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Understanding the role of open communication on couples' relationship and psychological well-being during menopause: An examination of the mediating effects of communal coping with an Actor-Partner Interdependence Model

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by

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Dedication

I would like to dedicate this thesis to my cherished partner, Shihan, and my dearest cat, Nuonuo. To Nuonuo, you have been the sweetest companion to me the entire time I have been working on my master's degree. Your lifestyle has always reminded me to keep a positive attitude and enjoy life when working for my future no matter how difficult it may be. To Shihan, thank you for your support and encouragement! Your patience, calmness, and love support me through my ups and downs. We become who we are thanks to the years we have spent together. I cherish that we can fearlessly chase our dreams because we know we get each other’s back. Both of you are my rocks, bringing the inspiration and motivation I need to keep going. Thank you for all the joy and happiness you bring to my life! I am so grateful for your presence in my life.

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Abstract

Understanding the role of open communication on couples' relationship and psychological well-being during menopause: An examination of the mediating effects of communal coping with an Actor-Partner Interdependence Model

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Menopause-related symptoms can affect the lives of both partners in couples, and the way in which partners perceive and respond to menopause-related issues is likely to affect both partners' psychological and relational well-being. Adopting the concept of communal coping, this study investigated how open communication was associated with the relational and psychological well-being of couples through shared appraisal and joint action using Actor-Partner Interdependence Models. After collecting dyadic data from 47 heterosexual couples, this study found that communal coping can emerge in heterosexual couples during the menopausal transition of female partners. This study also showed that: (a) joint action could be negatively associated with the relational well-being of menopausal couples while shared appraisal was positively related with individuals' well-being, (b) open communication can promote both communal coping and well-being in menopausal couples, and (c) communal coping can serve as a mediator between open

communication and relational well-being. This study makes a substantial contribution to the field of research on couples in which the female partner had transitioned through menopause and broadens the application context of communal coping. In addition, it contributes to the discussion on communal coping by highlighting that at least one dimension of communal coping could have negative effects on the well-being of individuals. Detailed interpretation of this study's results and analyses of future research directions are presented.

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Chapter 1: Introduction

Menopause signifies the end of a woman's menstrual cycle, and women usually reach the menopausal transition around the age of 45-55 (de Salis et al., 2018; Peacock & Ketvertis, 2022). As the global population ages, a higher proportion of females enter the menopausal stage each year. According to the World Health Organization (2020), the population of postmenopausal women is growing by 22 percent in 2021 comparing to a decade ago in the global range. At the same time, roughly 1.3 million women approach the stage of menopause yearly in the United States (Peacock & Ketbertis, 2022). After women enter menopause, they encounter a variety of menopause-related issues. Global cross-sectional studies show that more than one-third of menopausal women have moderate-to-severe menopausal symptoms, though the percentage varies by nation (Nappi et al., 2021; Nappi et al., 2023). In addition to physical symptoms, menopausal women may also encounter emotional and relational shifts (de Salis et al., 2018; Hunter & Rendall, 2007; Johnston-Ataata et al., 2020). They may experience psychological distress and worry about the potential of the dissolution of their romantic relationships as menopause resembles aging and the end of one's fertility (de Salis et al., 2018; Zou et al., 2021). As menopause becomes an increasingly significant worldwide health topic, research continues to emerge on how menopause impacts romantic couples' relationships and psychological health, as well as how partners can support their wives during menopause (de Salis et al., 2018; Johnston-Ataata et al., 2020).

Previous studies indicate that menopausal women are more likely to have a better lifestyle and psychological status if their male partners have at least a basic understanding of the menopausal transition and are willing to provide support (Caçapava Rodolpho et al., 2016; Dillaway, 2008; Zou et al., 2021). Following previous discussions on the

significance of male partners to their female partners' well-being during menopause, this study suggests that both partners should be considered as sharing the menopause-related stress for the following two main reasons. First, specific menopausal symptoms affect not only a woman's life but also her male partner's. For example, mood changes, as one of the most common menopausal symptoms, can impact couples' daily interaction, while symptoms such as vaginal dryness can diminish their sexual pleasure (Avis et al., 2015; Jannini & Nappi, 2018; Johnston-Ataata et al., 2020). As menopausal symptoms affect both partners' lives, couples are expected work together as a unit to deal with menopause-related issues (Dillaway, 2008; Jannini & Nappi, 2018). Second, given the time and expense of menopausal treatment, it is expected that both partners will participate in relevant decision-making discussions together. In order to seek and accept menopausal treatment (e.g., hormone therapy), it is vital for couples to reach an agreement and for female partners to receive both financial and emotional support from their spouses, particularly in families in which male partners are the primary financial providers (Caçapava Rodolpho et al., 2016; Delanoë et al., 2012; Dillaway, 2008; Jannini & Nappi, 2018). Overall, this study argues that menopause-related stress is a shared issue that couples experience together. Therefore, *communal coping* is utilized to highlight how couples can deal with menopause-related issues as communal coping is typically used to emphasize how individuals collaborate in both cognition and action to cope with a shared difficulty (Lyons et al., 1998).

Information sharing plays an important role in the communal coping process, as maintaining a mutual understanding is a prerequisite for mentally or physically addressing a shared problem (Afifi et al., 2019; Afifi et al., 2020; Lyons et al., 1998; Richardson & Maninger, 2016). Given that menopause is typically a difficult topic for

couples to discuss in many cultures (de Salis et al., 2018; Delanoë et al., 2012; Johnston-Ataata et al., 2020; Zou et al., 2021), the degree of communication openness is one of the most influential factors in determining whether couples share the same understanding of the situation and engage in addressing menopause-related issues jointly. Cultural taboos in addition to personal experience differences contribute to the information gap between spouses regarding menopause-related stress (Avis et al., 2015; Caçapava Rodolpho et al., 2016; Nappi et al., 2021; Shukla et al., 2018). Both genders have expressed the difficulty of initiating and maintaining conversations regarding menopause with their partners. For female partners, a negative evaluation of menopause might provoke unfavorable attitudes about their menopausal transitions and discourage them from having an open discussion with their spouses (de Salis et al., 2018; Delanoë et al., 2012). Meanwhile, male partners may be hesitant to initiate such conversations in their romantic partnerships as they wish to respect their female partners' choices and privacy, and they mention that they feel more comfortable engaging in the menopause-related discussions with other male friends or the health care providers (Caçapava Rodolpho et al., 2016; Zhang et al., 2020). Without open communication, it can be challenging for certain male partners to understand what their female partners are going through during the menopausal transition because each woman has different symptoms and experiences (Caçapava Rodolpho et al., 2016; Delanoë et al., 2012; Zhang et al., 2020). Furthermore, male partners may fail to provide support if they are unable to perceive what their female partners are actually experiencing.

Hence, this study investigates how partners' open communication can promote their own and each other's relational and psychological well-being through enhancing communal coping in the context of menopausal transition. Specifically, this study used

Actor-Partner Interdependence Models (APIM; Cook & Kenny, 2005) after collecting dyadic data from romantic couples. This study will make two separate contributions to previous discussions on menopausal couples' interaction (Caçapava Rodolpho et al., 2016; de Salis et al., 2018; Dillaway, 2008; Johnston-Ataata et al., 2020) and communal coping (Afifi et al., 2019; Afifi et al., 2020; Lyons et al., 1998; Richardson & Maninger, 2016). First, the utilization of dyadic data will specify how both partners are contributing to these experiences. Second, the emphasis on the two dimensions of communal coping, appraisal and action, allows for a practical analysis of communal coping. Chapter 2 reviews the relevant research and delineates the current hypotheses and research questions. Chapter 3 outlines the methods utilized and Chapter 4 reports the analyses addressing the research questions. Finally, Chapter 5 provides a discussion of the findings, the theoretical and practical applications, the study's limitations, and future directions.

Chapter 2: Literature Review

MENOPAUSE AS A COUPLE ISSUE

Women in Menopausal Transition

A woman is considered to have entered the menopausal transition stage when she experiences "increased variability in menstrual cycle length, defined as a persistent difference of 7 days or more in the length of consecutive cycles" (Harlow et al., 2012, p. 6). Menopausal transition varies in duration from person to person but typically lasts seven years (Avis et al., 2015; Harlow et al., 2012; Peacock & Ketvertis, 2022). With the declining hormone level and ovarian aging, women in the menopausal transition normally experience a variety of physical symptoms, including hot flashes, night sweats, joint pain, mood swings, and weight gain (Currie & Moger, 2019).

Years-long menopausal symptoms can greatly impact women's daily lives, as well as their psychological and relational well-being (Currie & Moger, 2019; Hoga et al., 2015; Hunter & Liao, 1995). Hot flashes are one example of how menopausal symptoms affect one person's social and daily activities (Currie & Moger, 2019; Hoga et al., 2015; Naworska et al., 2020). As one of the most common menopausal symptoms, hot flashes, are uncomfortable, visible, and disturbing when a woman is communicating or interacting with people (Hoga et al., 2015; Naworska et al., 2020). Additionally, a woman can also experience severe mood swings and weight gain attributed by the shifting hormone levels during menopause (Currie & Moger, 2019). These life changes may result in one's psychological distress, such as depression, especially if the individual lacks family, friend, and societal support (Hoga et al., 2015; Hunter & Liao, 1995; Kling et al., 2019). Moreover, the psychological well-being of women undergoing menopausal

transition is modified by their cultural background and personal attitudes regarding women, aging, and fertility (Hoga et al., 2015; Kling et al., 2019). Across cultures, menopause is normally connected with unfavorable images (e.g., loss of attraction, loss of fertility, and aging), and women who embrace these perceptions are more likely to consider menopause as a time in which they lose their social value and sense of self (Ussher et al., 2019; Zou et al., 2021). Despite the fact that some women perceive the menopausal transition as a time to embrace their true selves and free time, it is inevitable that the coexistence of multiple changes during the menopausal transition, from daily life to self-evaluation, can make it difficult for some women to maintain strong psychological well-being (Hoga et al., 2015; Sergeant & Rizq, 2017; Ussher et al., 2019).

In addition to physical and psychological changes, women in menopausal transition encounter specific challenges in their romantic relationships (de Salis et al., 2018; Hoga et al., 2015). According to prior research, one of the primary concerns of women entering the stage of menopausal transition is the risk of being divorced (de Salis et al., 2018; Johnston-Ataata et al., 2020; Ussher et al., 2019). For one thing, the onset of specific menopausal symptoms, such as vaginal dryness, has a direct impact on the sexual life of couples, and women usually experience diminished sexual desire throughout menopausal transition (Currie & Moger, 2019; Johnston-Ataata et al., 2020). For another, as menopause signifies the loss of fertility, women may fear that they are less competitive than more attractive ones in reproductive ages (Delanoë et al., 2012; Hoga et al., 2015; Johnston-Ataata et al., 2020; Zou et al., 2021). Noticeably, these arguments only underline the worrisome aspects of menopausal women and do not necessarily reflect the realities of midlife relationships. In other words, this paper does not claim that midlife divorce is directly caused by a decline in fertility or sexual attraction. Instead, this paper

proposes that women in menopausal transition may be concerned about the possibility of divorce, and that their relational well-being will be diminished in general (de Salis et al., 2018; Hoga et al., 2015; Sergeant & Rizq, 2017; Ussher et al., 2019).

Heterosexual Couples in Menopausal Transition

This thesis argues that both partners in heterosexual couples should be considered as affected by menopause-related issues, though only female partners are directly influenced by the onset of menopausal symptoms. For example, menopausal symptoms such as vaginal dryness, hot flashes, and mood swings are specific factors affecting couples' daily lives, making it impractical to separate out solely the well-being of female partners when discussing the influence and coping with menopause-related issues (Parish et al., 2019; Yarelahi et al., 2021). Instead of only focusing on female partners' lives, romantic couples should be viewed as a unit in the context of female partners experiencing menopausal transition, taking into account the well-being of both partners (Currie & Moger, 2019). Previous research has shown that even when male partners are unsure of how to bring up the topic, they want to maintain the integrity of their marriage and care about their female partners' menopausal symptoms and experiences (Caçapava Rodolpho et al., 2016; Mansfield et al., 2003; Parish et al., 2019; Zhang et al., 2020). Thus, this study suggests that both spouses' lives and well-being are affected by the changes in the menopausal transition, regardless of their biological gender, and the term "menopausal couple" in this study refers specifically to heterosexual couples in which the female partner is in the menopausal transition.

Menopausal couples are considered as responsible for dealing with menopause-related issues given that they are expected to encounter life challenges together and to

make major life decisions regarding children, finances, and health together (Helgeson et al., 2022). When it comes to the stage of menopausal transition, couples also need to make adjustments to their sexual lives and make decisions regarding menopausal treatments, taking into account the time and money required (Dillaway, 2008; Jannini & Nappi, 2018; Yarelahi et al., 2021). Additionally, a committed partnership, like a romantic relationship, is expected to be an available source of support for one other when needed (Helgeson et al., 2022). For instance, in menopausal couples, male partners' emotional and identity support can improve their female partners' psychological health, self-esteem, and confidence, while female partners' trust can also enhance the male partners' satisfaction with the relationship (Caçapava Rodolpho et al., 2016; Mansfield et al., 2003; Ussher et al., 2019; Yarelahi et al., 2021; Zou et al., 2021). Consequently, this study focuses on the well-being of menopausal couples as both spouses are affected by and accountable for menopause-related issues.

Theoretical Model of Communal Coping

The Extended Theoretical Model of Communal Coping (TMCC; Afifi et al., 2006; Afifi et al., 2020) focuses on the significance and function of communal coping in stressful situations and proposes factors that can either influence the emergence of communal coping or the possible outcomes that individuals and groups may encounter after engaging in communal coping. Typically, this model (Afifi et al., 2020) draws a broad picture that includes several types of independent variables predicting one's engagement in communal coping (i.e., nature of stressor, communication quality, relational quality, identification with others, culture, and environment and social structures) and several categories of outcomes of communal coping (i.e., hedonic,

eudaimonic, psychological, social, and physical well-being) depicting the resilience of either individuals or groups (Basinger et al., 2021). In addition, this model proposes potential mediators and moderators that may influence the emergence and outcome of communal coping, such as shared resources and relational connectedness (Afifi et al., 2020). Based on the overall picture offered by the TMCC, this study focuses on factors that may have a significant effect on menopausal couples, including open communication, communal coping, psychological and relational well-being.

In the TMCC, communal coping is considered as the combination of two dimensions—shared appraisal and joint action—separately evaluating individuals' tendency to view the problem as shared and inclination to solve the problem jointly (Afifi et al., 2020). The original description of communal coping reflected these two dimensions. Communal coping was initially conceptualized as a cooperative problem-solving approach requiring close individuals to regard the issue as "ours" and to participate in the resolution process together (Lyons et al., 1998). Likewise, TMCC regards communal coping as a process, and the degree of these two dimensions is utilized to determine a group's communal coping level (Afifi et al., 2006; Afifi et al., 2020). The shared appraisal dimension refers to one's perception of the stressor's ownership, and the joint action dimension measures the extent of cooperative behavioral responses to stressful occurrences (Afifi et al., 2006; Afifi et al., 2020; Basinger, 2018; Basinger et al., 2021). The combination of high levels of shared appraisal and joint action indicates a high level of communal coping (Afifi et al., 2020).

When individuals in close relationships face long-term health challenges, communal coping is frequently observed (Afifi et al., 2020; Basinger et al., 2021). Couples are typically viewed as engaging in communal coping to manage one another's

chronic diseases, such as diabetes, as the commitment in romantic relationships includes the assumption that they are responsible for taking care of each other and make decisions as a group (Basinger et al., 2021; Helgeson et al., 2017; Lee et al., 2020). Despite the fact that menopause is a natural life stage and not a disease, it is a health-related issue that can last for years and affect the lives of couples as a unit (Currie & Moger, 2019; Hoga et al., 2015; Jannini &Nappi, 2018). Therefore, this paper adopts the TMCC to examine how couples' perceptive and behavioral responses to menopause-related issues impact their psychological and relational well-being.

Communal Coping and Individual and Relational Well-Being

Generally speaking, communal coping is viewed as advantageous for the health and relationships of group members (Afifi et al., 2020; Basinger et al., 2021; Lyons et al., 1998). In the TMCC, five types of well-being, such as eudaimonic (e.g., meaning of life), psychological, and relational well-being, are considered to be the outcomes of communal coping (Afifi et al., 2006; Afifi et al., 2020). When it comes to health-related issues, couples' communal coping is especially beneficial for improving their resilience and health (Afifi et al., 2020; Basinger et al., 2021; Rohrbaugh et al., 2012). For example, in couples where one partner has diabetes, the perception of diabetes as a "we-problem" and the behavioral collaborative effort to address diabetes-related issues can increase both spouses' sense of belonging, decrease their distress, and enhance their relationship (Basinger et al., 2021; Helgeson et al., 2017; Lee et al., 2020).

Both dimensions of communal coping (i.e., shared appraisal and joint action) have been shown to strengthen interpersonal bonds and personal health. Concerning the appraisal dimension, research examines "we-talk" to determine whether individuals

perceive the issue as a shared problem (Basinger, 2018; Helgeson et al., 2017; Richardson & Maninger, 2016; Rohrbaugh et al., 2012). The results indicate that the perception of the issues as "our issue" can improve psychological well-being by providing emotional support, enhancing self-identity, and strengthening their meaning of life, as well as improve relational well-being by strengthening their relational bonds and sense of belonging (Basinger, 2018; Helgeson et al., 2022; Lee et al., 2020; Rohrbaugh et al., 2012). Regarding the action dimension, the appearance of instrumental support can reduce people's burnout when they are addressing the problem and lead to an increase in interpersonal interactions, which in general, is also considered as beneficial to individuals' psychological and relational well-being (Afifi et al., 2019; Basinger et al., 2021; Yarelahi et al., 2021). As for menopausal couples, the cooperation between spouses is also considered beneficial because it can boost their resilience, self-confidence, and confidence in their romantic relationships (Currie & Moger, 2019; Yarelahi et al., 2021). Following previous discussions on the significance of spouses' care and involvement during the menopausal transition (Mansfield et al., 2003; Parish et al., 2019; Zhang et al., 2020; Zou et al., 2021), this study suggests that their communal coping improves their psychological and relational well-being. Additionally, in accordance with Afifi, Basinger, and Kam's (2020) call to separately analyze the two dimensions of communal coping, this study separately established the following hypotheses regarding the function of appraisal and action on well-being.

H1: In menopausal couples, individuals' shared appraisal is positively related to their own (a) relational well-being and (b) psychological well-being.

H2: In menopausal couples, individuals' joint action is positively related to their own (a) relational well-being and (b) psychological well-being.

In this thesis, menopausal couples are viewed as a unit facing menopause-related issues together, with their perceptions and actions affecting each other's well-being. The influences of spouses on each other's psychological and relational well-being have been discovered in couples where one partner has a chronic illness (Basinger et al., 2021; Helgeson et al., 2022; Lee et al., 2020). Not only the support providers' perception and action can increase the patients' resilience and improve their health, but the patient's trust and effort can also boost the other's satisfaction and reduce their stress (Basinger et al., 2021; Helgeson et al., 2022; Lee et al., 2020). In menopausal couples, the influences between spouses have also been demonstrated (Caçapava Rodolpho et al., 2016; Kling et al., 2019; Mansfield et al., 2003; Ussher et al., 2019; Yarelahi et al., 2021; Zou et al., 2021), and thus, this study raises the following hypotheses regarding the effects of spouses' communal coping on each other's well-being.

H3: In menopausal couples, individuals' shared appraisal is positively related to their partner's (a) relational well-being and (b) psychological well-being.

H4: In menopausal couples, individuals' joint action is positively related to their partner's (a) relational well-being and (b) psychological well-being.

Open Communication and Communal Coping

In health-related issues, communication can play a crucial role in problem-solving processes related to decision making, meaning-making, and uncertainty management (Badr, 2017; Goldsmith et al., 2007; Goldsmith & Domann-Scholz, 2013; Manne et al., 2010). Communication openness, as one aspect of communication quality, is presented in the TMCC as both a predictor of communal coping and a moderator of the effect of communal coping on well-being (Afifi et al., 2006; Afifi et al., 2020). Regarding the

difficulty and importance of open communication in menopausal couples (Badr, 2017; Caçapava Rodolpho et al., 2016; de Salis et al., 2018; Goldsmith et al., 2007), this thesis focuses on communication openness and frames it as the crucial predictor of couples' communal coping regarding menopause-related issues.

In the context of menopause, it is especially important for couples to be more open in their communication when dealing with menopause-related issues given the prevalent lack of menopause knowledge (Badr, 2017; Caçapava Rodolpho et al., 2016; Goldsmith & Domann-Scholz, 2013). Even though it can be difficult for menopausal couples to initiate an open conversation about the menopause transition, open communication is crucial for menopausal couples to remain on the same page (Badr, 2017; Caçapava Rodolpho et al., 2016; Goldsmith & Domann-Scholz, 2013). On the one hand, menopausal couples in cultures where menopause is associated with stigmatized images are likely to avoid discussing menopausal symptoms and experiences (Goldsmith et al., 2007; Hoga et al., 2015; Teillay-Gambaudo, 2021). Women may be reluctant to actively mention menopause to protect their identity and maintain their marriage if they perceive divorce as a result of declining sexual attraction and aging, and men may resist engaging in conversations about menopause because of their pre-existing negative attitudes toward menopause (Badr, 2017; de Salis et al., 2018; Goldsmith et al., 2007). On the other hand, menopause-related communication can be especially helpful for menopausal couples given the prevalence of lack of knowledge regarding menopause (Caçapava Rodolpho et al., 2016; Mansfield et al., 2003; Parish et al., 2019). Female partners' own experiences are often the most direct and influential source of information about menopause for couples, and thus open communication between spouses can assist

heterosexual couples in bridging the information gap concerning menopause-related issues (Mansfield et al., 2003; Zhang et al., 2020).

The establishment of communal coping is facilitated by interpersonal communication based on TMCC, and open communication in the context of menopausal transition can be perceived as the crucial foundation of couples' communal coping (Afifi et al., 2020; Basinger et al., 2021; Helgeson et al., 2022). Ongoing communication and remaining in the same page are the prerequisite for individuals to engage in communal coping, as group members are supposed to arrive at a consensus regarding the difficulty of the issues and each other's thoughts and actions (Badr, 2017; Goldsmith & Domann-Scholz, 2013; Helgeson et al., 2022; Manne et al., 2010). Good communication has been shown to facilitate communal coping in general (Basinger et al., 2021; Goldsmith et al., 2007; Helgeson et al., 2022; Manne et al., 2010). Although there are many factors that contribute to good communication (Badr, 2017; Helgeson et al., 2022), one of the greatest obstacles for menopausal couples is the cultural stigma associated with discussing menopause (Caçapava Rodolpho et al., 2016; de Salis et al., 2018). In other words, regardless of other aspects of enhancing communication effectiveness, such as the use of effective communication strategies, the difficulty is to utilize them in such conversations (Caçapava Rodolpho et al., 2016; de Salis et al., 2018; Hoga et al., 2015). This study therefore centers on communication openness and views it as a positive predictor of communal coping in menopausal couples.

H5: Individuals' open communication is positively associated with their own (a) shared appraisal and (b) joint action among menopausal couples.

As couples' perceptions of the openness of communication can vary, this study also raises the following question to examine the effects of open communication between spouses on each other's communal coping.

RQ1: In menopausal couples, are individuals' assessments of open communication related to their partner's (a) shared appraisal and (b) joint action among menopausal couples?

The level of couple's communication openness is regarded as especially advantageous to interpersonal relationships and personal health as it can decrease uncertainty, enhance interpersonal trust, promote social support, boost intimacy, and foster mutual understanding (Goldsmith et al., 2007; Goldsmith & Domann-Scholz, 2013; Manne et al., 2010). In other words, open communication benefits the romantic relationships and psychological well-being for couples (Goldsmith & Domann-Scholz, 2013; Manne et al., 2010). Especially in stressful situations, it is advantageous for couples to increase their information exchange in order to reduce uncertainty regarding the issues to be addressed and each other's decisions (Goldsmith et al., 2007; Goldsmith & Domann-Scholz, 2013). Given that previous discussions on communal coping and the establishment of the TMCC have highlighted the benefits of information exchange and the necessity of open communication (Afifi et al., 2020; Helgeson et al., 2020), this study hypothesizes that open communication can improve the psychological and relational well-being of menopausal couples by enhancing their communal coping on menopause-related issues.

H6: In menopausal couples, individuals' open communication is directly and positively related to their own (a) relational and (b) psychological well-being.

H7: In menopausal couples, individuals' shared appraisal mediates the relationship between open communication and their own (a) relationship wellbeing and (b) psychological wellbeing.

H8: In menopausal couples, individuals' joint action mediates the relationship between open communication and their own (a) relationship wellbeing and (b) psychological wellbeing.

As there is less evidence regarding how individuals' open communication affects their partner's outcomes, below are questions regarding open communication between partners in menopausal couples.

RQ2: In menopausal couples, are individuals' reports of their open communication related to their partner's (a) relational and (b) psychological well-being?

RQ3: Does individuals' shared appraisal mediate the relationship between their own open communication and their partner's (a) relationship wellbeing and (b) psychological wellbeing for the other partner in menopausal couples?

RQ4: Does individual's joint action mediate the relationship between their own open communication and their partner's (a) relationship wellbeing and (b) psychological wellbeing for the other partner in menopausal couples?

Actor-Partner Interdependence Modeling

This study utilized Actor-Partner Interdependence Modeling (APIM; Cook & Kenny, 2005; Ledermann et al., 2011) to examine the relationships between communication, communal coping, and psychological and relational wellbeing in menopausal couples. APIM is a model adept at handling dyadic data, such as couples or friends, as it takes into consideration individuals' interdependence (Basinger et al., 2021;

Cook & Kenny, 2005). Specifically, APIM can simultaneously analyze and compare the extent to which an individual's outcomes are affected by his or her personal factors (actor effect) as well as those of a partner (partner effect). Given that menopause can affect both spouses as a unit, APIM is an appropriate model to analyze the wellbeing of menopausal couples. The conceptual model is shown in Figure 1 and Figure 2.

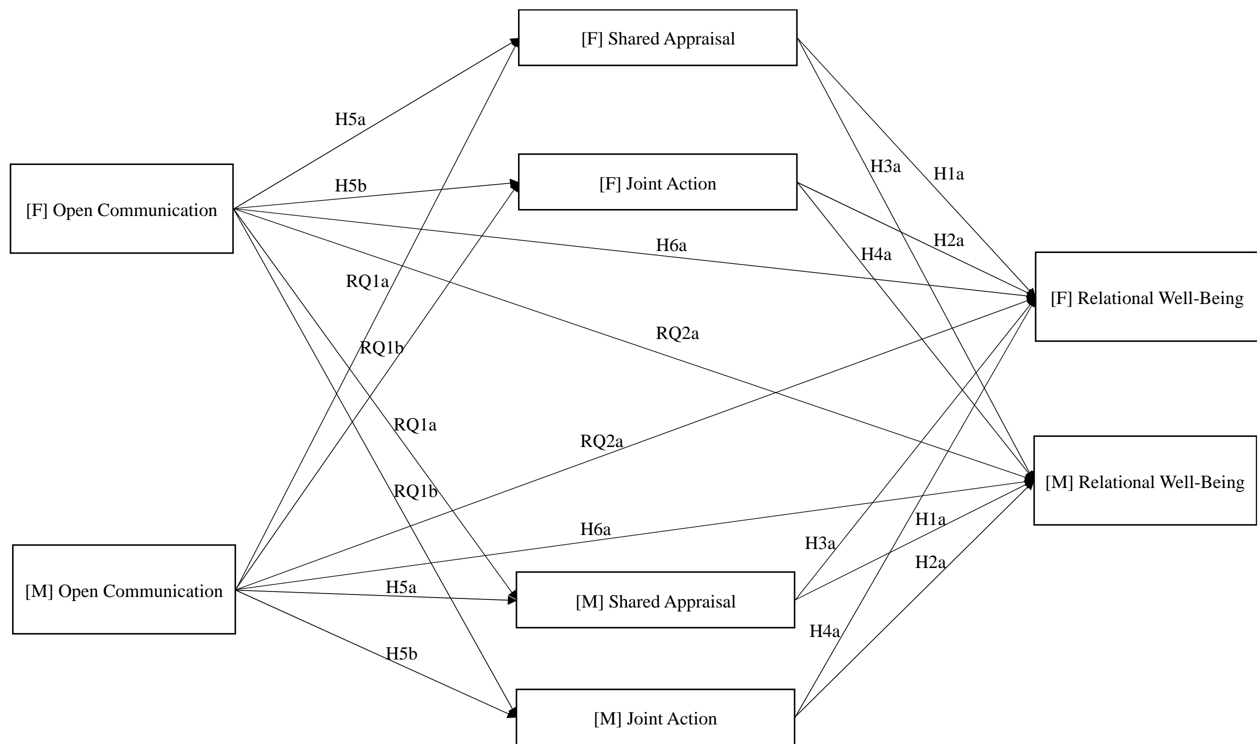

Figure 1: The Conceptual Actor–Partner Interdependence Model (Relational Well-Being)

Note. F = Female. M = Male.

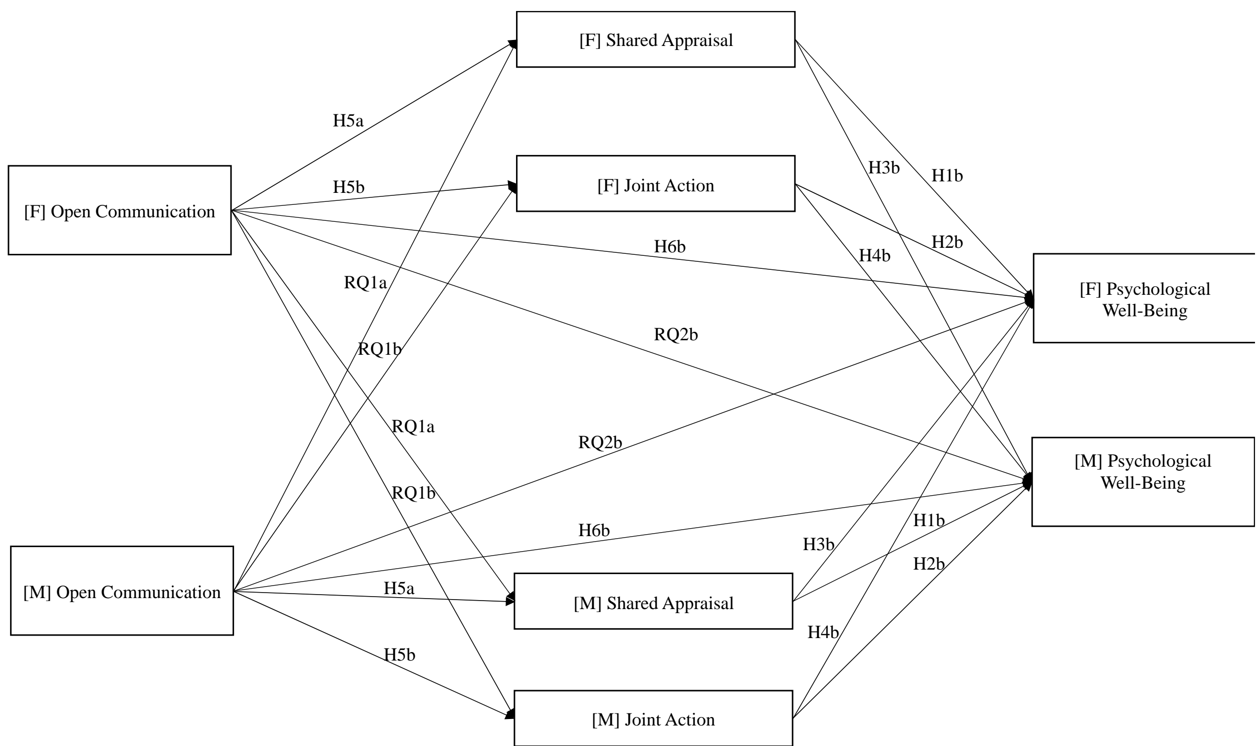

Figure 2: The Conceptual Actor–Partner Interdependence Model (Psychological Well-Being)

Note. F = Female. M = Male.

Chapter 3: Methods

PARTICIPANTS

After receiving IRB approval (see Appendix A), this study recruited heterosexual couples through both Prolific and CloudResearch in which the female partners had been or were experiencing the menopausal transition period. Couples recruited from Prolific were expected to have Prolific accounts, as their IDs were utilized to match their data as dyadic data. CloudResearch participants had the option of forwarding this study to their partners via the CloudResearch platform or via email, and were required to enter their own and their partners' first names to match their data. Each participant from the two questionnaire collection platforms (Prolific and CloudResearch) received $1.50 for their participation in this study, and those who completed the questionnaire via email link were entered into a drawing for a 20% chance to win a $5 gift card. Eligible couples were those who: (a) identified as being in a romantic relationship, (b) identified as heterosexual, and (c) had a female partner who self-identified as being or having been in menopause. To ensure the quality of responses, attention tests were utilized to screen out unintentional participants.

From the 394 questionnaires collected, 47 eligible couples (*n* = 94 individuals) were identified. Three of these couples were recruited from Prolific, and forty-four couples were recruited from CloudResearch. The average length of these couples' romantic relationships was approximately 19.2 years (*SD* = 12.3), ranging from 3.1 to 53.8 years. The average age of female partners was 47.1 (*SD* = 12.4), while that of male partners was 49.5 (*SD* = 12.4). The majority of participants identified as White/Caucasian (41 females, 87.2; 41 males, 89.4%). The remaining male partners consisted of Black (*n* = 2, 4.3%) and Asian (*n* = 3, 6.4%), while the remaining female partners included Asian

(n = 3, 6.4%), Latino/Hispanic (n = 2, 4.3%), and Black (n = 1, 2.1%). One-fifth of respondents (n = 17, 21.3%) reported a family annual income of less than $50,000, while nearly half of respondents (n = 31, 44.7%) reported a family annual income of over $100,000. More than two fifths of female participants (n = 20, 42.6%) reported a personal annual income of less than $30,000, with the majority (n = 12, 25.5%) earning less than $10,000. Detailed information regarding family and individual annual income is presented in Table 1 and Table 2.

Family Annual Income	*n*	%
Less than $25,000	3	3.2
$25,000-$49,999	17	18.1
$50,000-$99,999	32	34.0
$100,000-$199,999	31	33.0
More than $200,000	11	11.7

Table 1: Frequency Table for Family Annual Income (n = 94)

Personal Annual Income	Female		Male	
	n	%	*n*	%
Less than $10,000	12	25.5	4	8.5
$10,000-$29,999	8	17.0	5	10.6
$30,000-$49,999	11	23.4	9	19.1
$50,000-$69,999	6	12.8	10	21.3
$70,000-$89,999	4	8.5	7	14.9
$90,000-$119,999	3	6.4	7	14.9
More than $200,000	3	6.4	5	10.6

Table 2: Frequency Table for Individual Annual Income (n = 47)

MEASURES

The female version of the survey is presented in Appendix B, and the male version is presented in Appendix C.

Couple Communication

The openness of couple communication was assessed with items from two scales, the Couples' Illness Communication Scale (CICS; Arden-Close et al., 2010) and the Scale of Self-perceived Communication in the Couple Relationship (SCCR; Iglesias-García et al., 2019). CICS is a scale measuring "both patients' and their partners' willingness to discuss the patient's illness, from patient and partner perspectives" (Arden-Close et al., 2010, p. 16). The CICS, in particular, is a valid and reliable communication scale created for couples in which one spouse is suffering from a chronic condition (Arden-Close et al., 2010). In this study, the items were revised to suit the context of menopause. Each partner responded to four similar questions on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Two example items were "I feel comfortable discussing issues related to my menopause with my partner" (female version) and "my partner is reluctant to talk about his/her illness" (reverse-scored; male version). SCCR is a scale used to measure the overall communication style of couples. The SCCR is a validated scale that maintains consistency for both males and females and includes two subscales that depict different couple communication styles—positive and negative (Iglesias-García et al., 2019). The current study adopted the positive subscale, and each partner responded to four questions on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Example items were "I feel like I can talk to my partner about anything" and "I usually express my opinion and my desires to my partner." The Cronbach's alpha was .85 for male participants and .81 for female participants, and no

items were dropped based on the reliability test. The score for the openness of couple communication was the average of all CICS and SCCR items, with a higher score indicating a greater degree of openness (for females, $M = 4.2$, $SD = 0.7$; for males, $M = 4.0$, $SD = 0.8$; see Table 3).

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. M Open Communication [a]	4.0	0.8	–								
2. M CC Appraisal	3.7	1.0	.33*	–							
3. M CC Action	3.1	1.0	.54***	.68***	–						
4. M Relational Well-Being	4.2	0.6	.54***	.45**	.43**	–					
5. M Psychological Well-Being	4.2	0.9	.31*	.21	-.04	.45**	–				
6. F Open Communication [a]	4.2	0.7	.71***	.43**	.51***	.61***	.41**	–			
7. F CC Appraisal	3.4	1.1	.29*	.62***	.67***	.35*	.15	.51***	–		
8. F CC Action	3.0	1.1	.48***	.58***	.82***	.30*	-.01	.58***	.81***	–	
9. F Relational Well-Being	4.2	0.8	.52***	.54***	.48***	.78***	.36*	.67***	.39**	.46**	–
10. F Psychological Well-Being	4.0	0.9	.20	.16	-.09	.35*	.75***	.31*	.02	-.05	.33*

Table 3: Descriptive Statistics and Correlation Matrix for Dyadic Data (n = 47)

Note. F = Female. M = Male. CC = Communal Coping.
[a] Open communication includes all items from CICS and SCCR.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Communal Coping

Basinger's (2020) communal coping measures were applied to assess communal coping in this study as this study also highlights two separate dimensions of communal coping, appraisal and action, as suggested by Lyons et al. (1998) and Afifi et al. (2020). This study revised the original items to assess how couples perceive and deal with menopause-related issues rather than characterizing menopause as a disease. On a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*), each participant responded to 13 questions regarding their appraisals (6 items) and actions (7 items) regarding menopause-related issues. Examples of items that assessed appraisals were "I feel like I am the only one responsible for handling my menopause-related issues" (reverse-scored; female version) and "I feel like I share the responsibility for handling menopause-related issues with my partner" (male version). "We (my partner and I) make a plan to deal with menopause-related issues" (female version) and "my partner relies on me to deal with her menopause-related issues" (male version) were examples of items measuring actions partners take to address menopause-related issues. The scores of the two dimensions of communal coping were the mean scores of the appraisal subscale and the action subscale, respectively. The Cronbach's alpha for appraisal was .90 for male participants and was .88 for female participants, and the Cronbach's alpha for action was .88 for male participants and was .91 for female participants. A higher appraisal score indicated that participants were more likely to view menopause-related issues as a couple issue (for females, $M = 3.4$, $SD = 1.1$; for males, $M = 3.7$, $SD = 1.0$), and a higher action score indicated that participants were more likely to address menopause-related issues together (for females, $M = 3.0$, $SD = 1.1$; for males, $M = 3.1$, $SD = 1.0$; see Table 3).

Relational Well-Being

The couples' relational well-being was assessed with the Perceived Relationship Quality Component scale (PRQC; Fletcher et al., 2000). Fletcher, Simpson, and Thomas (2000) reviewed prior definitions and measurements of relationship quality and concluded that there are six components (i.e., satisfaction, commitment, intimacy, trust, passion, and love) that can be adopted to assess the quality of romantic relationships. The PRQC was developed on the basis of the review and consists of 18 items, three for each of the six dimensions of romantic relationships (e.g., "how much can you count on your partner" and "how intimate is your relationship"). As a frequently used test for the relationship quality of couples, PRQC has been consistently demonstrated to be a valid approach for evaluating the quality of intimate relationships (Peetz et al., 2022). Each participant scored each item on a 5-point scale (1 = *none at all*, 5 = *a great deal*), and the scores were averaged across all items (for females, $M = 4.2$, $SD = 0.8$, $\alpha = .97$; for males, $M = 4.2$, $SD = 0.6$, $\alpha = .95$), with higher scores indicating greater relational well-being (see Table 3).

Psychological Well-Being

The Kessler Psychological Distress Scale (K10; Kessler et al., 2002) was utilized to evaluate the psychological well-being of participants. K10 was designed to assess the psychological health of the general population, which has been shown to be adequate for general-purpose health surveys in a variety of countries including the United States (Cairney et al., 2007; Furukawa et al., 2003; Kessler et al., 2002). K10 can typically be used to indicate non-specific psychological distress and mental disorders according to DSM-IV criteria, regardless of severity (Cairney et al., 2007; Kessler et al., 2002; Kessler et al., 2003). This scale consists of ten questions that inquire about the frequency of

anxiety and depressive symptoms in the past four weeks (e.g., “in the past 4 weeks, about how often did you feel restless or fidgety?”). The participants were asked to rate these items on a 5-point scale (1 = *all of the time*; 5 = *none of the time*). All items were reverse-scored and averaged (for females, M = 4.1, SD = 0.9, α = .96; for males, M = 4.0, SD = 0.9, α = .94), with higher scores indicating greater psychological well-being (see Table 3).

Menopausal Symptoms and Treatments

As menopausal symptoms vary from person to person, this study collected data on menopausal symptoms and treatments in order to gain a better understanding of how menopause directly affected women’s lives and how they dealt with menopause-related issues. This study adopted the Menopause Rating Scale (MRS; Heinemann et al., 2004) to measure the severity of various types of menopausal symptoms. The MRS (Heinemann et al., 2004) is an 11-item scale that depicts the categories and severity of menopausal symptoms in three dimensions: psychological (e.g., depressive mood), somatic (e.g., hot flashes or sweating), and urogenital (e.g., vaginal dryness). On a 5-point scale, participants assessed the severity of each menopausal symptom (1 = *none*; 5 = *extremely severe*). Male and female participants were required to rate the severity of their own symptoms or those of their female partners during the previous four weeks, and the results are reported in in Table 4. Following the treatments listed in the results of a British national survey (i.e., British Menopause Society; Currie & Moger, 2019) regarding menopause, this study listed nine specific treatment methods (e.g., cognitive behavioral therapy, hormone replacement therapy, and meditation) and one additional blank option for participants to fill in their own specific treatment method (see Table 5).

Although both female and male participants reported the severity of the female partner's menopausal symptoms, their responses varied (see Table 4). According to the reports of the female participants, the most severe menopausal symptom they experienced was joint or muscular discomfort (*M* = 2.9, *SD* = 1.2), and the other symptoms were listed in descending order of severity: sleep problems (*M* = 2.9, *SD* = 1.0), physical or mental exhaustion (*M* = 2.7, *SD* = 1.2), hot flashes or sweating (*M* = 2.6, *SD* = 0.9), anxiety (*M* = 2.5, *SD* = 1.3), irritability (*M* = 2.5, *SD* = 1.1), vaginal dryness (*M* = 2.3, *SD* = 1.3), depressive mood (*M* = 2.2, *SD* = 1.2), heart discomfort (*M* = 2.2, *SD* = 1.0), sexual problems (*M* = 2.1, *SD* = 1.0), and bladder problems (*M* = 1.8, *SD* = 1.0). The most severe menopausal symptom reported by male participants for their female partners was sleep problems (*M* = 2.7, *SD* = 1.0), followed by joint or muscular discomfort (*M* = 2.6, *SD* = 1.1), hot flashes or sweating (*M* = 2.4, *SD* = 1.0), irritability (*M* = 2.4, *SD* = 1.0), anxiety (*M* = 2.3, *SD* = 1.1), physical or mental exhaustion (*M* = 2.3, *SD* = 1.0), depressive mood (*M* = 2.2, *SD* = 1.1), sexual problems (*M* = 2.1, *SD* = 1.1), vaginal dryness (*M* = 1.9, *SD* = 1.1), heart discomfort (*M* = 1.9, *SD* = 1.0), and bladder problems (*M* = 1.6, *SD* = 0.9).

As for treatments adopted to deal with menopausal symptoms (see Table 5), female participants reported that over-the-counter medications (*n* = 19, 40.4%), dietary changes (*n* = 17, 36.2%), meditation (*n* = 17, 36.2%), and herbal/alternative medicine (*n* = 16, 34.0%) were the top four choices for dealing with their menopausal symptoms. Male participants reported that dietary changes (*n* = 20, 43.0%), over-the-counter medications (*n* = 18, 38.3%), and herbal/alternative medicine (*n* = 17, 36.2%) were the most prevalent treatments their female spouses employed to reduce menopausal symptoms.

Menopausal Symptoms	Female		Male		$t(46)$ [a]	p
	M	*SD*	*M*	*SD*		
Hot flashes or sweating	2.6	0.9	2.4	1.0	1.21	.232
Heart discomfort	2.2	1.0	1.9	1.0	1.86	.070
Sleep problems	2.9	1.0	2.7	1.0	0.78	.437
Depressive mood	2.2	1.2	2.2	1.1	0.10	.920
Irritability	2.4	1.1	2.4	1.0	0.50	.622
Anxiety	2.5	1.2	2.3	1.1	0.90	.371
Physical or mental exhaustion	2.7	1.2	2.3	1.0	1.83	.074
Sexual problems	2.1	1.0	2.1	1.1	0.11	.914
Bladder problems	1.7	1.0	1.6	0.9	0.93	.359
Dryness of vagina	2.3	1.3	1.9	1.1	1.85	.071
Joint or muscular discomfort	2.9	1.2	2.6	1.1	1.48	.146

Table 4: Descriptive Statistics and Paired T-Test for Couples' Reports of Menopausal Symptoms (n = 46)

[a] There were two missing data in one participant's report of menopausal symptoms; therefore, only 46 pairs of participants were included in the paired t-test.

Treatment	Female		Male	
	n	*%*	*n*	*%*
Dietary changes	17	36.2	20	42.6
Herbal/alternative medicine	16	34.0	17	36.2
Hormone replacement therapy	8	17.0	7	14.9
Meditation	17	36.2	14	29.8
Combined hormone replacement therapy	6	12.8	5	10.6
Over-the-counter medicine	19	40.4	18	38.3
Cognitive behavioral therapy	6	12.8	2	4.3
Combined contraceptive pill	3	6.4	3	6.4
Other	2	4.3	1	2.1

Table 5: Frequency Table for Treatments of Menopausal Symptoms (n = 47)

Note. Each participant could select multiple treatments for menopausal symptoms.

Chapter 4: Results

CORRELATION ANALYSIS

Before examining the actor-partner interdependence model, Pearson correlation analyses were conducted to evaluate the correlations between variables based on responses from all participants. Within-person correlations are denoted in Table 3 (correlations for males and females are reported separately), and between-person correlations are also presented in Table 3 (how male responses are associated with female responses). In general, individuals' own open communication, two dimensions of communal coping (appraisal and action), relational well-being, and psychological well-being were highly positively correlated, with the exception of the relationships between psychological well-being and two dimensions of communal coping. Similar results emerged when assessing the correlations between males and females (see Table 3). In addition, the correlation analysis based on dyadic data revealed that romantic partners can be considered as non-independent members of a unit in this paper considering that their open communication ($r = .71$, $p < .001$), communal coping appraisal ($r = .62$, $p < .001$), communal coping action ($r = .82$, $p < .001$), relational well-being ($r = .78$, $p < .001$), and psychological well-being ($r = .75$, $p < .001$; see Table 3) were significantly correlated with their partners'. The correlations between romantic partners confirmed, from a statistical standpoint, the need to adopt the actor-partner interdependence mode (APIM), which can simultaneously account for the effects of components from interdependent individuals (Cook & Kenny, 2005).

APIM MODEL AND MEDIATION ANALYSIS

This study executed Multi-Level Modeling (MLM) using the "dyadr" R package to evaluate the proposed APIM (Garcia & Kenny, 2018). MLM is a favored method for analyzing APIM because it can evaluate the effects of multiple-leveled data (e.g., individual and couple level data) within a single equation. As for this study, a biological-sex-based dummy variable (male and female) was created to identify to whom the independent variables refer, and a dyad number was used as an identifier to clarify paired data aggregated from participants who were in committed romantic relationships (example data are provided in Table 6). For example, rows 1 and 2 of Table 6 display the responses of two romantic partners from the same relationship (couple 1), distinguished by sex (female = 1 and male = 2). As shown in row 1, the dependent variable (i.e., RW) represents the relational well-being of the first couple's female partner, whereas the two independent variables (i.e., "F A OC" and "F P OC") enable the further calculation of how this female's open communication and her partner's open communication are associated with her relational well-being, separately. When reporting the results of the analyses, 'actor effect' will be used to describe the association between one's own variables (e.g., own open communication with own well-being) whereas 'partner effect' will be used to describe the association between one's variables and the partner's outcomes (e.g., one's open communication and partner well-being).

Dyad Num [a]	Bio Sex	Female [b]	Male [b]	F A OC	F P OC	M A OC	M P OC	RW
1	1	1	0	4.1	4.4	0.0	0.0	3.8
1	2	0	1	0.0	0.0	4.4	4.1	4.1
2	1	1	0	4.0	4.1	0.0	0.0	5.0
2	2	0	1	0.0	0.0	4.1	4.0	5.0
3	1	1	0	5.0	4.3	0.0	0.0	5.0
3	2	0	1	0.0	0.0	4.3	5.0	4.5

Table 6: Data Sample for Multilevel Modeling

Note. This sample table only includes the first three pairs of couples' open communication and relational well-being, and it can only be used to examine the actor effect and partner effect of open communication on relational well-being in menopausal couples. F = female. M = male. A = actor effect. P = partner effect. OC = open communication. RW = relational well-being.
[a] Rows that share the same dyad num represent partners of the same couple.
[b] Dummy variable.

Following the steps of Baron and Kenny (1986), this study further utilized path analysis to evaluate the proposed hypotheses and questions concerning the potential mediating effects of shared appraisal and joint action. The path of the mediation analysis is shown in Figure 3. Specifically, this study first calculated path c (total effect of independent variable on dependent variable), path a (from independent variable to mediating variable), path b (effect of mediator on dependent variable), and path c' (direct effect of independent variable on dependent variable) in order to calculate the indirect effect of independent variable on dependent variable via mediator variable.

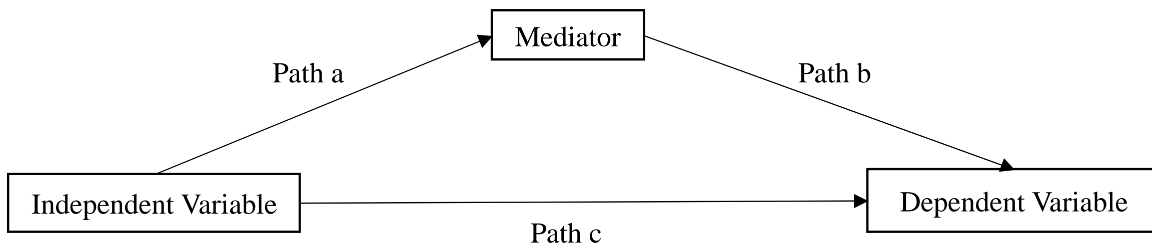

Figure 3: Conceptual Mediation Path Analysis

Step 1: Total Effects (Path c): Open Communication to Well-Being

In this study, open communication was the independent variable, relational and psychological well-being were the dependent variables, and H6 and RQ2 were relevant hypotheses and questions regarding the calculation of the total effect. To be specific, H6 assumed open communication was positively related to relational well-being (H6a) and psychological well-being (H6b), and RQ2 aimed at assessing whether menopausal couples' open communication was related to their partners' relational well-being (RQ2a) and psychological well-being (RQ2b). The results regarding total effects are presented in Table 7. For H6a, the total actor effect of open communication on relational well-being was not significant for males (b = .16, p = .225), but it was significant for females (b = .71, p < .001). For RQ2a, the total partner effect revealed that women's open communication had a significant association with men's relational well-being (b = .42, p = .007), while men's open communication had no association with women's relational well-being (b = .09, p = .599). H6b and RQ2b aimed at examining the relationships between open communication and psychological well-being. As shown in Table 7, the total actor effect of open communication on psychological well-being was neither significant for females (b = .45, p = .109) nor for males (b = .03, p = .903), whereas the total partner effect of open communication on psychological well-being was positive and

significant for males (b = .52, p = .046) but not for females (b = -.04, p = .875). Thus, the results partially supported H6a and addressed RQ2a by emphasizing the effects of female open communication on their own and their partner's relational well-being. The results reject H6b and answered RQ2b by concluding that the partner effect of open communication is only significantly positive for men's psychological well-being.

Step 2: Open Communication to Communal Coping (Path a)

In this study, the two dimensions of shared coping (i.e., shared evaluation and shared action) were the mediating variables. H5 was the hypothesis that examined the relationship between open communication and two dimensions of communal coping related to menopause-related issues within individuals, and RQ1 focused on the partner effect of open communication on shared appraisal (RQ1a) and joint action (RQ1b). The actor effect of open communication on shared appraisal (H5a) was significantly positive for females (b = .98, p = .001) but not for males (b = .06, p = .805), whereas the partner effect (RQ1a) was significantly positive for males (b = .57, p = .046) but not for females (b = -.21, p = .403). Regarding joint action, the actor effect of open communication (H5b) was significant and positive for females (b = .78, p = .006) and for males (b = .45, p = .050), whereas the partner effect (RQ1b) was not significant for either sex (for females, b = .17, p = .479; for males, b = .38, p = .144). Therefore, H5a and H5b were supported for females but not males. As for RQ1, the results indicated that the partner effect of open communication was significant only for males' shared appraisal (RQ1a).

Step 3: Mediation Effects (Path b & Indirect Effects)

H1, H2, H3, and H4 were hypotheses regarding the associations between mediators (shared appraisal and joint action) and dependent variables (psychological and

relational well-being), and H7, H8, RQ3, and RQ4 were hypotheses and questions regarding the effects of mediators of the associations between the independent and dependent variables. To assess the effects of mediating variables on dependent variables, both the independent variable and mediating variables were included in the equation of MLM and the effects of mediating variables on dependent variables were assessed with the inclusion of independent variables.

H1 and H2 were proposed to evaluate the actor effects of shared appraisal and joint action. The actor effect of shared appraisal (H1) on relational well-being (H1a) was not significant for either females (b = .11, p = .274) or males (b = -.14, p = .371); similarly, shared appraisal was not associated with psychological well-being (H1b) for females (b = .001, p = .995) or males (b = .28, p = .101). The actor effect of joint action on relational well-being (H2a) was not significant for females (b = .06, p = .744) or males (b = .21, p = .158), and that on psychological well-being (H2b) was negative and significant for males (b = -.43, p = .077) but not for females (b = -.11, p = .675). Thus, H1 and H2a were rejected, and H2b was only supported for males.

H3 and H4 separately hypothesized the partner effects of shared appraisal and joint action. The partner effect of shared appraisal on relational well-being (H3a) was positive and significant for females (b = .30, p = .022) but not for males (b = .13, p = .290), whereas shared appraisal was positively and significantly associated with psychological well-being (H3b) for females (b = .35, p = .068) but unrelated for males (b = .31, p = .119). The partner effect of joint action on relational well-being (H4a) was negative and significant for males (b = -.37, p = .017) but not significant for females (b = -.01, p = .945), whereas on psychological well-being (H4b) joint action was negatively and marginally significant for females (b = -.47, p = .081) but not for males (b = -.39, p =

.109). Therefore, H3 was only supported for females, while H4a was only supported for males and H4b was only supported for females. All direct associations were shown in Figure 4.

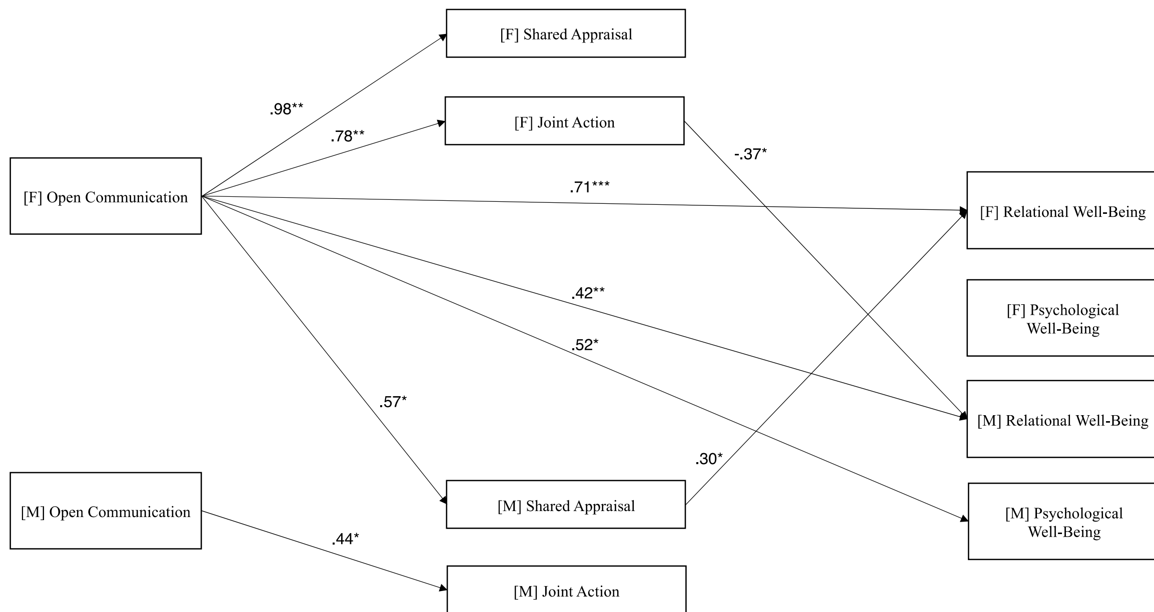

Figure 4: Significant Associations

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

The indirect effect of the independent variable on the dependent variable equals path b's estimated result multiplied by path a's estimated result (see Table 8). The 95% confidence interval range is computed using the Monte Carlo estimation method included in the function "mmc" of the R package "dyadr." H7, H8, RQ3, and RQ4 aimed at examining the mediating effects of either shared appraisal or joint action between open communication and well-being (psychological and relational). As shown in Table 8, results indicated that the indirect effect of open communication was only significant in two paths: one is from female open communication to male partner's relational well-

being via male shared appraisal (*b* = .17, *p* = .060, 95% CI [-.00, .45]), and the other is from female open communication to male relational well-being via female joint action (*b* = -.29, *p* = .019, 95% CI [-.65, -.03]). Combined with the total effects reported in Table 5, we can conclude the following two significant results. First, females who report more open communication in their relationships have partners who are more likely to view menopause-related issues as their shared problem, and accordingly, these females are more satisfied with their romantic relationships. Second, female partners who reported higher levels of open communication in their relationships were more likely to address menopause-related issues with their male partners, and female partner's joint action functioned as a suppressor in the association between female partner's open communication and male partner's relational well-being.

Path	Direct Effect		Total Effect	
	d	*p*	*d*	*p*
F_OC - F_RW	.63	.003	.71	<.001
M_OC - M_RW	.15	.281	.16	.225
M_OC - F_RW	.30	.849	.09	.599
F_OC - M_RW	.43	.010	.42	.007
F_OC - F_PW	.51	.090	.45	.109
M_OC - M_PW	.33	.147	.03	.903
M_OC - F_PW	.17	.506	-.04	.875
F_OC - M_PW	.52	.051	.52	.046

Table 7: Direct and Total Effect

Note. M = male. F = female. OC = open communication. RW = relational well-being. PW = psychological well-being.

Indirect Path	Estimate	*p*	95% CI	
			Lower	Upper
(F)OC-(F)App-(F)RW	-.14	.371	-.49	.17
(F)OC-(M)App-(F)RW	.17	.060	-.00	.45
(M)OC-(M)App-(F)RW	.02	.803	-.14	.19
(M)OC-(F)App-(F)RW	.03	.619	-.07	.18
(M)OC-(M)App-(M)RW	.01	.849	-.07	.10
(M)OC-(F)App-(M)RW	-.03	.565	-.16	.06
(F)OC-(F)App-(M)RW	.13	.284	-.11	.42
(F)OC-(M)App-(M)RW	-.02	.555	-.14	.05
(F)OC-(F)Act-(F)RW	.05	.744	-.26	.38
(F)OC-(M)Act-(F)RW	.00	.951	-.19	.17
(M)OC-(M)Act-(F)RW	-.01	.948	-.20	.19
(M)OC-(F)Act-(F)RW	.01	.860	-.10	.15
(M)OC-(M)Act-(M)RW	.09	.191	-.04	.30
(M)OC-(F)Act-(M)RW	-.06	.481	-.28	.12
(F)OC-(F)Act-(M)RW	-.29	.019	-.65	-.03
(F)OC-(M)Act-(M)RW	.04	.552	-.08	.20
(F)OC-(F)App-(F)PW	.00	.996	-.46	.47
(F)OC-(M)App-(F)PW	.20	.104	-.03	.56
(M)OC-(M)App-(F)PW	.02	.812	-.17	.24
(M)OC-(F)App-(F)PW	.00	.997	-.16	.16
(M)OC-(M)App-(M)PW	.02	.818	-.14	.19
(M)OC-(F)App-(M)PW	-.07	.463	-.31	.10
(F)OC-(F)App-(M)PW	.30	.115	-.07	.79
(F)OC-(M)App-(M)PW	-.06	.454	-.27	.09
(F)OC-(F)Act-(F)PW	-.09	.673	-.58	.35
(F)OC-(M)Act-(F)PW	-.18	.202	-.59	.07
(M)OC-(M)Act-(F)PW	-.21	.118	-.61	.04
(M)OC-(F)Act-(F)PW	-.02	.818	-.23	.14
(M)OC-(M)Act-(M)PW	-.19	.114	-.55	.03
(M)OC-(F)Act-(M)PW	-.07	.532	-.34	.14
(F)OC-(F)Act-(M)PW	-.30	.113	-.82	.06
(F)OC-(M)Act-(M)PW	-.07	.515	-.36	.14

Table 8: Indirect Paths and Effects

Note. M = male. F = female. OC = open communication. App = appraisal. Act = action. RW = relational well-being. PW = psychological well-being.

Chapter 5: Discussion

This study examined the relationships between open communication, communal coping, and relational and psychological well-being among menopausal couples using an Actor-Partner Interdependent Model. The study's analysis based on heterosexual couples' dyadic data revealed: (a) that the open communication, communal coping, and well-being of menopausal couples were interdependent; (b) that shared appraisal was positively and joint action was negatively related to menopausal couples' well-being; (c) that menopausal couples' open communication, particularly the female partner's, was positively related to their shared appraisal and joint action, as well as relational and psychological well-being; and (d) that the mediating function of communal coping worked between the association between open communication and relational well-being.

Interdependent Menopausal Couples

This study found that male and female partners in menopausal couples had positive associations with each other's open communication, communal coping, and well-being. This finding first supports the notion that members of a group participating in communal coping are interdependent (Afifi et al., 2020). In previous research on communal coping, participants are typically viewed as a group that shares not only the consequences of the problem but also the responsibilities for addressing relevant issues (Afifi et al., 2019; Basinger et al., 2021). This study adds to previous research by highlighting how menopausal couples' appraisals and actions covary with each other. In other words, in addition to simply recognizing how each person has the orientation to participate in the communal coping process, this study emphasizes that the action and

appraisal of group members are related, thereby highlighting the connections and interdependence between group members participating in communal coping.

In addition, this finding contributes to the understanding of communal coping by specifically focusing on couples in the context of menopausal transition. Examining this health stressor confirms that group members can engage in communal coping without having similar experiences or the risk of undergoing similar situations directly in the future. In previous research, there are two common contexts for analyzing communal coping: one in which a concurrent issue appeared in the lives of all group members engaging in communal coping, such as natural disasters (Afifi et al., 2019; Richardson & Maninger, 2016), and another in which nearly all individuals besides the person experiencing a health stressor, such as diabetes or cancer, could experience the health stressor themselves in the future (Basinger, 2020; Helgeson et al., 2017; Lee et al., 2020). In contrast to these two categories, menopause is a natural life stage that can only be experienced by female partners. In heterosexual couples, not only would male partners never experience the menopause transition personally, but they also need not worry about facing menopause-related issues alone. Therefore, this study expands the contexts of communal coping to include menopausal couples and demonstrates that individuals can engage in communal coping even if they lack relevant experiences. This conclusion should albeit be interpreted with caution because the subject of this research pertains to one of the most intimate relationships, romantic relationships, which involves the expectation of commitment and shared responsibilities.

THE IDEAL OPEN COMMUNICATION

In this study, open communication presents each partner's tendency to disclose their life to one another and the likelihood of their openness toward menopause-related issues. This study's results showed that open communication in general was positively related to menopausal couples' communal coping and well-being. Specifically, in menopausal couples, female partners' open communication was positively associated with both partners' shared appraisal, relational well-being, their own joint action, and the male partner's psychological well-being. In addition, male partners' open communication could promote their own joint action in addressing menopause-related issues.

Open Communication Benefits Close Relationships

Generally speaking, the finding on the positive function of open communication is consistent with previous research demonstrating the role of communication openness in close relationships (Badr, 2017; Dewan et al., 2021; Goldsmith et al., 2007; Rajaei et al., 2021). First, females' open communication was positively associated with both partners' relational well-being, suggesting that in heterosexual couples, when female partners are more likely to disclose their lives and be more open about their menopausal experiences with their partners, both partners perceive their relationships to be of higher quality. This aligns with previous discussions on the value of open communication in interpersonal relationships, as self-disclosure not only is viewed as a sign of trust and commitment to the relationship and the other person, but it can also help increase mutual understanding and intimacy in such relationships (Badr, 2017; Dewan et al., 2021; Manne et al., 2010; Rajaei et al., 2021). Second, female partners' open communication was positively associated with males' psychological well-being, indicating that in menopausal couples, female partners being more open about their menopausal experiences can be viewed as

advantageous for male partners' psychological well-being. This is also consistent with the notion that one's self-disclosure and communication transparency can foster the psychological well-being of the other, as being trusted may make people feel better about themselves and improve their overall psychological state (Dewan et al., 2021; Goldsmith et al., 2007; Manne et al., 2010). In addition, this study found that only the open communication of the female partner contributed to the relational or psychological well-being of couples, which can be attributed to the menopausal characteristics. Although this study emphasizes that menopause-related issues should be viewed as shared by partners, female partners appear to have greater control over the overall information flow because their experiences are the primary source of menopause knowledge from which couples learn about menopause.

Open Communication Promotes Communal Coping

This study also found that open communication within menopausal couples is positively associated with the two dimensions of communal coping—shared appraisal and joint action. Specifically, female partners' open communication was positively associated with both partners' shared appraisal, suggesting that in heterosexual couples where female partners are more likely to disclose their lives and menopausal experiences to their partners, both partners would be more likely to view menopause-related issues as a shared problem that the couple should address collectively. This finding supports that shared comprehension is the foundation of communal coping, as group members participating in communal coping need to have a common understanding of the situation (Afifi et al., 2020; Lyons et al., 1998). In contrast to simple social support, one of the most important aspects of communal coping is the same perception among all group

members that this problem is “ours,” which makes it crucial for each other to share understanding and reduce information asymmetry (Basinger, 2018; Helgeson et al., 2017; Lee et al., 2020). When it comes to menopausal couples, the specific menopausal experience of female partners is the most direct and valuable information for couples to understand the situation and respond appropriately (Afifi et al., 2006; Caçapava Rodolpho et al., 2016; Richardson & Maninger, 2016). Thus, the significant role of female partners’ open communication can reflect the importance of mutual understanding on share appraisal. Although not as significant as female partners, males’ willingness to address menopause-related issues with their partners appears to be related to their own open communication. This finding highlights the significance of open communication in fostering communal coping, even among group members who are not directly affected by the issue, such as male partners dealing with menopause-related issues (Basinger et al., 2021; Caçapava Rodolpho et al., 2016; Richardson & Maninger, 2016). In general, not only do these results indicate that the significance of female partners’ menopausal experience, but they also suggest that both partners’ openness about their thoughts and experiences is valuable during the menopausal transition and that women should not be solely responsible for communicating about menopause.

Moreover, both partners’ open communication was found to be positively associated with their own joint action, indicating that whoever in menopausal couples is more likely to engage in and be open to conversations about their lives and menopause-related issues and feelings is more likely to engage in the process of dealing with menopause-related issues. Different from the effect of open communication on shared appraisal, the effect of open communication on menopausal couples’ behavior is neither gender-specific nor partner-dependent. The differences in the effects of open

communication on the two dimensions of communal coping may be the result of differences in perception and behavior (Afifi et al., 2006; Afifi et al., 2020; Lyons et al., 1998). While open communication can facilitate the sharing of information, which is the foundation of mutual understanding, engaging in conversation and disclosing one's thoughts may be viewed as part of group action group members take in order to collectively address the problems (Badr, 2017; Rajaei et al., 2021). In other words, it is possible that open communication has different effects and meaning for shared appraisal and joint actions.

In sum, the analysis of the role of open communication in communal coping and well-being of menopausal couples strengthens the benefits of open communication, which highlights the advantages of disclosure and transparency in interpersonal relationships (Badr, 2017; Dewan et al., 2021; Goldsmith, 2007). However, this conclusion should be taken with caution as this research only examined couples' general openness when talking about menopausal-related issues. It is possible that some females may not feel it is necessary to share detailed information regarding the menopause with their partners (de Salis et al, 2018; Hoga et al., 2015). Additionally, sharing information without a specific objective, such as seeking solutions or addressing needs, may not be as beneficial as in other circumstances (Goldsmith, 2007; Goldsmith et al., 2013).

POSITIVE APPRAISAL AND NEGATIVE ACTION

The opposing effects of shared appraisal and joint action on the general well-being of menopausal couples was one of the most surprising findings of this study. The results of the analysis showed the positive function of shared evaluation and the negative function of joint action. On the one hand, in menopausal couples, male partners' shared

appraisal was positively associated with the relational and psychological well-being of female partners. On the other hand, in menopausal couples, female partners' joint action was found to be negatively associated with male partners' relational well-being, and male partners' joint action was also found to be negatively associated with both partners' psychological well-being.

Two Dimensions of Communal Coping

The opposing associations of the two dimensions of communal coping support the notion that appraisal and action are two separate factors in communal coping that need to be evaluated separately. When communal coping was first conceptualized, its two dimensions were highlighted as highly correlated yet distinct components, and the demand for analyzing both dimensions has not ceased (Afifi et al., 2006; Basinger, 2018; Lyons et al., 1998). In previous studies, it was uncommon to statistically differentiate between these two components. The inconsistence between theory and practice can be attributed to two factors: inadequate quantitative methods and modelized study contexts.

First, the quantitative methods available to assess shared appraisal were insufficient. The appearance of "we-talk" is one of the commonly accepted methods for reflecting one's shared appraisal in qualitative research (Helgeson et al., 2017; Lee et al., 2020; Lyons et al., 1998). However, in quantitative research, particularly self-reflection-based research, there was no generally accepted scale for measuring the extent to which group members view the issue as a shared problem. Until Basinger's study (2018) elucidated the appraisal dimension of communal coping and provided a reliable scale for assessing an individual's appraisal, there was an increasing number of quantitative studies examining the two dimensions of communal coping separately (Afifi et al., 2020;

Basinger et al., 2021). Second, previous research has two patterned situations in which all participants are at risk of being directly affected by the stressor, and such contexts make it appear less necessary to examine the appraisal dimension of communal coping. The first type of context is when all individuals face the same problem simultaneously, such as a natural disaster, and the second type of context is when there is a possibility that individuals will face the issue, like diabetes, directly in the future (Afifi et al., 2019; Badr, 2017; Basinger, 2010; Helgeson et al., 2017; Lee et al., 2020; Richardson & Maninger, 2016). Both types of settings include the assumption that all members are naturally involved in addressing related problems. Using menopausal transition as a context, this study argued that shared appraisals and joint actions are two separate components of communal coping that can exist regardless of whether individuals have been directly exposed to the stress. Future research should continue to explore whether outcomes vary based on these separate dimensions of communal coping.

In the current study, the seemingly negative function of joint action serves to dispel the myth that communal coping is always advantageous for individuals. As communal coping is perceived to be based on mutual understanding and behavioral collaboration between group members, it is typically viewed as beneficial for both individual well-being and interpersonal ties (Afifi et al., 2006; Afifi et al., 2020; Helgeson et al., 2017). Theoretically, communal coping can also lead to adverse outcomes (Lyons et al., 1998), but studies have generally demonstrated its favorable function (Afifi et al., 2019; Basinger et al., 2021; Helgeson et al., 2017; Lee et al., 2020; Richardson & Maninger, 2016). In this study, however, joint action appeared to negatively contribute to the well-being of menopausal couples. This study offered two potential explanations for this unexpected outcome.

First, the mismatch between need and support may be relevant. This mismatch could be the result of a misunderstanding between the male and female partners (Caçapava Rodolpho et al., 2016; Currie & Moger, 2019; de Salis et al., 2018; Mansfield et al., 2003; Zhang et al., 2020). Menopause, unlike gender-specific illnesses, is a natural gender-specific stage that can only be directly experienced by women, and it is difficult to find a comparable life stage in male partners. Even when male partners wish to view menopause-related issues as "our" problem, it can be difficult for them to comprehend the specific needs of their female partners, and their actions may not be perceived as helpful in the female partners' menopausal transition (Caçapava Rodolpho et al., 2016; Mansfield et al., 2003; Zhang et al., 2020). In addition, such misunderstandings may exist not only between heterosexual couples, but also between lesbian couples, given that menopause is a uniquely individual experience with symptoms that cannot be reduced to one specific description (Avis et al., 2015; Currie & Moger, 2019; de Salis et al., 2018). This first explanation is useful for elucidating the negative associations between male partners' joint action and female partners' psychological well-being, as the mismatch between female partners' need and male partners' support can result in female partners potentially expending more mental energy to deal with menopause-related issues.

Second, it is possible for those who engage in communal coping to experience burnout, particularly if their role is predominantly that of a support provider (Gérain & Zech, 2019; Kent et al., 2016). Although communal coping emphasizes shared understanding and responsibility, group members do not always face identical situations, particularly when the stressor only directly affects one individual (Basinger et al., 2021; Helgeson et al., 2017; Lee et al., 2020). In the context of menopause, male partners are more likely to be considered as caregivers or support providers as the impact of

menopause-related issues on their lives is dependent on the assumption that their romantic relationships remain intact during female partners' menopausal transition (Mansfield et al., 2003; Zhang et al., 2020). Thus, those whose roles in the communal coping process are more akin to that of a support provider may experience burnout, such as male partners in menopausal couples. This second possible reason for the negative function of joint action can also be used to explain the negative association between females' joint action and male partners' relational well-being and the negative association between male partners' joint action and their own psychological well-being.

In sum, this study discovered opposing effects of shared appraisal and joint action on well-being in menopausal couples. The opposing function of the two dimensions of communal coping validates the significance and meaning of separating shared appraisal from joint action. In addition, the negative impact of joint action suggests that engaging in communal coping may not always be optimal for individuals and relationships.

Open Communication Affecting Relational Well-Being via Communal Coping

This study's results showed that communal coping served as a mediator between open communication and relational well-being in menopausal couples. Specifically, this study found two significant indirect paths: (a) male partners' shared appraisal regarding menopause-related issues mediated the association between female partners' open communication and female partners' relational well-being, (b) and female partners' joint action suppressed the association between female partners' open communication and male partners' relational well-being. The findings emphasize the importance of female partners being open about menopause-related issues and how male and female partners' relationship quality is affected separately during female partners' menopausal transition.

Both paths suggest that only female partners' openness about menopause was associated with menopausal couples' relational well-being through communal coping. There are two possible explanations for the significance of female partners' open communication: the specific context and the gender difference in romantic relationships. First, as previously said, female partners own the majority of menopause-related information in menopausal couples (Currie & Moger, 2019; de Salis et al., 2018; Mansfield et al., 2003). Given the diversity of menopausal symptoms and the unique experiences of each woman, menopausal couples rely on their female partners to be their primary resource for further learning about and addressing menopause-related issues (de Salis et al., 2018; Hoga et al., 2015; Yarelahi et al., 2021). Second, the significance of female partners' openness in couple communication is consistent with previous research (Dewan et al., 2021; Goldsmith et al., 2007). As shown in previous studies, female partners' active engagement in couple communication is perceived as particularly important and beneficial (Caçapava Rodolpho et al., 2016; Currie & Moger, 2019; Yarelahi et al., 2021).

This first indirect path suggests that females who were more open and disclosed her life and menopause-related issues in their romantic relationships had male partners who were more likely to treat menopause-related issues as a shared problem by couple, which was also positively associated with female partners' relational well-being. This finding underscores the significance of male partners' tendency to view menopause-related issues as "our" issues for female partners' evaluation of their romantic relationship and suggests that female partners can enhance male partners' shared evaluation through transparent self-disclosure. This finding supports previous studies' arguments that menopausal women have a need and a desire to be understood and

supported by others, particularly those who are close to them (de Salis et al., 2018; Hoga et al., 2015; Sergeant & Rizq, 2017; Yarelahi et al., 2021; Zou et al., 2021).

The second indirect path demonstrates that female partners who were more open about their menopausal experiences tended to be more collaborative with their male partners in addressing menopause-related issues, and females' tendency to collaborate in addressing menopause-related issues might suppress the association between female partners' open communication and male partners' relational well-being. On the one hand, the general positive relationship between females' open communication and male partners' relational well-being indicates that male partners in menopausal couples could hold a more positive view of their relationships if the female partners entrust them and are open about menopausal experiences. On the other hand, the suppressing function of female partners' joint action in the relationship suggests that joint action could complicate relational satisfied for male partners. As previously mentioned, this negative relationship may be the result of a mismatch between need and support or the result of support providers' burnout.

Overall, the results of this study suggest that female partners' open communication plays a positive role in menopausal couples' relational well-being by promoting communal coping; yet the two dimensions function differently, with the role of shared appraisal being positive and the role of joint action being negative.

Theoretical and Practical Applications

The results of this study contribute not only theoretically to the field of communal coping, but also practically by suggesting that both partners should participate in addressing menopause-related issues. Theoretically, this study contributes to previous

discussions on communal coping by emphasizing the necessity to differentiate the two components of communication with opposing impacts of shared appraisal and joint action. The opposing functions of appraisal and action demonstrated in this study not only provided evidence for the argument that communal coping includes two distinct parts, but also contributed to the discussion on the functions of communal coping by highlighting the negative effects of joint action. These contributions can help strengthen the theoretical understanding of communal coping by highlighting its two distinct components and potential negative outcomes. In practice, this study advises menopausal couples that, regardless of biological sex, both partners addressing menopause-related issues together could be advantageous. This thesis suggests that it is beneficial for couples to collaborate in addressing menopause-related issues by demonstrating the role of open communication and cooperation in addressing these issues. This recommendation may also be applicable to the treatment of menopause-related issues.

STRENGTHS, LIMITATIONS, AND FUTURE DIRECTION

The greatest strengths of this thesis are its choice of participants and health context. For example, the participants in this study are menopausal couples, and the use of dyadic data enables this paper to examine both actor and partner effects regarding the two dimensions of communal coping on individual well-being. Additionally, the menopause-related issues faced by heterosexual couples broaden the application context of communal coping to a problem that cannot be directly experienced by all group members engaging in communal coping. This study also demonstrated that communal coping could have negative effects on the well-being of individuals.

This study also has its own limitations. One of the biggest drawbacks is that some wording of the scales, such as “depend” and “support,” used to measure couples’ joint action in communal coping reflecting a meaning of whether the female partner can rely on the male partner. This is partially because only female partners in menopausal couples experience menopausal symptoms directly. In addition, there is no sufficient evidence of a valid scale that successfully differentiates between joint action from social support. A second limitation of this study is that the sample size is insufficient for validating the mediation effects of communal coping. To investigate the mediating function of communal coping with stronger evidence, more data would be preferable. Third, the recruitment requirements of this study allowed both menopausal transition participants and those who have already experienced menopause to enroll, so that more participants would be recruited. However, the data may not accurately reflect participants’ status in menopause transition if collected from couples who were not experiencing the menopause transition currently, and the time since menopause was not collected to use as a control or moderating variable. Fourth, couples who were interested in participating in this study may have been the most concerned about menopause. Indeed, this study adopted an online questionnaire and terms such as “health issue” to reduce such participant bias, but participants were free to withdraw at any time. Thus, it is anticipated that this study’s sample consisted of individuals with relatively few negative attitudes regarding menopause. Fifth, this study’s sample is relatively homogenous in terms of ethnicity. Additionally, participants in this study were required to be in heterosexual relationships to ensure data consistency. This limitation restricts the applicability of the study’s findings to other groups, such as lesbian couples. Different from heterosexual couples, both partners in lesbian couples will experience menopause-related issues

directly, which may result in higher level of shared appraisal or more joint action. However, misunderstandings may still occur due to the fact that each individual experiences menopause differently. Thus, examining how lesbian couples work together to address menopause-related issues can contribute to our understanding of couples' communal coping and expand the applicability of pertinent results.

Given the findings and limitations of this study, there are two major directions for future research to investigate in greater depth. First, the function of communication can be investigated further. Indeed, this study demonstrated the importance of open communication in menopausal couples. This study did not, however, investigate the role of other factors in interpersonal communication, such as interpersonal communication skills, in the context of menopause-related issues, nor did it examine how couples, particularly female partners, can be open about their menopausal experiences in romantic relationships. It is noteworthy that menopause is viewed as stigmatized and taboo in some cultures and merely recommending open communication is insufficient to engage couples in communal coping and enhance their well-being. Thus, additional research is needed to determine how to encourage menopausal couples to have such conversations and whether other communication factors can be beneficial. Second, research on communal coping can expand the contextual settings to examine the function of shared appraisal and joint action. One of the most surprising findings of this paper is that the influence of joint action of relational well-being can be negative in menopausal couples, showing that communal coping is not always an optimal option. While this finding can aid in understanding the functions of communal coping, it suggests that future research on communal coping should consider applying it to a wider variety of issues and examine its effects.

Appendix A: IRB Approval Letter

Office of Research Support & Compliance
Institutional Review Board
P.O. Box 7426, Campus Code A3200
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EXEMPT DETERMINATION

October 5, 2022

FWA # 00002030

Rene Dailey
2504 A WHITIS AVE
AUSTIN, TX 78712

+1 512 471 4867
rmd86@eid.utexas.edu

Dear Rene Dailey:

On 10/5/2022, the IRB reviewed the following submission:

Type of Review:	Initial Study
Special Determinations:	None
Title:	Understanding the role of open communication on couples' relationship and psychological wellbeing during menopause: an examination of the mediating effects of communal coping with an actor-partner interdependence model
Investigator:	Rene Dailey
IRB ID:	STUDY00003495
Funding:	None
Grant ID:	None
IND, IDE, or HDE:	None
Approval Date:	10/5/2022
Documents Reviewed:	• Recruitment.pdf, Category: Recruitment Materials; • Consent Form - Professional questionnaire collection platforms.pdf, Category: Consent Form; • Consent Form - Social media.pdf, Category: Consent Form; • HRP - UT902, Category: IRB Protocol; • Questionnaire Sample - Couple Participants.docx, Category: Other;

 Template Revision: January 6, 2020

The University of Texas at Austin

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The IRB determined that this protocol meets the criteria for exemption from IRB review under 45 CFR 46.104 (2)(ii) Tests, surveys, interviews, or observation (low risk).

In conducting this protocol, you are required to follow the requirements listed in the Investigator Manual (HRP-103) and UT IRB Policies and Procedures (HRP-UT1000), which can be found by navigating to the IRB Library, General tab, within UTRMS-IRB.

Ongoing IRB review and approval by this organization is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. Modifications that involve a change in PI, increase risk, or otherwise affect the exempt category or the criteria for exempt determination must be submitted as a modification. Investigators are strongly encouraged to contact the IRB staff to describe any changes prior to submitting an amendment/modification.

If you have any questions, contact the RSC by phone at 512 -232-1543 or via e-mail at irb@austin.utexas.edu.

Sincerely,

Institutional Review Board

University of Texas at Austin

cc:
Rene Dailey (PI), Yating Yang (Primary Contact)

Appendix B: Questionnaire (Female Version)

1) Are you currently in a heterosexual romantic relationship?
( ) Yes
( ) No

2) Are you in menopause right now?
( ) Yes
( ) No

3) Have you ever experienced menopause?
( ) Yes
( ) No

OPEN COMMUNICATION

4) The following questions pertain to how ***you and your partner communicate menopausal issues***. Respond to each statement in terms of how you feel in your romantic relationship.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
It is hard for me to express feelings about my menopausal issues to my partner. (R)	()	()	()	()	()
I feel comfortable discussing issues related to my menopause with my partner.	()	()	()	()	()
My partner is reluctant to talk about my menopause. (R)	()	()	()	()	()
My partner is willing to share his feelings about my menopause with me.	()	()	()	()	()
I choose somewhat agree to pass the attention check. [a]	()	()	()	()	()

I usually express my opinion and my desires to my partner.	()	()	()	()	()
When I have a problem with my partner, I talk it through with him.	()	()	()	()	()
I feel like I can talk to my partner about anything.	()	()	()	()	()
When something bothers me about my partner I tell him, respecting his point of view.	()	()	()	()	()

Note. (R) = Reverse-scored item.
[a] Attention test.

COMMUNAL COPING

5) The following questions refer to how ***you and your partner perceive and behave regarding the menopausal issues***. Respond to each statement in terms of your romantic relationship.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My menopause influences the life of my partner.	()	()	()	()	()
My menopause only influences my life, not anybody else's. (R)	()	()	()	()	()
Menopause is our (my partner's and my) issue.	()	()	()	()	()
My menopause is only my business. (R)	()	()	()	()	()
I feel like I am the only one responsible for handling my menopause-related issues. (R)	()	()	()	()	()
I feel like I share the responsibility for handling menopause-related issues with my partner.	()	()	()	()	()
We (my partner and I)	()	()	()	()	()

have joined together to deal with my menopause-related issues.					
We (my partner and I) make plans about how to deal with menopause-related issues.	()	()	()	()	()
I get support from my partner to handle my menopause-related issues.	()	()	()	()	()
I depend on my partner to manage my menopause-related issues.	()	()	()	()	()
I make plans for dealing with my menopause-related issues by myself. (R)	()	()	()	()	()
I depend only on myself to manage my menopause-related issues. (R)	()	()	()	()	()
I deal with my menopause-related issues alone. (R)	()	()	()	()	()
I choose strongly disagree to pass the attention check. [a]	()	()	()	()	()

Note. (R) = Reverse-scored item. The first six statements were used to measure shared appraisal and the following seven statement were used to measure joint action.
[a] Attention test.

RELATIONAL WELL-BEING

6) The following questions refer to ***how you assess your romantic relationship***. Respond to each statement in terms of your romantic relationship.

	None at all	A little	A moderate amount	A lot	A great deal
How satisfied are you with your relationship?	()	()	()	()	()
How committed are you to your relationship?	()	()	()	()	()
How intimate is your	()	()	()	()	()

relationship?					
How much do you trust your partner?	()	()	()	()	()
How passionate is your relationship?	()	()	()	()	()
How much do you love your partner?	()	()	()	()	()
How content are you with your relationship?	()	()	()	()	()
How dedicated are you to your relationship?	()	()	()	()	()
How close is your relationship?	()	()	()	()	()
How much can you count on your partner?	()	()	()	()	()
How lustful is your relationship?	()	()	()	()	()
How much do you adore your partner?	()	()	()	()	()
How happy are you with your relationship?	()	()	()	()	()
How devoted are you to your relationship?	()	()	()	()	()
How connected are you to your partner?	()	()	()	()	()
How dependable is your partner?	()	()	()	()	()
How sexually intense is your relationship?	()	()	()	()	()
How much do you cherish your partner?	()	()	()	()	()
How about choose a great deal to pass the attention check? [a]	()	()	()	()	()

[a] Attention test.

PSYCHOLOGICAL WELL-BEING

7) The following questions refer to the levels of your ***psychological distress***. Respond to each statement based on the frequency of the symptoms throughout the last four weeks.

	Never	Sometimes	About half the time	Most of the time	Always
feel tired out for no good	()	()	()	()	()

reason?					
feel nervous?	()	()	()	()	()
feel so nervous that nothing could calm you down?	()	()	()	()	()
feel hopeless?	()	()	()	()	()
feel restless or fidgety?	()	()	()	()	()
feel so restless you could not sit still?	()	()	()	()	()
feel depressed?	()	()	()	()	()
feel that everything was an effort?	()	()	()	()	()
feel so sad that nothing could cheer you up?	()	()	()	()	()
feel worthless?	()	()	()	()	()

MENOPAUSAL SYMPTOMS

8) The following questions refer to the levels of your ***menopausal symptoms***. Respond to each statement based on the frequency of the symptoms throughout the **last four weeks.**

	None	Mild	Moderate	Severe	Extremely Severe
Hot flashes, sweating (episodes of sweating)	()	()	()	()	()
Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)	()	()	()	()	()
Sleep problems (difficulty in falling asleep, difficulty in sleeping through the night, waking up early)	()	()	()	()	()
Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)	()	()	()	()	()
Irritability (feeling nervous, inner tension, feeling aggressive)	()	()	()	()	()
Anxiety (inner restlessness, feeling	()	()	()	()	()

panicky)					
Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)	()	()	()	()	()
Sexual problems (change in sexual desire, in sexual activity and satisfaction)	()	()	()	()	()
Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)	()	()	()	()	()
Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	()	()	()	()	()
Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	()	()	()	()	()

9) Which of any of the following ***have you tried*** specifically in order to ***reduce or prevent your menopausal symptoms***?

[ ] Dietary changes
[ ] Herbal/alternative medicine
[ ] Hormone replacement therapy (oestrogen only)
[ ] Meditation (yoga, mindfulness)
[ ] Combined hormone replacement therapy (oestrogen and progestogen)
[ ] Over-the-counter medicine
[ ] Cognitive behavioral therapy
[ ] Combined contraceptive pill
[ ] Other: ________________________
[ ] No action

10) How long have you been with your partner?

_________Year(s)

_________Month(s)

11) What was your **total household income** before taxes during the past 12 months?

( ) Less than $25,000
( ) $25,000-$49,999
( ) $50,000-$99,999
( ) $100,000-$199,999
( ) More than $200,000

12) What was your **personal income** before taxes during the past 12 months?

( ) Less than $10,000
( ) $10,000-$29,999
( ) $30,000-$49,999
( ) $50,000-$69,999
( ) $70,000-$89,999
( ) $90,000-$119,999
( ) More than $200,000

13) What is your age?

____

14) Please select the highest education level achieved.

( ) Less than high school
( ) High school graduate
( ) Some college
( ) 2-year degree college
( ) 4-year degree college
( ) Master’s degree
( ) Doctorate

15) You would identify your race as

____

Appendix C: Questionnaire (Male Version)

1) Are you currently in a heterosexual romantic relationship?
( ) Yes
( ) No

2) Is your partner in menopause right now?
( ) Yes
( ) No

3) Has your partner ever experienced menopause?
( ) Yes
( ) No

OPEN COMMUNICATION

4) The following questions pertain to how ***you and your partner communicate menopausal issues***. Respond to each statement in terms of how you feel in your romantic relationship.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
It is hard for me to express feelings about her menopausal issues to my partner. (R)	()	()	()	()	()
I feel comfortable discussing issues related to her menopause with my partner.	()	()	()	()	()
My partner is reluctant to talk about her menopause. (R)	()	()	()	()	()
My partner is willing to share her feelings about her menopause with me.	()	()	()	()	()
I choose somewhat agree to pass the attention check.[a]	()	()	()	()	()
I usually express my opinion and my desires to	()	()	()	()	()

my partner.					
When I have a problem with my partner, I talk it through with her.	()	()	()	()	()
I feel like I can talk to my partner about anything.	()	()	()	()	()
When something bothers me about my partner I tell her, respecting her point of view.	()	()	()	()	()

Note. (R) = Reverse-scored item.
[a] Attention test.

COMMUNAL COPING

5) The following questions refer to how ***you and your partner perceive and behave regarding the menopausal issues***. Respond to each statement in terms of your romantic relationship.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
My partner's menopause influences my life.	()	()	()	()	()
My partner's menopause only influences her life, not anybody else's. (R)	()	()	()	()	()
Menopause is our (my partner and my) issue.	()	()	()	()	()
My partner's menopause is just her business. (R)	()	()	()	()	()
I feel like my partner is the only one responsible for handling her menopause related issues. (R)	()	()	()	()	()
I feel like I share the responsibility for handling menopause-related issues with my partner.	()	()	()	()	()
We (my partner and I) have joined together to deal with her menopause-	()	()	()	()	()

related issues.					
We (my partner and I) make plans about how to deal with menopause-related issues.	()	()	()	()	()
I support my partner to handle her menopause-related issues.	()	()	()	()	()
My partner depends on me to manage her menopause-related issues.	()	()	()	()	()
She makes plans for dealing with her menopause-related issues by herself. (R)	()	()	()	()	()
My partner depends only on herself to manage her menopause-related issues. (R)	()	()	()	()	()
My partner deals with her menopause-related issues alone. (R)	()	()	()	()	()
I choose strongly disagree to pass the attention check.[a]	()	()	()	()	()

Note. (R) = Reverse-scored item. The first six statements were used to measure shared appraisal and the following seven statement were used to measure joint action.
[a] Attention test.

RELATIONAL WELL-BEING

6) The following questions refer to ***how you assess your romantic relationship***. Respond to each statement in terms of your romantic relationship.

	None at all	A little	A moderate amount	A lot	A great deal
How satisfied are you with your relationship?	()	()	()	()	()
How committed are you to your relationship?	()	()	()	()	()

How intimate is your relationship?	()	()	()	()	()
How much do you trust your partner?	()	()	()	()	()
How passionate is your relationship?	()	()	()	()	()
How much do you love your partner?	()	()	()	()	()
How content are you with your relationship?	()	()	()	()	()
How dedicated are you to your relationship?	()	()	()	()	()
How close is your relationship?	()	()	()	()	()
How much can you count on your partner?	()	()	()	()	()
How lustful is your relationship?	()	()	()	()	()
How much do you adore your partner?	()	()	()	()	()
How happy are you with your relationship?	()	()	()	()	()
How devoted are you to your relationship?	()	()	()	()	()
How connected are you to your partner?	()	()	()	()	()
How dependable is your partner?	()	()	()	()	()
How sexually intense is your relationship?	()	()	()	()	()
How much do you cherish your partner?	()	()	()	()	()
How about choose a great deal to pass the attention check?	()	()	()	()	()

PSYCHOLOGICAL WELL-BEING

7) The following questions refer to the levels of your ***psychological distress***. Respond to each statement based on the frequency of the symptoms throughout the last four weeks.

	Never	Sometimes	About half the time	Most of the time	Always
feel tired out for no good reason?	()	()	()	()	()

feel nervous?	()	()	()	()	()
feel so nervous that nothing could calm you down?	()	()	()	()	()
feel hopeless?	()	()	()	()	()
feel restless or fidgety?	()	()	()	()	()
feel so restless you could not sit still?	()	()	()	()	()
feel depressed?	()	()	()	()	()
feel that everything was an effort?	()	()	()	()	()
feel so sad that nothing could cheer you up?	()	()	()	()	()
feel worthless?	()	()	()	()	()

MENOPAUSAL SYMPTOMS

8) The following questions refer to the levels of ***your partner's menopausal symptoms***. Respond to each statement based on the frequency of ***her symptoms*** throughout the ***last four weeks based on your knowledge***.

	None	Mild	Moderate	Severe	Extremely Severe
Hot flashes, sweating (episodes of sweating)	()	()	()	()	()
Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)	()	()	()	()	()
Sleep problems (difficulty in falling asleep, difficulty in sleeping through the night, waking up early)	()	()	()	()	()
Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)	()	()	()	()	()
Irritability (feeling nervous, inner tension, feeling aggressive)	()	()	()	()	()
Anxiety (inner restlessness, feeling panicky)	()	()	()	()	()

Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)	()	()	()	()	()
Sexual problems (change in sexual desire, in sexual activity and satisfaction)	()	()	()	()	()
Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)	()	()	()	()	()
Dryness of vagina (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)	()	()	()	()	()
Joint and muscular discomfort (pain in the joints, rheumatoid complaints)	()	()	()	()	()

9) ***To the best of your knowledge***, which if any of the following ***has your partner tried*** specifically to ***reduce or prevent her menopause symptoms***?

[ ] Dietary changes
[ ] Herbal/alternative medicine
[ ] Hormone replacement therapy (oestrogen only)
[ ] Meditation (yoga, mindfulness)
[ ] Combined hormone replacement therapy (oestrogen and progestogen)
[ ] Over-the-counter medicine
[ ] Cognitive behavioral therapy
[ ] Combined contraceptive pill
[ ] Other: ________________________
[ ] No action

10) How long have you been with your partner?

_________Year(s)

_________Month(s)

11) What was your **total household income** before taxes during the past 12 months?

( ) Less than $25,000
( ) $25,000-$49,999
( ) $50,000-$99,999
( ) $100,000-$199,999
( ) More than $200,000

12) What was your **personal income** before taxes during the past 12 months?

( ) Less than $10,000
( ) $10,000-$29,999
( ) $30,000-$49,999
( ) $50,000-$69,999
( ) $70,000-$89,999
( ) $90,000-$119,999
( ) More than $200,000

13) What is your age?

____

14) Please select the highest education level achieved.

( ) Less than high school
( ) High school graduate
( ) Some college
( ) 2-year degree college
( ) 4-year degree college
( ) Master's degree
( ) Doctorate

15) You would identify your race as

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