a number of questions about your thoughts and feelings relating to health. Additionally, you will be asked to provide some basic demographic information about yourself.

This is an online study that takes approximately 5-10 minutes to complete. In return for participating in the survey, you will be paid $0.50.

Your participation in this study is voluntary. You can skip questions if you wish. If you choose not to participate or to withdraw from the study at any time, there will be no penalty. You must be 18 years old or older to participate in this study.

Although there is no direct benefit of participating in this study, there is the potential for you to gain a better understanding of the process of conducting psychological research. There are no foreseeable risks or discomforts to your participation.

The responses you provide in this study will be anonymous—that is, the researchers can in no way link the responses you provide in the study to any personally identifying information. The only record of your participation will be in the form of your randomly-generated study completion code, which will allow MTurk to process your payment upon study completion. The results of this study may be used in reports, presentations, or publications but your name will not be known. All data collected in this study will be reported in aggregate form.

If you have any questions concerning the research study, please contact the researchers at: burleson@asu.edu / (602) 543-6804 or d.hall@asu.edu / (602) 543-2382. If you have any questions about your rights as participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board at Arizona State University, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Sincerely,

Deborah L. Hall, Ph.D.
Mary H. Burleson, Ph.D.
Melissa Pope, B.S.

# APPENDIX D

## APPROVAL FROM INSTITUTIONAL REVIEW BOARD

EXEMPTION GRANTED

Mary Burleson
Social and Behavioral Sciences, School of
602/543-6804
mary.burleson@asu.edu

Dear Mary Burleson:

On 6/24/2016 the ASU IRB reviewed the following protocol:

| | |
|---|---|
| Type of Review: | Initial Study |
| Title: | Attitudes Toward Menopause Scale |
| Investigator: | Mary Burleson |
| IRB ID: | STUDY00004533 |
| Funding: | None |
| Grant Title: | None |
| Grant ID: | None |
| Documents Reviewed: | • Consent Letter - Menopause Attitudes, Category: Consent Form;<br>• Duncan_CITI.pdf, Category: Other (to reflect anything not captured above);<br>• Menopause Attitudes Protocol.docx, Category: IRB Protocol;<br>• Menopause Attitudes Scale.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);<br>• Menopause Attitudes Recruitment.pdf, Category: Recruitment Materials; |

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 6/24/2016.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Melissa Pope

Deborah Hall
Melissa Pope
Cayla Duncan
Sandra Vazquez Salas
Priscilla Mesa