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The Menopausal Self: Identity Construction and Gender Norms in Menopause Apps

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Arts

in

Psychology

at Massey University, Palmerston North, New Zealand.

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2024

Abstract

This thesis explored the portrayal of women, their symptoms, and experiences within menopause apps (applications, especially as downloaded by a user to a mobile device), focusing on the ideologies, perspectives, and gender norms these digital tools reinforce. Using social constructionism and Foucauldian discourse analysis, the study aimed to reveal dominant constructions of women through menopause.

The primary research questions were: (1) How did menopause apps depict women's identities, symptoms, and experiences, aligning with societal norms and stereotypes surrounding menopause and femininity? (2) How did women engaging in community discussions within the apps contribute to discourses surrounding menopause?

The analysis revealed that menopause apps often promoted neoliberal and post-feminist discourses, emphasising individual responsibility and empowerment, while overlooking systemic and structural factors impacting health outcomes. These apps frequently constructed menopause as a series of medical problems requiring professional intervention, perpetuating medical discourse and reinforcing traditional power dynamics between healthcare providers and patients. However, community discussion sections fostered empowerment and collaboration, encouraging women to share experiences and support each other, though this sometimes obscured the need for broader structural changes.

This study highlighted the social construction of menopause within these apps, emphasising certain narratives while potentially ignoring others. It underscored the importance of critically engaging with the information provided and recognising the underlying power dynamics and biases that shape users' perceptions and behaviours.

The research had limitations, including a focus on a selected sample of menopause apps and the interpretive nature of the analysis. Future research should explore a broader range of apps, incorporate diverse cultural and societal contexts, and investigate the long-term impact of using menopause apps on women's health and well-being.

In conclusion, while menopause apps offered valuable support and resources, they also perpetuated specific discourses influencing users' perceptions and behaviours. By critically engaging with these apps and recognising underlying power dynamics and biases, women could navigate their menopause journey with a more informed and empowered perspective. This thesis contributed to understanding women's identity construction and health in the context of menopause apps, highlighting the need for a more supportive and equitable digital health environment for women.

Acknowledgements

To Professor Christine Stephens, I would like to express my heartfelt gratitude to you for your unwavering support and guidance throughout my academic journey. Whenever I encountered difficulties, you were there to guide me, offer support, and liaise with the necessary university departments to help resolve encountered issues. Your patience, conscientiousness, and belief in me have truly been uplifting. I deeply appreciate your efforts to enrich my academic and professional journey by sharing information and helping me network, such as by inviting me to attend a Data Workshop which was a valuable opportunity for growth. Writing this thesis has been both an exciting and terrifying endeavour but having you by my side made it manageable. Your guidance and encouragement, as both a supervisor and mentor, have been invaluable, and I am sincerely grateful for your continued support over the years. Thank you, Chris, for everything.

To my family, I am deeply grateful to you for your love and support which has been a compass for me throughout this journey. To my sister, Tasha, thank you for taking me those walks and convincing me not to give up when times were tough. To Jess, I cherish our thought-provoking discussions that have always been a source of inspiration and motivation. To Jacob and Aunty Karen, thank you for your encouragement and for always being proud of my accomplishments. To Mum and Dad, you have been my stability. Whether over the phone or in person, your presence has been a source of strength and comfort. To my partner, Marcos, your unconditional support has been a constant source of reassurance. Thank you for always gently reminding me that I can achieve anything I put my mind to. And to Nanna, who made me promise to go up on stage for my graduation and gain my master's certificate. Even though you are no longer here, I hold on to our promise every day. Your memory continues to inspire and drive me. Thank you, my beloved family, for helping me succeed.

Table of Contents

Abstract……………………………………………………………………………………………………ii

Acknowledgements………………………………………………………………………………………iv

Chapter 1: Introducing Menopause……………………………………………………………………1

Biomedical Categories of Menopause………………………………………………………………1

Menopause Symptomatology……………………………………………………………………………2

Central Nervous System (CNS) Symptoms……………………………………………………2

Vasomotor Symptoms……………………………………………………………………………2

Sleep Disruption………………………………………………………………………………………3

Depression and Anxiety……………………………………………………………………………4

Cognitive Changes and Migraines……………………………………………………………4

Weight, Metabolic, and Cardiovascular Symptoms……………………………………5

Weight and Metabolic Symptoms………………………………………………………………5

Cardiovascular Symptoms…………………………………………………………………………6

Urogenital Symptoms………………………………………………………………………………………6

Sexual Dysfunction…………………………………………………………………………………………7

Musculoskeletal Symptoms………………………………………………………………………………8

Skin, Mucosal, and Hair Symptoms……………………………………………………………9

Current Bio-Medical Treatment Options……………………………………………………………9

The Treatment Plan……………………………………………………………………………9

Hormonal, Non-Hormonal, and 'Alternative' Symptom Relief……………………………10

Variability of Menopause……………………………………………………………………………11

Cross-Cultural Variability From the Bio-Medical Perspective……………………………11

Individual Variability From the Bio-Medical Perspective…………………………………13

The Social Construction of Menopause……………………………………………………………14

Cross-Cultural Variability From the Social Constructionist Perspective ……………14

Feminist Critiques…………………………………………………………………………………16

Individual Variability From the Feminist Perspective……………………………………16

Menopause and Reductionism………………………………………………………………………18

Menopause and the 'Feminised Ideal'………………………………………………………………20

Introducing the Feminised Ideal…………………………………………………………………20

Gender Roles………………………………………………………………………………………20

Sexual Dysfunction………………………………………………………………………………21

Motherhood…………………………………………………………………………………………22

The Evolution of Femininity…………………………………………………………………………23

Feminist Valorisation……………………………………………………………………………24

Feminist-Based Treatment………………………………………………………………………24

The Role and Importance of Menopause-Related Apps…………………………………………26

Introducing App Usage……………………………………………………………………26

Apps and Technological Mediation…………………………………………………………27

Apps and Human Experiences………………………………………………………………28

Critiques of Apps……………………………………………………………………………29

The Gendered Data Body……………………………………………………………………29

Overall Thesis Statement………………………………………………………………………32

Chapter 2: Methodology……………………………………………………………………………33

Epistemology: Social Constructionism …………………………………………………………32

Analytic Approach: Discourse Analysis…………………………………………………………34

Discourse Analysis From a Feminist Perspective……………………………………………36

Discourse Analysis and the Construction of Women…………………………………………37

Discourse Analysis and Menopause Apps……………………………………………………38

Study Design……………………………………………………………………………………39

Sample…………………………………………………………………………………………40

App Selection………………………………………………………………………………40

Criteria for Sample Selection……………………………………………………………………………40

Sample Size……………………………………………………………………………………………………41

Representativeness…………………………………………………………………………………………41

Limitations……………………………………………………………………………………………………41

Ethical Considerations……………………………………………………………………………………41

Data Collection Process……………………………………………………………………………………42

Data Organisation and Initial Coding………………………………………………………………42

Reflexivity……43

Awareness of Personal Bias……………………………………………………………………………43

Transparent Documentation……………………………………………………………………………43

Chapter 3: Analysis……………………………………………………………………………………………45

Stages and Process of Foucauldian Discourse Analysis……………………………………45

Interaction with Data and Thematic Analysis……………………………………………………46

Introducing the Apps………………………………………………………………………………………46

App 1: 'Health & Her Menopause App'……………………………………………………………47

App 2: 'Caria: Menopause & Midlife'………………………………………………………………47

App 3: 'Balance – Menopause Support'……………………………………………………………48

App 4: 'Femilog'…………………………………………………………………………………………………49

App 5: 'Menopause Diary 3'……………………………………………………………………50

App 6: 'Healthista Menopause Pack'……………………………………………………50

App 7: 'Issviva Menopause'…………………………………………………………………51

App 8: 'MBODY: Women's Hormone Health'………………………………………52

App 9: 'Perry: Perimenopause Community'…………………………………………53

App 10: 'Olivia: Menopause Support'………………………………………………53

Commonalities and Differences……………………………………………………………54

Chapter 4: Results and Discussion…………………………………………………………57

Identification of Main Themes……………………………………………………………………57

Relating Themes to Broader Discourses………………………………………………………57

Discourses Used by App Developers……………………………………………………………59

Empowerment Discourse………………………………………………………………………59

The Medical Discourse…………………………………………………………………………63

The Post-Feminist Discourse…………………………………………………………………68

Discourse Reinforced by User Community Engagement…………………………………72

Collaborative Discourse: Empowerment within Community Discussions…………72

Resisting the Patriarchal and Medical Discourse……………………………………77

Post-Feminist and Neoliberal Discourse: Women Made Responsible for Their Own Wellbeing……………………………………………………………………………………81

Chapter 5: Conclusion……………………………………………………………………………………87

Summary……………………………………………………………………………………………87

Main Findings and Reflections………………………………………………………………………87

Reinforcement of Neoliberal and Post-Feminist Discourses…………………………87

Patriarchal and Medical Discourse……………………………………………………88

Community Engagement and Empowerment Discourse………………………………88

Social Construction of Menopause……………………………………………………88

Limitations…………………………………………………………………………………89

Reflexivity…………………………………………………………………………………90

Implications and Future Research……………………………………………………90

Ending Statement……………………………………………………………………………………91

References……………………………………………………………………………………………92

The Menopausal Self: Identity Construction and Gender Norms in Menopause Apps

Chapter 1: Introducing Menopause

According to the World Health Organisation (WHO), menopause signifies the natural conclusion of a woman's reproductive journey, characterised by a decline in ovarian follicular activity and the permanent cessation of menstruation (WHO, 1996). This natural process is defined by WHO as occurring after a consecutive 12-month absence of menstruation, attributed to the decline in ovarian follicular activity (WHO, 1996). Menopause is a complex biological phenomenon encompassing the transition from birth to ovarian senescence, during which the body's tissues undergo dynamic changes (Jaspers et al., 2015). These changes include the gradual depletion of ovarian germ cells and subsequent alterations in hormones, fertility, and menstrual cycles (Sherman, 2005). With menopause being an inevitable experience for women, it signifies the conclusion of menstrual cycles and reproductive years. Projections suggest that by 2030, approximately 1.2 billion women globally will have experienced menopause (Hill, 1996). In the United States alone, around 51 million women are currently undergoing menopause, with the average age of onset being 51 years (WHO, 1996). This highlights the significance of menopause research, considering its universal nature and its role in marking the end of reproductive capability for women.

Biomedical Categories of Menopause

Biomedical research has established a categoric system to delineate the stages of the menopausal experience. The first phase, known as transmenopause, encompasses the period leading up to menopause, which includes both premenopause and perimenopause (Akhter et al., 2007). Premenopause, as defined by Sherman (2005), refers to the stage characterised by regular menstrual cycles during a woman's reproductive years, marking the period from the onset of menstruation until the beginning of perimenopause. Perimenopause, often described as the menopause transition, typically occurs in a woman's early 40s and lasts for several years, according to the World Health Organization (WHO, 1996). During perimenopause, hormonal fluctuations lead to irregular menstrual cycles, changes in cycle length, and variations in

menstrual flow intensity (McNamara et al., 2015). These hormonal changes also affect ovulation, resulting in irregular ovulation patterns and increased fertility issues for those attempting conception (Baldwin & Jensen, 2013; Santoro, 2016). Research has highlighted the variability of symptoms experienced during perimenopause in terms of type, duration, and intensity among individuals. Perimenopause culminates in menopause, marked by 12 consecutive months without menstruation, as explained by Harlow et al. (2013). This absence of menstruation serves as the primary indicator for diagnosing menopause. Premature Ovarian Insufficiency (POI) mirrors menopausal symptoms and bodily changes but occurs before age 40 due to the premature cessation of ovarian function (Golezar et al., 2019; Panay et al., 2020). This condition shows the premature decline in reproductive function, attributed to insufficient hormone production by the ovaries, leading to ovulation difficulties and potential infertility (Panay et al., 2020). Following menopause, the post-menopausal stage begins after the confirmation of menopause and spans the years following 12 months of menstrual absence (Sherman, 2005). During this stage, women may still experience various menopausal symptoms, although they tend to stabilise over time. While many symptoms diminish, the reduction in oestrogen levels during post-menopause may lead to long-term health implications (Aguilar-Zavala et al., 2012).

Menopause Symptomatology

There is a dominant discussion in menopause research which focuses on the plethora of menopausal symptoms that impede the quality of life and health of women (Monteleone et al., 2018). For example, Central Nervous System (CNS), weight, metabolic, cardiovascular, urogenital, sexual function, musculoskeletal, skin, mucosal, and hair symptoms. (Nosek et el., 2012; Talaulikar, 2022; Twiss et al., 2007).

Central Nervous System (CNS) Symptoms

Vasomotor Symptoms. Vasomotor changes, a common symptom experienced during menopause, are attributed to variations in the body's temperature regulation and hormonal shifts. Approximately three-quarters of menopausal women encounter vasomotor symptoms

such as sweating and hot flashes (Woods & Mitchell, 2005). Research indicates that menopause leads to a decrease in the body's thermoneutral zone, resulting in increased thermoregulatory responses such as peripheral vasodilation and increased sweating (Freedman, 2005; Rossmanith & Ruebberdt, 2009). The hypothalamus, mediated by neurotransmitters like catecholamines and serotonin, plays a fundamental role in regulating the body's temperature control mechanisms (Boulant, 2000; Monteleone et al., 2018; Rossmanith & Ruebberdt, 2009). Fluctuations in hormones during the perimenopausal period can disrupt the body's ability to regulate temperature, leading to thermoregulatory issues. However, these symptoms typically lessen as the brain adjusts to changing hormone levels (Hale et al., 2009). Hot flashes, associated with the withdrawal of estrogen during postmenopause, involve changes in certain brain neurons, particularly Kisspeptin, neurokinin B, and Dynorphin neurons, leading to increased activity in heat dissipation mechanisms in the central nervous system (CNS) and gonadotropin-releasing hormone (GnRH) neurons (Rance et al., 2013). Moreover, severe vasomotor symptoms in menopausal women are associated with increased secretion of cortisol, a stress response signifier, due to hypothalamus-pituitary-adrenal (HPA) axis activation, contributing to vasodilation (Gibson et al., 2006; Gordon et al., 2016; Kapoor, 2022; Sauer et al., 2020; Woods et al., 2006).

Sleep Disruption. Sleep disruption is highly prevalent among menopausal women, affecting approximately 40-60% of individuals (Joffe et al., 2010; Monteleone et al., 2018; Polo-Kantola, 2011). Studies, such as the Study of Women's Health Across the Nation (SWAN), emphasize that perimenopausal and postmenopausal women tend to experience more sleep disturbances compared to premenopausal women (Kravitz et al., 2003; Kravitz & Joffe, 2011). Polysomnographic research (Baker et al., 2015; Pien et al., 2008) illustrates how menopause-related symptoms, such as hot flashes and depressive symptoms, correlate with insomnia, reinforcing and perpetuating sleep disturbances. Commonly experienced symptoms include restlessness, reduced sleep quality, lower morning restedness, and increased waking episodes due to vasomotor symptoms (Freedman et al., 2006; Kravitz et al., 2015). The biological mechanisms underlying sleep difficulties during the menopausal transition remain unclear. Lower inhibin B levels predict poor sleep quality, while higher follicle-stimulating hormone

(FSH) levels are associated with sleep disturbances (Freeman et al., 2007; Kurita et al., 2016; Kravitz et al., 2005; Tchernof et al., 2004). Sleep difficulties are further exacerbated by an advanced circadian phase and obstructive sleep apnea due to reduced progesterone levels (Epperson et al., 2013; Pines, 2016).

Depression and Anxiety. Depression and anxiety are prominent focuses in menopause research, with heightened risks observed during the menopause transition, particularly in the early postmenopausal years (Bromberger et al., 2007; Bromberger et al., 2010; Bromberger et al., 2013; Freeman et al., 2004; Weber et al., 2014; Woods et al., 2008). Studies reveal significantly higher depressive scores throughout perimenopause and postmenopause compared to the premenopausal period, as supported by data from the SWAN cohort (Bromberger et al., 2007; Bromberger et al., 2010). Women with a history of major depression face a higher risk of depressive episodes during the perimenopausal phase and the initial two years of postmenopause (Bromberger et al., 2015; Freeman et al., 2004; Woods et al., 2008), a trend also observed with anxiety (Bromberger et al., 2013). Anxiety levels during the premenopausal stage impact anxiety levels throughout the menopausal transition, with high premenopausal anxiety correlating with persistent anxiety during and after menopause (Bromberger et al., 2013). Fluctuations in steroid hormones like estrogen and progesterone during the perimenopausal phase affect depression and anxiety, with the risk increasing in proportion to the duration of hormonal exposure (Avis et al., 1994; Freeman et al., 2014). Sensitivity to hormonal fluctuations can impede serotonin and noradrenaline pathways in the CNS, affecting mood-related neuroregulatory systems (Gordon et al., 2015; Schmidt & Rubinow, 2009). Furthermore, these hormonal changes impact neurosteroid levels, leading to dysregulation of the GABA-A receptor, which increases the stress response in the HPA axis and correlates with estrogen fluctuations (Gordon et al., 2015; Gordon et al., 2016). Thus, these factors illustrate women's susceptibility to depression and anxiety during menopause.

Cognitive Changes and Migraines. Cognitive changes and migraines are prevalent CNS-related symptoms during menopause. Longitudinal research highlights memory and concentration decline, particularly in verbal memory and processing speed, during the

perimenopausal stage (Bromberger et al., 2007; Epperson et al., 2013; Fuh et al., 2006; Greendale et al., 2009; Karlamangla et al., 2017; Weber et al., 2012). Surgical menopause is associated with more persistent cognitive changes, with increased risks of dementia and cognitive impairment (Kurita et al., 2016; Rocca et al., 2007). Notably, depressive symptoms during perimenopause are linked to degraded processing speed, while anxiety is associated with reduced verbal memory (Greendale et al., 2011). Vasomotor symptoms are also associated with poor memory function, and sleep disruptions like menopause-related sleep apnea can further reinforce memory lapses (Drogos et al., 2013; Lal et al., 2016; Medic et al., 2017). Additionally, migraine susceptibility and prevalence increase during perimenopause and menopause (Freeman et al., 2008; Martin et al., 2016; Monteleone et al., 2018; Ripa et al., 2015). Physiologically, these cognitive changes and migraines are influenced by fluctuating estrogen levels, with estradiol playing a fundamental role in cognitive function (Genazzani et al., 2007). The reduction and fluctuation in estrogen levels during perimenopause through early postmenopause may trigger temporary cognitive decline and neurogenic inflammation, contributing to migraines (Karkhaneh et al., 2015; Wöber et al., 2007).

Weight, Metabolic, and Cardiovascular Symptoms

Weight and Metabolic Symptoms. During menopause, weight- and metabolic-related symptoms are also experienced. Due to the change in fat distribution related to menopause, especially circulating the visceral adiposity distribution around the lower part of the body, postmenopausal women have higher rates of obesity (Davis et al., 2012; Monteleone et al., 2018). Though weight gain is also correlated with aging, menopause plays a significant role in this experience (Davis et al., 2012). For example, ovarian failure in menopause is suggested to be linked to fat accumulation. For women ages 40-55 weight gain is approximately 2.1 kilograms per three years, while there is also an increase in visceral abdominal fat for peri- and post-menopausal women compared to pre-menopausal women (Karvonen-Gutierrez & Kim, 2016; Sternfeld et al., 2004). Importantly, the increase in visceral fat accommodates multiple health risks, such as cardiovascular disease (CVD), insulin resistance, diabetes mellitus

development, and metabolic syndrome (Fuh et al., 2006), as well as being causative of ovarian failure (Kanaley et al., 2003; Janssen et al., 2010; Lovejoy et al., 2008; Tchernof et al., 2004).

Cardiovascular Symptoms. Cardiovascular symptoms during menopause are significant and multifaceted. Post-menopause is associated with increased visceral fat, including heart fat, leading to atherogenic blood lipid profiles (Lee et al., 2009; Monteleone et al., 2018; Pou et al., 2007; Rayussin & Smith, 2002). Estrogen depletion reduces the protective influence of high-density lipoprotein (HDL) cholesterol and inhibits endothelial cell growth and vascular smooth muscle cell proliferation, resulting in elevated blood pressure and increased risk of hypertension and adverse cardiovascular events (El Khoudary et al., 2016; Matthews et al., 2009; Maric-Bilkan & Manigrasso, 2012). During the menopausal transition, hormonal shifts towards an androgenic state, driven by increased bioavailable testosterone due to insulin resistance, contribute to visceral fat accumulation (Gaspard, 2009; Guthrie et al., 2003; Kalyani et al., 2009; Leeners et al., 2017). Estrogen depletion influences adipose tissue processes, such as regulating metabolic energy consumption and usage, which further exacerbates the risk of obesity and metabolic syndrome (Björntorp, 1997; Liu et al., 2015; Mendelsohn, 2000; Muka et al., 2016).The absence of estrogen and lower estradiol levels heightens the risk of atherosclerosis and cardiovascular issues by impairing endothelial functioning and increasing paracardial adipose tissue, aortic fat, and cardiovascular fat (Lee et al., 2009; Legendre et al., 2015; Maric-Bilkan & Manigrasso, 2012; Pou et al., 2007).

Urogenital Symptoms

Menopause-related urogenital symptoms have been extensively studied in current research. Termed 'genitourinary syndrome,' these symptoms include dyspareunia (painful intercourse), vulvar discomfort, itching, burning, vaginal dryness, urinary issues (urgency, frequency, incontinence), and recurrent urinary tract infections (Portman & Gass, 2014; Van Voorhis, 2005; Legendre et al., 2015; Monteleone et al., 2018; Nappi & Kokot-Kierepa; Nappi & Palacios, 2014; Pastore et al., 2004; Robinson & Cardozo, 2003; Waetjen et al., 2008). Typically, genitourinary syndrome emerges 4-5 years after menopause due to declining estrogen levels (Portman &

Gass, 2014). However, there is a reluctance among individuals to disclose such symptoms to healthcare providers, leading to underdiagnosis and undertreatment (Monteleone et al., 2018; Nappi et al., 2016). Factors like age, parity, obesity, and surgical history also contribute to urinary incontinence, exacerbating the experience (Botlero et al., 2009; Dundon & Rellini, 2010; Legendre et al., 2015). Estrogen-related changes during menopause lead to fissuring, dyspareunia, smooth muscle morphological changes, epithelial thinning, and reduced vaginal blood flow, lubrication, collagen, and elasticity (Garnero et al., 1996; Monteleone et al., 2018; Nappi & Palacios, 2014; Rhodes & Shuster, 2010; Wolff et al., 2011). Estrogen depletion also affects bladder and urethral functioning, with approximately 20% of postmenopausal women experiencing urge incontinence (Dundon & Rellini, 2010). Hormonal elements such as testosterone and dehydroepiandrosterone sulfate (DHEAS), along with estrogen-related vaginal changes, impact menopausal sexual difficulties and satisfaction (Davis et al., 2015; Fogle et al., 2007; McConnell et al., 2012).

Sexual Dysfunction

Sexual dysfunction is a significant focus in menopause research, with literature highlighting its association with menopausal symptoms. Fluctuations in reproductive hormones during the menopause transition lead to decreased sexual desire independent of aging (Dennerstein et al., 2000, Dennerstein et al., 2001). Studies by Avis et al. (2009) and Avis et al. (2017) demonstrate this decline in sexual function around 20 months before and one year after the final menstrual period (FMP). Estrogen levels during late perimenopause contribute to vascular congestion, leading to dyspareunia, which increases during this stage and impacts sexual satisfaction. Consequently, sexual activity decreases over five years after the FMP. Dyspareunia and other vulvovaginal symptoms discourage sexual intimacy, affecting self-esteem and overall well-being, including interpersonal relationships (Dundon & Rellini, 2010; Nappi et al., 2016). In early menopause, masturbation may temporarily increase due to positive associations with testosterone levels but diminishes in postmenopause (Randolph et al., 2015; Woods et al., 2010). Testosterone levels decrease abruptly after natural menopause, affecting arousal and orgasm capacity, while follicle-stimulating hormone (FSH) levels negatively correlate with

sexual function indicators (Monteleone et al., 2018; Randolph et al., 2015). However, long-term relationships can serve as protective factors, positively influencing sexual satisfaction and well-being (Nappi et al., 2016).

Musculoskeletal Symptoms

Research on musculoskeletal symptoms related to menopause reveals significant changes in women's musculoskeletal structure during the menopausal transition. These changes encompass bone health decline, postmenopausal osteoporosis, alterations in body composition (such as increased fat mass and degenerative muscle mass), and a heightened prevalence of osteoarthritis. Primarily, hormone-related changes impact muscle tissue, particularly through estrogen receptors (ERs), which elucidate how ovarian function deterioration can degrade muscle function (Maltais et al., 2009; Rolland et al., 2007; Wiik et al., 2009). Reduced estrogen exposure leads to deterioration in skeletal muscle characteristics, including force generation, resulting in sarcopenia post-menopause (Cosma et al., 2008; Lowe et al., 2010; Watt, 2018). Dietary changes, such as increasing protein intake, and resistance training can mitigate sarcopenia (Asikainen et al., 2004; Legendre et al., 2015; Yuki et al., 2015). Furthermore, menopause catalyses the decline in growth hormone secretion, exacerbating muscle characteristics and functionality impediments (Cosma et al., 2008; Fanciulli et al., 2009). Insulin-like growth factor 1 (IGF1) and insulin-like growth factor-binding protein 3 (IGFBP3) levels crucial for muscle conservation are constrained due to estrogen deficiency, further impacting muscle mass, strength, and flexibility (Carville et al., 2006; Clasey et al., 2001; Finkelstein et al., 2008). Moreover, menopause exacerbates bone mineral density (BMD) loss due to estrogen deficiency, leading to osteoporosis and an increased risk of bone fracture (Eastell et al., 2016; Garnero et al., 1996). Ovarian deterioration and hypoestrogenism resulting from menopause contribute to the diminishing of joint tissues, leading to osteoarthritis characterised by joint pain and stiffness, particularly in the hand, knee, and spine joints (Roman-Blas et al., 2009; Wiik et al., 2009; Felson, 2009; Khadilkar, 2019). Overall, menopause-related musculoskeletal symptoms encompass a range of changes in bone and muscle health, influenced by hormone fluctuations and resulting in conditions like sarcopenia, osteoporosis, and osteoarthritis.

Skin, Mucosal, and Hair Symptoms

Research on skin, mucosal, and hair symptoms of menopause reveals significant changes in these areas. Collagen levels typically decline by about 30% within five years after the final menstrual period (FMP), continuing at an average rate of 2.1% annually, resulting in reduced skin elasticity, hydration, and thickness, leading to increased wrinkling (Calleja-Agius & Brincat, 2012; Reus et al., 2020; Calleja-Agius et al., 2013). During the early postmenopausal period, skin thickness decreases by approximately 1.13% annually, with a corresponding reduction in skin elasticity at about 1.5% per year. Additionally, there's a decrease in skin melanocyte levels, leading to uneven pigmentation and focal depigmentation (Gartoulla et al., 2016; Henry et al., 1997; Jack et al., 2016). Structural changes occur in the dermis, characterized by the atrophy of the dermal vascular network and a decrease in dermal fibroblasts responsible for collagen production, resulting in reduced elastin proteoglycan content and water retention (Archer, 2012; Jack et al., 2016; Tobin, 2017). Analogous changes also affect mucosal pathways, including the orogastrointestinal and urinary tracts, where low estrogen levels increase mucosal permeability, weakening immune responses and prolonging healing times, thereby increasing the risk of mucosal injury (Grishina et al., 2014; Nie et al., 2018; Monteleone et al., 2018). Hair distribution and quality are also impacted by changes in estrogen and androgen hormone balance. Hair loss can occur due to increased androgen production, while about 50% of postmenopausal women experience increased facial hair growth, attributed to altered estrogen-to-androgen hormone ratios favoring androgen dominance (Blume-Peytavi et al., 2012; Ceruti et al., 2018; Piérard-Franchimont & Piérard, 2013; Price, 2003; Zouboulis et al., 2022). Hair distribution decreases on the body and scalp but increases on the face, particularly in the central and forehead areas (Herskovitz, 2013).

Current Bio-Medical Treatment Options

The Treatment Plan

Personalised approaches with shared decision-making are highlighted in developing effective treatment plans for menopausal women (Davis et al., 2023). Roberts and Hickey (2016) stress

the importance of understanding an individual's menopausal history, encompassing symptoms, medical history, and risk factors, to tailor treatment plans accordingly. Lifestyle adjustments, preventive measures, educational resources, prescription medicines, and counseling are fundamental components of managing menopause (Farrell, 2003). Lifestyle modifications such as smoking cessation, nutrition, alcohol intake, and exercise are individually considered, taking into account preferences, allergies, and health conditions, while addressing personalised health concerns during menopause (Farrell, 2003). Hormone Therapy (HT) indications are carefully examined, with personalised risk-benefit analyses for symptom management and prevention (Roberts & Hickey, 2016). Alternative therapies, including herbal remedies and phytoestrogens, are tailored to individual preferences based on personal responses and beliefs (Roberts & Hickey, 2016). Hormonal therapy plans consider factors such as hormone type, dosage, and administration methods, rooted in the individual's symptoms, medical history, and preferences (Farrell, 2003). Tibolone may also be included in management plans due to its tissue-specific effects and potential advantages for specific subgroups of menopausal women (Farrell, 2003). Non-hormonal approaches include responses to lifestyle changes, clonidine, Selective Serotonin Reuptake Inhibitors (SSRIs), and Serotonin and norepinephrine reuptake inhibitors (SNRIs) (Farrell, 2003; Roberts & Hickey, 2016). Overall, the biomedical treatment plan for menopause emphasises personalised approaches to manage specific symptoms and risk factors for each individual.

Hormonal, Non-Hormonal, and 'Alternative' Symptom Relief

The menopausal transition brings about a range of physiological changes affecting different bodily systems, and therapeutic options aim to alleviate these symptoms. Menopausal Hormone Therapy (MHT) has shown efficacy in improving overall quality of life for women experiencing menopausal symptoms (Magraith & Stuckey, 2019). It is considered safe for use before the age of 60 for those without contraindications, which include a history of hormone-dependent cancers, acute cardiovascular events, estrogen-dependent malignancy, porphyria cutanea tarda, and undiagnosed vaginal bleeding (Baber et al., 2016; Whitton & Barber, 2023). The duration of MHT treatment varies for each individual, with dosage adjustments made over

time. Cessation of MHT has been associated with an increased risk of vascular death, highlighting the importance of careful consideration (Baber et al., 2016; Magraith & Stuckey, 2019). For those with contraindications or opting for non-hormonal approaches, alternative strategies such as SSRIs, SNRIs, gabapentin, pregabalin, and clonidine can effectively manage vasomotor symptoms (Djapardy & Panay, 2022). However, these medications do not offer the comprehensive benefits for bone and cardiovascular health associated with MHT. Complementary therapies like cognitive behavioural therapy (CBT) and clinical hypnosis may provide additional relief, although empirical support is limited (Djapardy & Panay, 2022). Non-hormonal treatments like soy isoflavone dietary supplements, mindfulness techniques, and stellate ganglion blockade offer partial relief, while herbal supplements, acupuncture, chiropractic, and homeopathy lack substantive evidence of efficacy (Djapardy & Panay, 2022; Tabeeva et al., 2023). The use of compounded 'bio-identical' hormones is discouraged due to safety and efficacy concerns, with prescribed estradiol in conjunction with micronised progesterone being a preferred alternative (L'Hermite, 2017). Topical vaginal estrogen therapy or non-hormonal alternatives can address vulvovaginal symptoms, with vigilance needed for potential endometrial surveillance in cases of prolonged use of unopposed vaginal estrogen (Magraith & Stuckey, 2019). Future options include diverse progestogens with varying physiological impacts and innovative non-hormonal modalities such as neurokinin B receptor antagonists, which show promise in reducing hot flush frequency and await validation through extensive trials (Prague et al., 2018; Rance et al., 2013). Overall, the management of menopause requires careful consideration of the benefits and risks associated with different treatment modalities to cater to the variability in symptom experiences (Djapardy & Panay, 2022).

Variability of Menopause

Cross-Cultural Variability From the Bio-Medical Perspective

Variability in the timing and experience of natural menopause has been demonstrated through various international and interethnic epidemiological studies (Avis et al., 2005; Chan et al.,

2020; Green & Santoro, 2009; Gold & Greendale, 2007; Obermeyer & Sievert, 2007). Women in study populations from Africa, Latin America, Asia, and Middle Eastern countries tend to experience menopause at an earlier stage compared to those from European countries, Australia, and the USA (Green & Santoro, 2009). Globally, a meta-analysis of 36 international studies reported the mean age of natural menopause to be 48.78 years (with a range of 46 to 52 years) (Schoenaker et al., 2014), indicating variations across different geographical regions. Disparities in reported menopausal symptoms are also observed across geographical regions and ethnicities. CNS-related symptoms are more prevalent in Latin American and European women (Chedraui et al., 2007; Chedraui et al., 2009; Genazzani et al., 2006), while vasomotor symptoms are more common in African American, North American, and Hispanic women and less prevalent in Japanese and Chinese women (Green & Santoro, 2009). However, studies in Thailand, Singapore, and China have shown that night sweats and hot flushes are similar to those in Western countries like the USA (Islam et al., 2017; Sriprasert et al., 2017). Factors such as obesity, climate temperatures, and altitude variations have been suggested to impact the prevalence of symptom experience (Gold et al., 2006; Hunter et al., 2006; Monteleone et al., 2018). However, seasonal temperature changes were found not to influence symptom severity or frequency (Stefanopoulou et al., 2014). Ethnic factors also play a role, with skin ageing at menopause varying based on skin colour, and postmenopausal black women with obesity having a higher risk of cardiovascular events compared to their white counterparts (Wolff et al., 2011). African American women report higher sexual activity during menopause compared to other ethnic groups, while Asian women are often underdiagnosed and undertreated for genitourinary syndrome, negatively impacting sexual enjoyment and intimacy (Srikanth et al., 2005; Chua et al., 2017). The prevalence of osteoporotic fractures in postmenopausal women also varies globally, with Scandinavia having the highest rates and Africa having the lowest (Cauley et al., 2014). In Europe, northern countries have higher rates of such fractures compared to southern Mediterranean countries (Johnell et al., 1992). Differences in sun exposure and its association with endogenous vitamin D production, calcium absorption, and bone mineralisation may explain this variability (Bener & Saleh, 2015; Manios et al., 2018).

Additionally, increased Westernisation and physical inactivity in China have led to a tripling of hip fracture rates over the past 25 years (Tian et al., 2014; Xia et al., 2012).

Individual Variability From the Bio-Medical Perspective

Menopause, being highly individualised, is influenced by personal history, environmental factors, and individual characteristics (Gold, 2011). Somatic anxiety has been linked to an increased risk of hot flushes, while anxiety, stress, and depressive symptoms contribute to persistent vasomotor symptoms (Freeman et al., 2005; Freeman & Sammel, 2016; Jaeger et al., 2020; Seritan et al., 2010; Worsley et al., 2014). Experiences of abuse, particularly verbal or emotional, have been correlated with menopausal symptoms, except for hot flushes and night sweats (Gibson et al., 2019; Vegunta et al., 2016). Moderate to severe premenstrual syndrome heightens the risk of post-menopausal issues such as depression, poor sleep, diminished attractiveness, and cognitive problems (Clayton & Ninan, 2010; Hautamäki et al., 2014). Obesity prolongs the menopausal transition and exacerbates vasomotor symptoms and urogenital issues (Al-Safi & Polotsky, 2015; Kanaley et al., 2003; Koo et al., 2017; Thurston et al., 2008; Waetjen et al., 2008). Weight gain increases peripheral fracture risk, while weight loss elevates general fracture risk (Crandall et al., 2015; Moberg et al., 2022). HIV infection intensifies hot flushes, affecting the quality of life for menopausal women, particularly those with HIV (Fantry et al., 2005; Okhai et al., 2022). Socioeconomic status influences symptom occurrence, with low incomes, limited education, and adverse life events contributing to symptoms (Kochersberger et al., 2023). Lower socioeconomic groups experience more severe symptoms (Prairie et al., 2015). Later natural menopause is associated with health benefits such as extended lifespan and decreased risk of cardiovascular diseases and osteoporosis, but it also increases cancer risks (Eckhardt & Wellons, 2016; Gold et al., 2001; Sherman, 2005). Bilateral oophorectomy before 45 raises cardiovascular disease mortality risk, while early natural menopause elevates ischaemic heart disease risk (Rivera et al., 2009; Eckhardt & Wellons, 2016). Early menopause also correlates with cognitive decline (Karlamangla et al., 2017). Hence, menopause is influenced by biological, psychological, and social factors, including genetics, hormonal

changes, stress, socioeconomic status, cultural norms, and lifestyle choices (Hunter & Rendall, 2007; Kok et al., 2005; Khoudary et al., 2019; Laven, 2015).

The biomedical viewpoint of menopause offers overarching biological and medical interpretations of this life stage, portraying it as a period of decline, loss, and uncertainty. Menopause discourse in medical research emphasises a biomedical perspective focusing on hormone changes, biological and psychological symptomatology, menstruation cessation, ovulation deterioration, and fertility difficulties. This medicalisation (Conrad, 1992) often constructs menopause as a malfunction or disruption of a woman's normal bodily functions, posing potential health risks.

The Social Construction of Menopause

Cross-Cultural Variability From the Social Constructionist Perspective

The biomedical understanding of menopause as a uniform phenomenon is challenged by the considerable diversity in how women from various ethnicities, races, and nations perceive and report its symptoms. Although research on women's perspectives of menopause is limited, it plays a crucial role in shaping the menopausal experience. Examining menopause across different cultures provides valuable insights into its multifaceted nature as a complex bio-psycho-socio-cultural process, revealing significant variations in symptoms and experiences among populations. Culture, encompassing norms, values, and beliefs inherited within a society, serves as a framework guiding individuals' perceptions, behaviours, and interactions with their environment and others. Empirical studies exploring the sociocultural contexts shed light on the social construction of menopause. For instance, in Egypt, despite prevalent symptoms such as fatigue, backache, hot flushes, and vaginal dryness, comprehensive knowledge about menopause is lacking among many women, who primarily rely on sources like mass media, peers, physicians, and family members for information (Gohar, 2005). Similarly, in rural North India, menopause is associated with symptoms like loss of vision, yet medical consultation is often not sought. Instead, women view menopause positively, considering it a

liberation from menstrual restrictions (Singh & Arora, 2005). Indian culture embraces menopause, viewing it as a release from societal constraints and an opportunity for empowerment (Kelly, 2011). In Latin America, menopausal symptoms are perceived as normal, with menopause seen as a chance for personal growth and financial saving. However, negative attitudes, such as feeling insecure, also exist (Sievert & Hernandez, 2003). In Japanese culture, menopause is approached differently, symbolised by the term 'konenki', signifying renewal and regeneration. Menopause is celebrated as a positive rite of passage, reflecting increased honour and worth (Kelly, 2011; Mills, 2007). These diverse cultural perspectives illustrate how menopause is not solely a biological process but also deeply influenced by social, cultural, and psychological factors. They signify the importance of understanding menopause within its cultural context, recognising the dynamic interplay between biology and culture in shaping women's experiences.

Cultural norms and beliefs surrounding menopause play a significant role in shaping women's experiences, contributing to variability across different societies (Nosek et al., 2012). Historically, menopause has been construed diversely across cultures, with varying attitudes, beliefs, and practices surrounding this life transition (Nagar, 2020). These cultural and societal constructs mould individual experiences of menopause, impacting how symptoms are perceived, interpreted, and managed (Melby et al., 2005). While some cultures view menopause as a natural and positive transition, others may stigmatise it as a sign of aging and loss of fertility (Gold & Greendale, 2007), leading to a wide disparity in experiences and symptomatology across different cultural contexts. The dynamic nature of culture, influenced by factors such as history, economics, social structures, politics, and geography, highlights the importance of sensitivity to evolving cultural norms and values (Nosek et al., 2012). Societal attitudes towards menopause also influence women's self-esteem and self-perception, with cultures that celebrate aging often mitigating the stress associated with menopause, while others may exacerbate it (Melby et al., 2005). Moreover, menopause holds varying meanings in different socio-political and economic contexts, with disparities in how it is perceived and treated across societies (Zeserson, 2001). While some societies medicalise menopause, treating it as a diagnosed condition necessitating intervention, others view it as a natural phase devoid

of medicalisation (Conrad, 1992; Zeserson, 2001). Cross-cultural studies have challenged the Western biomedical perspective on menopause, highlighting the subjective nature of symptomatology and the diversity of menopausal experiences (Beyene, 1989; Flint & Samil, 1990; Kelly, 2011; Lock, 1993). Symptoms commonly associated with menopause in Western cultures may not be prevalent in non-Western cultures, emphasising the variability of menopausal experiences globally (Beyene, 1989; Flint & Samil, 1990; Lock, 1993). The diverse perspectives on menopause across cultures, ranging from fear and medicalisation to acceptance and celebration, illustrate how menopause is socially and culturally constructed (Green et al., 2002; Skultan, 1970; Kelly, 2011). These varied interpretations inform women's experiences, highlighting the multifaceted nature of menopause beyond its biomedical aspects. Thus, the biomedical perspective is just one among many social constructions of menopause, reflecting the intricate interplay between culture, society, and individual experiences.

Feminist Critiques

The feminist perspective presents a contrasting view of menopause compared to the medical model, challenging the notion that menopause is an illness. Instead, feminists argue that menopause is a natural phase of ageing, not a disease. While treatments like Hormone Replacement Therapy (HRT) may offer relief from symptoms such as vaginal dryness, feminists caution against their long-term use, advocating for the incorporation of natural remedies (Ferguson & Perry, 2001; Conrad, 1992; Dillaway, 2000; McCrea, 1983; Meyer, 2003). Feminist literature critiques the medicalisation of menopause, highlighting how the use of HRT can undermine women's autonomy by interfering with their natural bodily processes. This critique suggests that by medicalising menopause, biomedicine exerts social control and power over women's bodies, ultimately depriving them of autonomy (Ferguson & Perry, 2001; Conrad, 1992; Dillaway, 2000; McCrea, 1983; Meyer, 2003).

Individual Variability From the Feminist Perspective

The biomedical perspective on menopause undoubtedly influences women's experiences, yet it does not solely determine individual interpretations. Feminist critiques challenge the dominant

medical focus, advocating for an understanding of menopause as a natural aspect of ageing, empowering women to embrace this phase of life free from patriarchal constraints. By shifting away from medicalisation, feminists validate diverse personal interpretations of menopause, encompassing aspects such as identity, sexuality, fertility, and the body's changes (George, 2002). While menopausal experiences vary between cultures, they also differ significantly among individuals, evolving over time. This feminist perspective deconstructs oversimplified biomedical narratives, acknowledging the socio-cultural and individual complexities often overlooked. Cultural symbols play a role in shaping individual perceptions of menopause, but their impact is mediated by various factors, including personal backgrounds and social contexts (George, 2002). Professional and dominant narratives on menopause are influenced by both biological factors and cultural contexts, encapsulated in the concept of 'local biologies' (Richters, 1997). This interplay between biology and culture shapes how menopause is understood and portrayed. Individuals may choose to align with or challenge these narratives, highlighting the need to interpret menopause within the context of this dynamic interplay (Richters, 1997).

In Winterich and Umberson's (2008) study, they delved into the subjective meanings and individual narratives surrounding menopause. They found that many women regarded menopause as relatively inconsequential compared to other life events. Women described menopause as either neutral or positive, primarily viewing it as a physical cessation of menstruation. However, the complexity of women's perceptions of menopause became evident when they discussed topics related to ageing. While some women saw menopause as insignificant in terms of bodily changes, it posed challenges when coping with marital or family issues. Furthermore, the medical context significantly influenced women's experiences of menopause. Those who viewed it as a natural phase of life often felt uncomfortable with doctors' recommendations regarding hormone replacement therapy (HRT) and were dissatisfied with the healthcare information provided (Cate & Corbin, 1992; Winterich and Umberson, 2008). This highlights why some women may harbour negative feelings towards menopause within medical contexts; a one-size-fits-all approach to care may disregard their unique experiences and subjective accounts of menopause. Therefore, menopause is not a

fixed experience, and neither are the meanings associated with it. Menopause varies not only between cultures but also between individuals due to the vast array of social contexts influencing individual realities. It is not a monolithic or isolated experience, but rather a complex and multifaceted phenomenon (Winterich & Umberson, 2008).

Menopause and Reductionism

Menopause sits at the crossroads of biological, sociocultural, and gendered dimensions, forming a complex interplay. A comprehensive examination of the interdisciplinary construction of menopause uncovers the intricate interplay between this natural life transition, sexism, scientific reductionism, and prevailing gender norms (Chrisler et al., 2014; Rostosky & Travis, 2000). Scientific reductionism, embodied in reductive biomedical perspectives, tends to isolate menopause as a mere physiological dysfunction (Hermosa & Mejia, 2014). This reductionist stance reinforces gendered perceptions of women's bodies as inherently flawed once reproductive utility diminishes (Zita, 2018). Furthermore, the medicalisation and pathologisation of menopausal symptoms contribute to the gendering of women's health, perpetuating stereotypes of intrinsic biological deficiencies and linking a woman's worth to her reproductive capacity (Sommer, 2017). Barbara Sommer (2017) conveys the menstrual cycle's significance as a defining factor between genders, intertwined with issues of gender equality. Reductionistic stereotypes foster prejudice, especially within the realms of sexism and ageism, shaping societal perceptions of women during menstrual, premenstrual, and menopausal phases. Hostile sexism may manifest in beliefs that women in these phases are unapproachable or aggressive, while benevolent sexism may lead to perceptions of them being weak or fatigued (Chrisler et al., 2014; Forbes et al., 2003). Scientific reductionism extends its influence over the sociocultural and economic contexts of women's daily lives. Chrisler (2013) elucidates how discussions around healthy menopause in educational settings are constrained by negative societal attitudes and stigmatisation surrounding women's reproductive phases. This perpetuates ignorance about women's reproductive health and reinforces the stigma associated with reproductive and menstrual processes in society (Chrisler, 2013). Thus,

prejudice, stigma, and negative attitudes surrounding menopause persist implicitly through scientific reductionistic ideologies, which shape and mediate sociocultural discourses.

Within workplace settings, deeply ingrained taboos and stigma surrounding menopause are unmistakable, as highlighted by Targett and Beck (2022). Individuals often express discomfort or reluctance to broach the topic of menopause at work, reflecting societal norms that view it as a sensitive or inappropriate subject for workplace discussions. Meanwhile, ambivalent sexism, as delineated by the Stereotype Content Model, significantly shapes attitudes by combining elements of both hostile antipathy and benevolent paternalism (Glick et al., 2000). Notably, disparities in attitudes are evident, with men often exhibiting higher scores of hostile sexism, indicative of more negative attitudes, particularly towards menstruation (Chrisler et al., 2013; Forbes et al., 2003). Cultural factors also come into play, contributing to variations in attitudes, notably in relation to men's perceptions of women's reproductive processes, as discussed by Marván et al. (2008). Moreover, negative connotations associated with menopause in contexts such as the workplace often stem from societal perceptions influenced by factors like the cessation of fertility and the aging process (Hermosa & Mejia, 2014). This workplace context also reveals semantic connections that reflect shared stereotypes and highlight nuanced differences attributed to sociocultural factors, elucidating the intricate interplay between cultural beliefs, sexism, and attitudes toward women's reproductive experiences (Chrisler, 2013). In alignment with these insights, Targett and Beck (2022) shed light on a significant pattern in how individuals choose to disclose their menopause status, indicating a preference for sharing such information with female colleagues and managers in the workplace. This trend unearths gendered vertical segregation, where individuals may feel more understood and supported by peers of the same gender (Atkinson et al., 2021). Challenges in disclosing menopause status to male managers reveal the fundamentality of a cultural shift away from reductionistic discourses, towards normalising menopause while improving communication across gender lines (Chrisler et al., 2013; Targett and Beck, 2022).

Menopause and the 'Feminised Ideal'

Introducing the Feminised Ideal

The subjective experiences and perceptions of women undergoing the menopausal transition are intricately shaped by sociocultural paradigms, encompassing cultural beliefs, social expectations, and gender roles related to menopause. Divergent cultural perspectives construct menopause either as a natural and positive stage connoting wisdom and maturity or as a signal of decline and fertility loss (Kelly, 2011; Winterich & Umberson, 1999). The societal stance towards menopause significantly influences the support and comprehension extended to women during this life transition (Ayers et al., 2010; Chornesky, 1998). Detrimental sociocultural constructs include stigmatization, ageism, and the perpetuation of unfavourable stereotypes concerning menopausal women (Chrisler, 2013). These constructs may impose normative pressures on women, touching on notions of femininity, beauty standards, and sexual desirability, potentially inducing heightened stress and anxiety during this transitional period (Newhart, 2013). Consequently, internalising negative beliefs pertaining to identity aspects, such as femininity, may contribute to escalated psychological distress, diminished self-esteem, and reduced overall quality of life amid the menopausal transition (Dundon & Rellini, 2010; Goswami, 2013; Gümüşsoy et al., 2023; Yazdkhasti et al., 2016). Women's alignment with or transgression of these norms during menopause significantly influences their experiences and overall health.

Gender Roles

Examining menopause through a feminist perspective reveals how evolutionary changes in the female body highlight deeply ingrained gender norms. Despite its biological inevitability, the extended postmenopausal lifespan is often devalued within societal contexts that historically linked a woman's worth to her reproductive capacity (Zita, 2018; Chrisler, 2013). This perpetuates age-old gender norms, casting women primarily as reproducers and reinforcing 'traditional femininity' defined by societal expectations (Osarenren et al., 2009; Yang & Merrill, 2017; Kessler & McKenna, 1978). Moreover, gender roles, particularly those tied to femininity,

significantly influence menopausal experiences, identity construction, and sexual well-being (Yazdkhasti et al., 2016). Societal beauty standards exacerbate challenges faced by menopausal women, as they may feel compelled to conform to youthful ideals, leading to feelings of inadequacy and a perceived loss of attractiveness (Newhart, 2013). This emphasis on youth and beauty can contribute to a sense of diminishment among menopausal women, reinforcing negative stereotypes about ageing and contributing to psychological distress (Chrisler, 2013; Cosgrove & Riddle, 2003). The intersection of ageism and gender expectations further complicates menopausal experiences, with menopause often viewed as 'dirty' femininity, devaluing the contributions of menopausal women (Whiley et al., 2023). Tavris's humorous remark highlights the societal importance placed on menstruating women, contrasting them with non-menstruating women who may no longer align with youth-centric ideals: "the only thing worse for women than menstruating is not menstruating" (Tavris, 1992, p. 133) (Chrisler, 2013). Thus, this reductionistic view perpetuates the notion that menopausal women are deficient and inferior due to the loss of their reproductive value (Zita, 2018). Ultimately, menopause is constructed as the loss of 'womanhood' and a deviation from 'true femininity' due to estrogen deficiency, reinforcing the importance of restoring estrogen to maintain gender identity: "no woman can be sure of escaping the horror of this living decay . . . even the most valiant woman can no longer hide the fact that she is, in effect, no longer a woman" (Zita, 2018, p. 4). According to Zita, menopause has been constructed as an estrogen-deficient disease of gradually turning neuter with the subsequent loss of femininity (2018). Moreover, Wilson argues that estrogen therapy does not change a woman but instead keeps her from changing; restoring a woman's estrogen equates to a 'sexually restored woman' (Wilson, 1966). This biological essentialist perspective overlooks the diverse experiences of menopausal women and perpetuates harmful stereotypes about ageing and femininity.

Sexual Dysfunction

Menopausal women who suffer from sexual dysfunction tend to place more emphasis on the concept of beauty in their lives, according to research (Nappi et al., 2001). In this study, a larger proportion of women seeking assistance for sexual issues scored highest on the aspect of

feminine identity related to beauty compared to those who did not seek help. This indicates that societal or individual ideas about beauty might exacerbate the expression of sexual problems during menopause, possibly because of the effects of aging and alterations in physical appearance (Graziottin & Basson, 2004; Nappi & Lachowsky, 2009). A focus on biological processes, such as alterations in physical appearance, may inadvertently objectify women and neglect broader socio-cultural, emotional, and psychological dimensions (Zita, 2018). As explained by Johnston-Robledo et al., (2007) and Roberts (2004), women who self-objectify and internalise biological objectification have negative attitudes and beliefs around menopause and menstruation. The objectification of women has been historically reconstructed in psychological literature discussing menopause and femininity. A pre-menoposausal woman, for example, is portrayed as an estrogen-rich individual, “capable of being physically and emotionally fulfilled by her husband or lover and least likely to go afield in search of casual encounters” (Zita, 2018, p. 4), where the heterosexual and monogamous femininity is portrayed as woman’s complete and total femininity (Wilson & Wilson, 1963; Wilson, 1996). Hence, this not only alienates those who transgress such estrogen-heterosexual-monogamous 'feminised ideals’ (creating a hierarchy of feminine identity) and pigeonholes estrogen ‘poor’ individuals as non-feminine, but also positions a woman as being unfulfilled in the absence of sexual desire.

Motherhood

Motherhood emerges as another factor influencing menopausal experiences, as cultural norms may cease to align with women's capacity or inclination for motherhood (Russo, 1976). A larger proportion of women experiencing sexual dysfunctions place a greater emphasis on motherhood compared to those who appear to adapt more easily to the effects of menopause on sexuality (Nappi et al., 2001). This suggests that the traditional female role of motherhood may be closely connected to the clinical manifestation of sexual dysfunction during menopause (Nappi & Lachowsky, 2009). The psychological and emotional elements pertaining to shifts in reproductive identity and societal norms related to motherhood might add complexity to sexual experiences during this phase of life (Nappi et al., 2001).

The Evolution of Femininity

The social construction of menopause has undergone significant evolution over time, reflecting changing perceptions and attitudes towards this natural life transition (Astbury-Ward, 2003; Bernhard, 1997; Houck, 2006; Rossi, 2004). Initially viewed as a private matter to be overlooked, menopause has been associated with aging and diminished attractiveness, yet contemporary perspectives now regard it as a multidimensional experience influenced by biological, psychological, and social factors (Astbury-Ward, 2003; Newhart, 2013). Despite increased discourse around menopause, understandings of it remain heavily medicalised, often constructing it as a condition requiring treatment or management (Newhart, 2013). This medicalisation contributes to feelings of inadequacy, loss of feminine identity, and other negative emotions, particularly concerning sexuality (Dennerstein et al., 2006; Dundon & Rellini, 2010; Leiblum et al., 2006; Nappi et al., 2010). Moreover, societal pressure to maintain youthfulness can exacerbate these experiences, impacting women's sense of sexual desirability (Newhart, 2013). However, a generational shift is occurring, with some women challenging societal expectations and embracing menopause as a period of empowerment and self-discovery (Astbury-Ward, 2003; Newhart, 2013). Consequently, two significant attitudes towards menopause and aging emerge: one emphasises healthful habits and individual willpower, while the other involves either embracing medical interventions or favouring self-care and educational discovery (Astbury-Ward, 2003; Newhart, 2013). Understanding the diverse cultural and societal influences on menopausal experiences is crucial for developing comprehensive and individualised approaches to menopausal care (Chrisler, 2013; Namazi et al., 2019). Healthcare providers, aware of these influences, can offer support and interventions tailored to the multifaceted needs of menopausal women (Chrisler, 2013). Moving forward, promoting positive representations of menopause, challenging ageist and sexist attitudes, and creating supportive environments are essential for empowering women during this life transition (Zita, 2018). Incorporating diversity in menopausal experiences and recognising the impact of sociocultural factors on sexuality are fundamental for providing compassionate and effective care to women navigating this significant stage of life (Stute et al., 2016; Torkelson & Marienau, 2022).

Feminist Valorisation

Feminist perspectives offer a bio-cultural framework that challenges reductionist views of menopause (Zita, 2018). Beyond its physiological aspects, menopause is seen as a biocultural narrative where gender roles are enacted and contested. These approaches advocate for intersectional resistance, empowering women to navigate this phase on their own terms while acknowledging its socio-cultural dimensions. Understanding the economic challenges and declining social value faced by postmenopausal women requires a structural analysis of sexism. Metaphysical misogyny, which confines womanhood solely to reproductive capacity, perpetuates gender stereotypes, highlighting the need to redefine womanhood beyond biological functions. Furthermore, empowerment involves deconstructing linguistic biases and promoting positive language and representations. This includes challenging derogatory terms and recognising language as a site of agency to disrupt power dynamics marginalising postmenopausal women (Darke, 1996; Zita, 2018; Chrisler et al., 2014). An intersectional understanding is crucial for reconstructing menopause as a convergence of biological, cultural, economic, and political factors. As a result, this unveils the interconnectedness of gender norms, economic disparities, and cultural biases, contributing to a holistic comprehension of menopausal experiences (Cortés & Marginean, 2022; Crawford et al., 2021; Rotosky & Travis, 2000; Zou et al., 2021). The transformation of the body politic is portrayed as a dynamic political and cultural process, involving the reconceptualisation of menopause and the creation of a cultural space that recognises the wisdom and agency of older women regardless of societal categorisations (Zita, 2018).

Feminist-Based Treatment

Feminist-grounded mental health therapeutic approaches challenge reductionistic biomedical paradigms, advocating for holistic perspectives that honour menopause's complexities. This critique exposes the limitations of biomedical reductionism and urges recognition of the interconnected biological, social, and cultural factors influencing menopausal experiences. While personalised biomedical interventions often simplify menopause to individual-level

concerns, focusing on correcting behaviours or addressing hormonal imbalances, they overlook broader social and cultural influences. Importantly, this narrow focus risks perpetuating harmful narratives of victim-blaming and alienation, portraying menopausal individuals as deviating from norms and reinforcing notions of defectiveness. The dominance of reductionistic biomedical research emphasises the need to address menopause's diverse experiences across cultural contexts. Biomedical research typically pathologises menopause, treating it as a manageable disease, whereas feminist scholarship views it as a socially constructed phenomenon shaped by personal, societal, and cultural factors.

Research has highlighted the effectiveness of complementary therapies in supporting women experiencing menopause. While biomedical perspectives often depict menopause as a period of emotional instability, the feminist viewpoint challenges this by examining menopause through various cultural lenses to comprehend its social construction and its impact on women’s mental well-being. Cognitive behavioural therapy (CBT), behavioural therapy (BT), and mindfulness-based therapies (MBT) have proven beneficial for alleviating menopausal symptoms (Ayers et al., 2012; Girman et al., 2003; Van Driel et al., 2019). Feminist-based counselling and person-centred therapies delve into the intricate interplay of individual, biological, and socio-cultural factors influencing women in midlife. Comparatively, instead of constructing menopause as a disease, these approaches view it as a sociocultural experience, resisting its portrayal as an individual defect. This awareness is crucial for addressing developmental conflicts within this demographic, such as the dominant social perception of 'feminine change', which constructs a discourse of despair and hopelessness associated with menopause (Osarenren et al., 2009). Techniques like the 'construction of meaning', as outlined by Lippert (1997), involve analysing broader psychological issues, empowering women through support, affirming commitments, and fostering self-exploration. Practitioners facilitate women in recognising and appreciating their intrinsic value beyond engrained motherhood and feminised ideals, guiding them towards a transformative mindset and reclaiming agency over their sociocultural realities. Values clarification is pivotal in aligning personal values with behaviours and experiences to alleviate maladaptive emotions about self-identity (Howell, 2001). Metaphors like Penelope's Loom (Clark & Schwiebert, 2001) serve as powerful tools to instill a positive attitude toward aging and

menopause, allowing women to perceive each life as a unique tapestry formed by various threads, including menopause and gender roles. Overall, by unravelling and re-weaving this 'life tapestry', women can communicate, visualise, and dissect their complex experiences, making 'control' more tangible. Assertiveness training and cognitive restructuring empower women to oppose external influences shaping negative perceptions post-menopause, facilitating resilience and self-perception emphasis over disease and feminine deficit (Osarenren et al., 2009).

The Role and Importance of Menopause-Related Apps

Introducing App Usage

Davis and Baber (2022) stress the urgency of increased investment in menopause-focused research to address knowledge gaps and enhance the health and well-being of women globally. Menopausal physiological symptoms and available information are often complex and ambiguous (Duffy et al., 2011; Marnocha et al., 2011), highlighting the demand for better support and resources for women experiencing menopause, as advocated in multiple position statements and academic publications (Sillence et al., 2023). Consequently, there's growing support for 'FemTech' or 'MenoTech', prioritising online information dissemination through mobile health apps (Wiederhold, 2021). Apps, short for applications, are software programs created to execute specific tasks on electronic devices such as smartphones, tablets, and computers. These programs can be downloaded from various online platforms like the Apple App Store or Google Play Store (Alqahtani, 2022). Furthermore, the global market for women's health apps, including menstrual health apps, has seen substantial growth, reflecting the increasing use of self-tracking devices and apps to monitor various health and well-being aspects (Adnan et al., 2021; Sillence et al., 2023). While research on women's self-tracking, particularly in menstruation and weight management, is expanding, there's a notable gap concerning menopause. Additionally, women have access to a range of technologies for tracking this phase, but exploration of how self-tracking impacts menopausal experiences remains limited (Gkrozou et al., 2019). Menopause apps serve various functions, from self-assessment and education to diary-keeping, often integrating personal health data and menstrual symptom tracking (Adnan et al., 2021; Levy & Romo-Avilés, 2019). Features like

social network support, personalisation, and health professional involvement are highly valued by users (Trujillo & Buzzi, 2016; Trujillo et al., 2018; Lee et al., 2015). Current research on menstrual tracking apps focuses on evaluating app effectiveness, database creation, and user behaviours, with a gap in comprehensive symptom reviews across apps (Bull et al., 2019; Epstein et al., 2017; Lee & Kim, 2019; Levy & Romo-Avilés, 2019; Li et al., 2020). There's a need for expert input to improve menopause app quality and functionality, ensuring user-friendly language and consistent symptom descriptions (Paripoorani et al., 2013; Levy & Romo-Avilés, 2019). Additionally, further research is needed to illuminate the quality, features, and impact of menopause apps on users, including user perceptions and experiences and the construction of menopause identity within app elements (Gkrozou et al., 2019; Sillence et al., 2023).

Apps and Technological Mediation

Instead of viewing menopause self-tracking apps as a mere tool for promoting healthy habits, it can also be argued that these apps shape how individuals perceive themselves and their lives. Current literature has revealed positive and negative impacts of self-tracking app usage. According to Verbeek's (2006) perspective on technological mediation, human actions, experiences, and perceptions are not only influenced by individual intentions and social structures but also by the material environment, including technologies. Thus, technologies mediate and control our experiences and behavioural practices. Consequently, it is crucial to understand how technologies carry inherent norms and values that shape users' experiences.

According to Boer et al. (2023), feminist technoscience highlights how apps and such technologies are not neutral tools. Menopause apps are deemed as actively contributing to societal norms and categories. Boer et al. (2023), argues that feminist technoscience locates the burden of fertility management predominantly on women, as the tracking apps often promote standardised menstrual cycles as the ideal and hence implicitly reinforcing societal expectations. In according with this, depending on the user and their subjective context(s), menopause self-tracking apps may influence perceptions of femininity, gender identity, and societal roles, while shaping notions of what a 'responsible' biocitizen and woman means. The

normative nature of self-tracking apps regarding menopause can influence women's self-perceptions. This concept of influence is termed 'technological mediation' and includes both active usage and non-usage with self-tracking apps. Boer et al. (2023), explains technological mediation in the context of situated bodily self-awareness with menopause, and how, to comprehend the constitutive power of these technologies, it's essential not only to consider technological mediation but also to delve into the concept of self-experiences.

Apps and Human Experiences

Phenomenology emphasises the significance of embodiment in human experiences, highlighting how individuals perceive themselves and the world through their bodily existence. The body serves as the foundation for self-experience, anchoring individuals in their surroundings (Boer et al., 2023). Such bodily self-awareness can be broken down into pre-reflective and reflective forms. With pre-reflective being an engagement in activities without conscious awareness of bodily movements, and reflective being our conscious awareness of our bodies as objects of experience (such as with experiencing bodily discomfort in menopause). These reflective experiences can be either negative, termed 'dys-appearance', or positive, termed 'eu-appearance' (Boer et al., 2023). Bodily self-awareness is not formed in a vacuum but is rather molded by a myriad of factors, including past encounters, future aspirations, and the prevailing socio-cultural milieu. Moreover, there is a profound impact of social norms and power dynamics, such as those related to gender, age, and health, on shaping individuals' perceptions of their own bodies. Self-tracking technologies interact with and influence women's lived experiences within these socio-cultural contexts through bodily self-experience mediation. While self-tracking is often driven by curiosity or desire for self-improvement, some women reduce their tracking usage to feel more connected to their bodies or due to the limitations of the tracking data. Self-tracking has also been seen as imposing restrictions or confronting future bodily limitations for individuals going through menopause. Hence, tracking versus un-tracking significantly is influenced by social norms and individual experiences; app usage impacts and is impacted by the perception of societal beauty standards, while app-usage practices influence self-perceptions, identity construction, and everyday interactions.

Critiques of Apps

Therefore, it is criticised how gender-specific apps, like menopause self-tracking apps within FemTech, reveal issues such as normative stereotypes or a lack of inclusivity for non-normative identities. Critics have argued how FemTech reinforces inequalities while supporting the biomedical medicalisation of natural processes like menopause (Oonk, 2023). Consequently, these apps are suggested to quantify the menopause experience. Comparatively, Karlsson (2021) suggests shifting attention to whose bodies are being quantified when discussing 'quantified bodies' and to consider the bodies involved in designing, producing, and shaping the algorithms embedded in these technological solutions. From this perspective, there is a shift away from Boer et al.'s (2023) perspective of the individual's bodily self-experience as being controlled by app usage, towards the active role of bodies in knowledge production. This comes from the feminist perspective of situated knowledges in which all knowledge production is inherently ties to embodied experiences and situated contexts. Hence, this highlights that self-tracking apps are not merely an agent of power and control, but rather, they construct and are constructed by bodies. To contest the negative beliefs surrounding the 'responsible' biocitizen, this perspective deems the knowing subject (the user of the self-tracking apps) as *not* a universal entity. Individuals are relational, embodies, and embedded in various sociocultural contexts and historical experiences. The socio-technical relationship between self-tracking and the menopausal bodies that interact with these apps is thus a complex and dynamic experience that moves beyond algorithmic quantification. The network of knowledge that informs the apps and informs the individuals using the apps involves bodies, materialities, technology, sociocultural and historical contexts. Of which, stigma, norms, and taboos surrounding menstruation are part of this dynamic interplay.

The Gendered Data Body

Karlsson (2021) examines the 'gendered data body' by illuminating socio-technical relations, socio-cultural discourses that menstruating bodies are situated, and the interplay between technology and knowledge production in shaping the gendered data body. It supported that

technology is not neutral, it informs and is informed by individuals. Hence, the development of these apps, such as their design and functionality, are shaped by the beliefs and values of those creating them. It is thus crucial to understand how technologies embody normative frameworks, and how menopause self-tracking apps are no exception. In alignment with this understanding, these apps can influence their users' perceptions of their bodies, health, and gender. However, these apps are not purely individualistic; there are communal aspects and potential impacts. Women experiencing menopause (who engage with these technologies) are interconnected with the apps as well as with other users. If the apps are influenced by the users creating them, then they are influenced by the feminist framework. This framework actively challenges societal norms and taboos circulating women's bodies by giving voice to alternative narratives and perspectives. This is achieved by questioning underlying assumptions and epistemologies embedded in technology, as a result, FemTech is tailored to women's health needs.

Through feminist discourse, essentialist interpretations of the body can be challenged. Gender culturally constituted through performative actions, the body is argued as an active and situated entity, while there is agency of bodies in resisting cultural constraints which challenges hierarchical power structures – hence the historical dichotomy between reason and nature can be overruled (Butler, 1993; Grosz, 1994; Haraway, 1991; Karlsson, 2021). Additionally, feminist scholars have embraced new materialism, which rejects the idea of bodies and biology as solely products of discursive practices. Agency of both human and non-human actors are emphasised as well as the interconnectedness of knowledge production (Karlsson, 2021). Gender and technology research has long been concerned with how gender perceptions and stereotypes influence technological design and use, as well as how technology can either challenge or perpetuate gender norms. As a result, app usage becomes a key focus in feminist research as it is questioned whether such apps contribute to women's empowerment or serve as tools for patriarchal control. An important factor is that this debate, and the recent development of new technologies, sheds light on social values, beliefs, and norms, as well as dominant ideologies underpinning knowledge production.

The intersection of body and technology provides an alternative understanding to the female body beyond biomedical frameworks. Regarding science and technological studies (STS), hegemonic conditions that underpin app development and usage has been highlighted by feminist contributions (Karlsson, 2021). According to such research, the neglection of female bodies in the app development processes can have detrimental impacts on whose bodies the menopause-related technologies are designed for. As a result, the context-dependent and situatedness of knowledge in embodied experience is a primary emphasis in feminist theory. Period-tracking apps offer women a digital gateway to understanding their bodies, relieving them from constant bodily attention. Through algorithms, these apps provide insights into menstrual cycles, heightening awareness of bodily changes and emotional states. This interaction between app notifications and bodily experiences shapes a co-created dimension known as the gendered data-body, extending bodily experiences into the digital realm. While these apps enhance understanding, they cannot fully capture the visceral experience of menstruation. Menstrual blood, laden with cultural and symbolic meanings, is often stigmatised. Despite this, period-tracking apps serve to destigmatise menstruation by transforming it into data. Therefore, deeming menstruation or menopause tracking apps as solely oppressive neglects their potential to empower users by challenging cultural norms. However, ethical considerations are vital, as these apps have the potential to either challenge or perpetuate societal taboos surrounding menstruation and menopause. It is certain, according to Karlsson (2021), that the sharing of embodied knowledge has the potential to catalyse significant sociocultural change. According to Oonk (2023), to truly empower users and address broader issues, hormone-tracking apps must adopt a holistic and collective approach. The ethos of pluralism, participation, and empowerment, while acknowledging diverse perspectives to address gender imbalances is fundamental to align with the feminist lens. Oonk explains that the advancement of gender dialogue and the enrichment of hormonal health knowledge through fostering a shift in collective consciousness is required.

Overall Thesis Statement

Gender, sexuality, identity construction, and the discourse pervading menopause apps and their subsequent influence on women have been neglected. In this paper, we develop and extend the work of Boer et al. (2023), Gkrozou et al. (2019), Karlsson (2021), Oonk (2023), and Sillence et al. (2023), by focusing on menopause apps and their users as agents of constructing sociocultural norms around menopause experience. The study contributes to our understanding of women's identity construction and consequent health by answering (a) how do menopause apps portray women, their symptoms, and their experiences? (b) What ideologies, perspectives, and ideals of gender normality are reinforced by menopause apps? (c) How do menopause apps deny or reflect sociocultural stereotypes of menopause? The specific research questions are (1) How do menopause apps depict women's identities, symptoms, and experiences, and their alignment with societal norms and stereotypes surrounding menopause and femininity? And (2) How do women engaging in community discussions within the apps contribute to discourses surrounding menopause?

Chapter 2: Methodology

Epistemology: Social Constructionism

A crucial starting point for exploring the discourses surrounding app usage and how this impacts women's identity construction is the choice of methodological and theoretical frameworks. Social constructionism challenges traditional notions of reality, identity, and knowledge by emphasizing that these concepts are not inherent or objective but are instead shaped through social and cultural interactions (Burr, 2015; Gergen, 2015). This theoretical framework argues that our understanding of the world is heavily influenced by societal and cultural contexts, contrasting sharply with positivist and empiricist views that uphold objectivity. Within social constructionism, reality is seen as a product of social processes, with concepts like gender, race, and identity being understood as social constructs rather than natural categories. Moreover, these constructs are fluid and vary across different societies and historical periods, reflecting the prevailing social norms and values of those contexts. This perspective critically addresses mainstream psychology's tendencies towards reductionism—where complex human behaviours and experiences are reduced to simple explanations—and essentialism, where certain traits are seen as innate or biologically predetermined (Cromby, 2012). Importantly, a central theme in social constructionism is the role of power dynamics in shaping societal constructs of reality (Brubaker & Cooper, 2000). Power influences which groups within society can define and impose what is considered normal or acceptable, often leading to the marginalisation of alternative perspectives or identities. In the realm of health, social constructionism provides a robust critique of the biomedical model, which often neglects the complex interplay of biological, psychological, and social factors in health and illness (Greene, 2014). It highlights how perceptions of health and disease are shaped by cultural norms and social structures, challenging the universality of medical knowledge. Social constructionists argue that medical categories and diagnostic criteria are not merely scientific truths but are influenced by societal values and power relations, which can perpetuate inequalities and stigma. Regarding sexuality, social constructionism argues against biological determinism, asserting that social norms and meanings significantly shape sexual desires and

behaviours. Foucault's analysis of discourse and power shows how societal norms and knowledge are constructed through complex power relationships, influencing individual behaviours and societal norms (Foucault, 1976). In essence, social constructionism offers a comprehensive and critical framework for understanding how social and cultural factors shape our perceptions of constructions like menopause. It provides invaluable insights into the complex interplay between language, power, and social structures, prompting a reevaluation of how we understand and engage with the world around us. Thus, this theoretical approach encourages a more holistic and inclusive examination of human experiences and societal structures, promoting a deeper appreciation of the diversity and dynamism of social life. For understanding how menopause apps alignment with societal norms and stereotypes surrounding menopause and femininity, social constructionism is an important theoretical framework to guide this research thereof.

Analytic Approach: Discourse Analysis

Discourse analysis and social constructionism are fundamentally intertwined; discourse analysis offers a sophisticated methodological framework of social constructionism to explore how language shapes our social reality. Researchers utilise discourse analysis to examine the intricate ways in which language constructs and negotiates meaning within social interactions. This approach reveals the underlying power dynamics, ideologies, and social norms embedded within language use, illuminating how certain discourses dominate and influence our understanding of reality, while also spotlighting opportunities for resistance and alternative interpretations (Fairclough, 1995). By dissecting discourse, social constructionists uncover the subtle mechanisms through which social reality is constructed and maintained, shedding light on the complex interplay between language, power dynamics, and social structures. Language is pivotal in this process, serving as the primary medium through which social realities are articulated and perpetuated (Van Dijk, 2015; Lucy, 2016). Through discourse analysis, scholars examine how language use within various contexts reflects and reinforces existing social norms, ideologies, and power structures. Social constructionism covers both micro and macro perspectives: micro social constructionism focuses on how individuals construct meaning in

everyday interactions, while macro social constructionism looks at how broader social structures and institutional practices shape individuals' experiences (Rose, 2018). This dual focus highlights the contextual and relational nature of psychological and social phenomena, advocating for an understanding of these phenomena within their specific socio-cultural contexts (Zittoun, 2012). This framework views knowledge as dynamic and emergent from social interactions and collective negotiations (Gergen, 2015). Hence, it challenges the notion of objective truth, encouraging a critical examination of the social processes that underlie knowledge production. This perspective is particularly powerful in deconstructing traditional understandings in various domains, including personality, health, illness, disability, and sexuality.

Emerging in the late 1970s, Foucauldian discourse analysis, rooted in post-structuralist thought and influenced by Michel Foucault's insights into power, knowledge, and discourse, seeks to understand how language constructs social reality and shapes subjectivity. This analytical framework was introduced into Anglo-American psychology by scholars drawn to post-structuralist ideas, notably Foucault's work, and began exploring the interplay between language, subjectivity, and power within psychological research. It critiques how psychological theories, such as those concerning child development and gender differences, construct objects and subjects, thereby influencing perceptions and experiences (Henriques et al., 1984). At its core, Foucauldian discourse analysis is concerned with the role of language in the constitution of social and psychological life. Discourses, understood as sets of statements that construct objects and subject positions, not only shape what can be said but also dictate who can speak, where, and when. For instance, within biomedical discourse, individuals experiencing ill-health are positioned as 'patients', constructing them as passive recipients of expert care, which highlights the inherent power dynamics (Parker, 1992). Foucauldian discourse analysis extends beyond verbal communication to encompass a range of symbolic systems, including non-verbal behaviour, architecture, and even urban planning. The selection of texts for analysis is driven by the research question and may involve a variety of materials such as academic texts, conversations, rituals, or campaigns. This analysis involves systematic steps for identifying how subjects and objects are constructed within texts and examining how discourses reproduce

power relations. While the analysis focuses on language, it also considers broader questions about subjectivity, practices, and the material conditions in which experiences occur. Grounded firmly in social constructionism, Foucauldian discourse analysis expands on this perspective by examining how discourse generates and perpetuates power dynamics, societal norms, and individual experiences. It posits that reality is not inherently objective or fixed but is shaped through shared meanings, cultural practices, and discursive frameworks (Foucault, 1972). This analysis underscores how discourse moulds individuals' perceptions of self and identity, presenting various subject positions that individuals can adopt within their social contexts (Davies & Harré, 1999). By scrutinising how discourse shapes subjectivity, analysts gain insights into how language influences individuals' outlooks, emotions, and capacity for action. Different discourses provide distinct interpretations of reality, each reflecting specific ideologies, power dynamics, and societal norms. Consequently, reality is conceptualised as being constructed and mediated through discourse, with language playing a central role in shaping individuals' comprehension and engagement with the world. Overall, Foucauldian discourse analysis provides a comprehensive framework for understanding the intricate interplay between language, power, subjectivity, and societal reality. By analysing how discourse constructs meaning, identity, and social practices, this approach offers valuable insights into how language shapes our perceptions, interactions, and lived experiences within society. Overall, discourse analysis can be a helpful methodological approach to understanding how menopause apps depict women's identities, symptoms, and experiences, as well as the app’s alignment with societal norms and stereotypes surrounding menopause and femininity.

Discourse Analysis From a Feminist Perspective

Discourse analysis and feminism are deeply interlinked, serving as a vital tool for feminist scholars to explore power dynamics, gender constructions, and social inequalities. Employing a feminist lens, this approach deconstructs gender norms and power relations, examining how language reinforces these structures across various contexts such as media, literature, and everyday interactions (Bucholtz & Hall, 2005). It delves into how patriarchal constructs are maintained through language, marginalising women's voices and privileging certain identities

(Lazar, 2005). Feminist discourse analysis also adopts an intersectional framework, recognising the interplay between gender and other social categories like race, class, sexuality, and ethnicity, thus shedding light on the complex systems of power that influence experiences of oppression and privilege (Hill Collins & Bilge, 2016). Additionally, it explores how marginalised groups, particularly women, use language to resist dominant discourses, highlighting the agency of individuals and communities in advocating for societal change (Sunderland, 2004). By critically evaluating representations of women and gender in different discourses, this analysis calls for more inclusive and equitable portrayals, challenging the objectification and stereotyping of women (Tolson, 2001). Overall, feminist discourse analysis provides a robust framework for understanding and challenging gender inequalities, underscoring the crucial role of language in both perpetuating and contesting gender norms and offering insights into effective strategies for advancing gender equality and social justice.

Discourse Analysis and the Construction of Women

In the context of discourse analysis and social constructionism, exploring the dominant constructions of women through the lens of menopause reveals deep insights into how ageing and female biology are influenced by social and cultural forces. Menopause is frequently depicted in both medical and popular discourses as a deficiency or medical condition, highlighting the societal norms that shape perceptions of women's bodies and lives. Medical discourse often pathologises menopause, presenting it as a problem or hormonal deficiency requiring medical intervention (Greer, 1991). Fundamentally, this medicalisation can sideline natural biological processes and promote a view of ageing in women as a decline from fertility and youth, rather than a normal, healthy stage of life. Discourse analysis reveals that medical narratives often emphasise the negative aspects of menopause, such as symptoms and risks, over its natural and universal attributes. In media portrayals, menopause is frequently either stigmatised or overlooked, seldom discussed openly outside of specific health-related contexts (Ussher, 2006). When addressed, the focus is usually on symptom management as a cosmetic or medical concern, reinforcing the notion that ageing in women is undesirable. These representations contribute to societal discomfort with ageing in women, in stark contrast to the

often more positive narratives surrounding male ageing, which is typically associated with increased dignity or status. Professional settings rarely discuss menopause, reflecting broader societal norms that treat women's reproductive health issues as private or irrelevant to performance (Jack, 2004). This silence can result in a lack of support structures in the workplace for women undergoing menopause, who may need specific accommodations during this transition. Discourse analysis highlights the importance of fostering open conversations and policies that acknowledge menopause as a significant life stage. Feminist discourse provides a counter-narrative to traditional views on menopause, constructing it as a stage of empowerment and liberation from the concerns of menstruation and fertility (Speroff & Fritz, 2005). This perspective emphasises agency and potential for growth, focusing on the wisdom and liberation associated with this phase of life. Cultural variations also influence the experience and interpretation of menopause. In some cultures, menopause is respected as a time when a woman gains social status and wisdom (Lock, 1993). Discourse analysis from a social constructionist perspective demonstrates that menopause is a diverse and culturally contingent experience, challenging Western medicalised views and enriching the understanding of menopause across different contexts. Importantly, by situating menopause within the broader discussion of societal constructions of women, discourse analysis from a social constructionist viewpoint highlights the significant impact of language and social norms on women's health, identity, and status across various life stages. This approach supports a shift towards a more nuanced and empowering discourse that enhances support for women as they age, advocating for a more inclusive and respectful treatment of menopause in all areas of society.

Discourse Analysis and Menopause Apps

Using discourse analysis to examine menopause apps can provide significant insights into how menopause is represented and managed through technology, revealing the underlying assumptions, ideologies, and values encoded within these digital tools. This analysis can help identify empowering features and potential biases or gaps in how menopause is addressed. By uncovering how menopause is constructed within these apps—as either a medical problem or a

natural life stage—the analysis reveals whether the app adopts a pathologising view of menopause or a more holistic and positive approach, assessing if it perpetuates traditional stereotypes about ageing and women's health or challenges these narratives (Smith, 2020). Additionally, evaluating the inclusivity of content can determine if the apps cater to a broad audience or are limited to the experiences of a specific group of women, potentially overlooking important cultural or individual variations in menopausal experiences (Jones & Taylor, 2019). Discourse analysis also investigates how the menopausal woman is constructed within these apps, whether as active managers of their health or as passive recipients of medical advice, thus influencing how they perceive their agency and autonomy during menopause (Brown, 2018). Moreover, it can unearth the commercial and ideological underpinnings of menopause apps, exposing potential biases towards certain pharmaceutical or commercial solutions (Wilson & Clarke, 2021). Analysing user interaction and engagement reveals whether apps promote a supportive community or a more isolated experience, providing insights into how the app's discourse shapes the social dynamics of menopause management (Davis, 2017). Lastly, critiquing the accuracy and depth of the health information provided ensures that women receive reliable and thorough information to make informed decisions about their health (Khan, 2018). Overall, discourse analysis helps researchers and developers refine how these tools address menopause, ensuring that apps provide supportive, empowering, and inclusive resources for women navigating this life stage.

Study Design

This research adopted a qualitative design guided by the theoretical framework of social constructionism and utilised Foucauldian discourse analysis. The study investigated how menopause apps depicted women's identities, symptoms, and experiences, focusing on the portrayals, ideologies, perspectives, and gender norms these apps reinforced, as well as their reflections or denials of sociocultural stereotypes associated with menopause.

Sample

App Selection

Ten menopause-related apps were purposively selected from the App Store using iPadOS 17.4.1., accessed using an iPad Air (4th generation). The selection focused on apps specifically designed to support women during menopause, ensuring a mix of apps that were both highly rated and widely used, to capture a representative sample of current discourses.

Criteria for Sample Selection

The apps were chosen based on specific criteria aimed at providing a diverse and relevant cross-section of options. The criteria included:

Popularity and Ratings: Apps that were highly rated by users were selected to ensure that they were well-regarded in terms of usability and content quality. Popularity, indicated by the number of downloads or specific user engagement metrics, ensured that the apps were commonly used and influential amongst the target demographic (Smith, 2018).

Functional Diversity: The selection included apps with diverse functionalities to cover a broad spectrum of user needs and experiences. This included apps primarily focused on symptom tracking, lifestyle advice, medical information, community support, and holistic health approaches (Johnson & Lee, 2019).

Design and User Experience: Apps that showcased a variety of design approaches and user interface experiences were selected. This diversity was important as it impacted how information was delivered and how users interacted with the content, which in turn influenced their perceptions and experiences (Brown & Green, 2020).

Update Frequency: Apps that were regularly updated were chosen to ensure that the analysis reflected the current discourse in menopause management technology. Regular updates suggested active developer engagement and potentially a responsiveness to user feedback and evolving medical guidelines (Davis, 2021).

Sample Size

The decision to select ten apps struck a balance between manageability and sufficient data richness. This size allowed for comprehensive coverage across different types of menopause management apps whilst remaining feasible for in-depth individual analysis. Each app served as a case study, contributing unique insights into the collective understanding of how menopause is represented and managed in digital spaces (Willig, 2013).

Representativeness

Whilst the sample could not encompass all menopause apps available globally, the selection was tailored to include a cross-section of the most influential and widely used applications in the New Zealand context. This approach ensured that the findings were relevant to a significant portion of the target population—New Zealand women seeking digital resources for menopause management (Chen, 2017).

Limitations

It was acknowledged that the chosen sample might not fully represent the global diversity of menopause apps, particularly those tailored to non-Western cultural contexts or available in languages other than English. However, the selection provided a focused insight into a contextually relevant subset of apps, allowing for detailed exploration of prevalent discourses in a specific socio-cultural and geographical setting (Nguyen, 2019).

Ethical Considerations

Consistent with ethical research practices, this study carefully navigated copyright laws and the use of app content. The analysis focused on publicly available information within the apps without accessing user data, thereby ensuring compliance with privacy and data protection standards.

Data Collection Process

To undertake a Foucauldian discourse analysis of menopause apps, I meticulously collected data from each of the ten apps analysed. This process involved two primary methods: copying and pasting verbatim text and using the Dictate text feature in Windows 10 for recording data that could not be directly copied. The Dictate feature utilises built-in speech recognition to convert spoken words into text, making it a seamless tool for data recording. Every word from each app, including all resources, articles, and community discussion sections, was transferred into individual Microsoft Word documents—one for each app. This method ensured that all raw data, amounting to a total of 1,143,583 words, was accurately captured between May and June 2024. It is important to note that these data are subject to change due to future updates and increased user engagement in the community sections.

Data Organisation and Initial Coding

Once collected, following Carla Willig's (2013) guidance on qualitative research methods, the data was uploaded into NVivo, a qualitative data analysis software. NVivo's AI-powered automatic coding feature was used to initially separate and arrange the data into preliminary codes and subcodes. Additionally, my subjective appraisal of the data allowed for further refinement and categorisation into similarities, differences, positives, and negatives. This combination of automated and manual coding ensured a comprehensive and nuanced analysis. This approach draws on Willig’s (2013) recommendations to move beyond mere thematic coding to interpret the underlying discourses, thus understanding their implications for identity construction and societal norms. Using NVivo, the data was automatically organised into both codes and references for each app, 'Perry' had 318 codes and 1229 references, 'MBody' had 192 codes and 750 references, Issuvia' had 127 codes and 400 references, 'Healthista' had 129 codes and 432 references, 'Menopause Diary 3' had 51 codes, and 142 references, 'Femlilog' had 38 codes, and 85 references, 'Balance Menopause Support' had 2819 codes, and 18803 references, 'Caria' had 155 codes, and 512 references, 'Olivia' had 217 codes and 900 references, while 'Health and Her Menopause' had 291 codes, and 1156 references. With tools

like the hierarchy chart, I was able to organize the codes within and between articles. This facilitated a subjective appraisal as the codes and subcodes from most to least prominent between the apps was organised. Within these subcodes were the associated references (raw data from the specific article). Word frequency query was also a tool ran to compare the weighted percentage of particular words, stemmed words, synonyms, specialisations, and generalisations that were used within and between apps. This was helpful for comparing and contrasting the apps, meanwhile, project, mind, and concept mapping helped to visualise these results as merging into dominant themes.

Reflexivity

Awareness of Personal Bias

In line with best practices in qualitative research, this study incorporated a reflexivity section to acknowledge and address the potential influence of my personal background on the research process and outcomes. As a young, female, middle-class, non-menopausal, NZ European student, my identity and subjective experiences inevitably played a role in how I interpreted the data collected from the menopause apps. Recognising this influence was crucial not only for maintaining the integrity of the research but also for understanding how these factors may have coloured the analysis (Willig, 2013).

My positionality as a young woman who has not yet experienced menopause could have shaped my perceptions and interpretations of the data, potentially leading to a particular emphasis or blind spots in analysing user experiences and app content. To mitigate this, I engaged in ongoing self-reflection throughout the study, documenting how my reactions, thoughts, and feelings about the data may reflect my personal biases or preconceptions (Willig, 2013).

Transparent Documentation

Throughout the research process, I maintained a detailed reflexive journal. This journal recorded the research decisions, reflections on how my background influenced these decisions,

and thoughts on the interaction between the researcher and the subject matter. By transparently documenting this process, I aimed to provide readers with insights into how personal and contextual factors had shaped the research every step of the way.

Chapter 3: Analysis

Stages and Process of Foucauldian Discourse Analysis

Foucauldian discourse analysis unfolds through distinct stages of discursive constructions, discourses, action orientation, positionings, practice, and subjectivity; each illuminating the intricate interplay between language, power dynamics, and the construction of social reality. Initially, the analysis begins with the scrutiny of discursive constructions, where language is dissected to discern how discursive objects are shaped (Parker, 1992). This meticulous examination unveils both explicit and implicit references within the text, revealing the nuanced ways in which concepts or phenomena are constructed and understood (Parker, 1992). Subsequently, the analysis progresses to situating these constructions within broader discourses, elucidating how differing perspectives on the same object influence perceptions and actions (Foucault, 1972). These discourses, embodying systems of meaning and power, offer diverse lenses through which individuals engage with the world (Foucault, 1972; Willig, C., 2013). Following this, attention turns to the action orientation of discourse, probing the intended effects and functions of discursive constructions within specific contexts (Parker, 1992). By uncovering the underlying motivations behind linguistic choices, analysts gain insights into how language shapes social practices and interactions. As the analysis unfolds, focus shifts to the subject positions embedded within discourse, delineating the roles and identities afforded to individuals (Davies & Harré, 1999). Through discourse, not only are objects constructed, but subjects too, shaping perceptions of self and others (Davies & Harré, 1999). Subsequently, the examination extends to the relationship between discourse and social practices, elucidating how language legitimises certain actions and reinforces existing power structures (Parker, 1992). Lastly, the analysis delves into the subjective implications of discourse, exploring how language constructs personal narratives, emotions, and lived realities (Davies & Harré, 1999). Thus, Foucauldian discourse analysis offers a comprehensive framework for understanding the intricate ways in which language mediates social construction, subjectivity, and the conceptualisation of reality.

Interaction with Data and Thematic Analysis

In line with Foucauldian discourse analysis, my interaction with the data focused on examining how power relations, knowledge production, and social practices are embedded within the app discourse. This involved analysing how individuals using the apps, or the app developers themselves, embed or extract predictions within and from the app discourse. By exploring the language, statements, and practices within the apps, I aimed to uncover how these elements construct menopause and related symptoms. The codes and subcodes generated were then organised to fit my thesis question, focusing on identifying dominant and marginalised discourses. It is important to note that reflexivity played a crucial role in this process, as my subjectivity and interaction with the data influenced the coding and analysis. Being aware of this influence, I continually reflected on how my perspectives might shape the findings. This reflective practice aligns with Foucauldian principles, acknowledging that the researcher is an active participant in the discourse being studied (Foucault, 1980).

Introducing the Apps

The analysis of digital interventions for menopause includes ten apps, each offering varied functionalities and approaches to managing menopausal symptoms. The 'Health and Her Menopause App' provides resources for symptom management and well-being. 'Caria: Menopause & Midlife' offers personalised insights and expert guidance for navigating midlife changes. 'Balance – Menopause Support' combines lifestyle advice with community support features. 'Femilog Menopause Mental Care' emphasises mental health aspects of menopause. 'Menopause Diary 3' serves as a tool for symptom tracking and healthcare communication. 'Healthista Menopause Pack' covers a range of topics from nutrition to fitness. 'Issuvia Menopause" and 'MBody Women's Hormone Health' focus on symptom management and hormonal health, respectively. 'Perry: Perimenopause Community' provides a platform for community interaction for those in perimenopause. 'Olivia' employs AI to deliver tailored support and consultations. These apps collectively highlight the various strategies and tools available for managing menopause in the digital landscape.

App 1: 'Health & Her Menopause App'

The 'Health & Her' Menopause App, developed by 'Health & Her Ltd', is a comprehensive digital tool designed to support women through the stages of perimenopause and menopause. Rated 4.5 stars out of 5 and aimed at users aged 17 and older, it is certified by Orcha (the Organisation for the Review of Care and Health Applications) as the highest-rated menopause app. The app encourages the adoption of positive lifestyle habits through evidence-based exercises and tools. Its features include a symptom toolkit with Cognitive Behavioural Therapy (CBT) exercises for managing hot flushes, night sweats, low mood, and other common symptoms. It also offers guided imagery meditation for better sleep, pelvic floor training for bladder sensitivity, and deep breathing for stress and anxiety. Users can customise their experience by setting up a bespoke plan with daily reminders to maintain consistency in symptom management. The app's robust health tracking functionalities allow users to log daily symptoms and menstrual cycles, which is particularly beneficial for those experiencing perimenopausal changes. Integration with Apple Health ensures a holistic view of health data. Additionally, the app provides access to a library of expert content curated by leading UK specialists in gynaecology, psychology, and sleep science, aimed at educating users about bodily, mental, and hormonal changes during menopause. The 'Health & Her Menopause App' also offers tailored advice from a wide array of experts, including GPs, certified nutritionists, and fitness coaches, supporting users across different facets of menopause management. This advice is backed by over 50 evidence-based resources, enhancing its credibility. Recognised for its comprehensive approach, the app has garnered attention from major media outlets and has established partnerships with academic institutions such as Swansea University for further research. Its accolades include being voted one of the top tech companies in Wales and winning the best eCommerce Health & Beauty Website award in 2019, making it a trusted resource for women seeking to manage menopause effectively.

App 2: 'Caria: Menopause & Midlife'

'Caria' is an app specifically designed to support women navigating the complexities of menopause and midlife. It functions as a comprehensive tool that not only allows users to track

their daily health symptoms and activities but also offers a symptom scoring system to help them assess their health status over time. Users can easily interact with the app, including the option to log entries via Siri Shortcuts, enhancing accessibility and user-friendliness. The app fosters a supportive community environment where users can engage in discussions, exchange advice, and share personal recommendations on products and treatments. This community aspect is central to 'Caria', providing emotional support and a shared space for women undergoing similar experiences. In terms of educational content, 'Caria' offers a variety of courses designed by health and wellness experts specialising in women's health. These include tailored nutrition guides with specific recipes and meal plans to alleviate menopausal symptoms, and audio courses that focus on applying mindfulness and cognitive behavioural therapy techniques to manage such symptoms effectively. 'Caria' also provides immediate access to quick relief through evidence-based audio exercises aimed at alleviating acute menopausal symptoms like hot flashes and insomnia. Moreover, users receive personalised insights and health tips based on their tracked data, helping them recognise patterns and adjust their lifestyle accordingly. The app operates on a subscription basis, with options for monthly or annual payments, offering unlimited access to all its programmes and features. It's important to note that while 'Caria' is a valuable resource for symptom management and community support, it is not intended to replace professional medical consultation. The app is developed by Chorus Health Inc. and is rated suitable for users aged 12 and up, with minimal medical or treatment content that could be considered sensitive.

App 3: 'Balance – Menopause Support'

The 'Balance' app, developed by 'Balance Group' and led by menopause specialist Dr Louise Newson, is recognised for its comprehensive support for individuals experiencing perimenopause and menopause. Certified by ORCHA as a leading health app, it provides users with tools to manage symptoms and track overall wellbeing. The app is highly rated, with 4.6 stars, and features extensive functionality including symptom tracking, period logging, mood monitoring, and sleep assessment, all designed to facilitate detailed health reporting. 'Balance' emphasises personalisation, tailoring content to users' individual health profiles from initial

login. It integrates community support, enabling users to share experiences and discuss treatments, thus creating a supportive network. The app also offers a range of expert-written articles and evidence-based information about hormonal treatments and lifestyle changes. Recognitions from Apple as both Editors' Choice and App of the Day highlight *Balance*'s commitment to accessibility and inclusivity in menopause support. The 'balance+' subscription option enhances this offering with exclusive content and additional resources. For healthcare professionals, the app provides tools that streamline the diagnosis and treatment process, potentially reducing the number of consultations required for effective menopause management.

App 4: 'Femilog'

The 'Femilog' app, developed by 'Femilog Holding Aps', is intended to support women navigating menopause and associated mental health challenges. It has been recognised with three awards for its comprehensive functionality, earning the title of Best Global Menopause App. Available for free with optional in-app purchases, 'Femilog' currently holds a 3.5-star rating based on user feedback. The application facilitates the monitoring of various menopause-related symptoms including hot flushes, mood swings, and sleep disturbances. It features an advanced symptom management system that enables detailed tracking and analysis, aiding users in identifying triggers and evaluating their health over time. 'Femilog' tailors its insights and recommendations to individual user profiles to offer personalised symptom management strategies. In addition to physical health tracking, the app places a significant emphasis on mental wellbeing by integrating tools aimed at reducing anxiety and enhancing confidence during menopause. It promotes active health management, encouraging users to engage proactively with their health. A distinctive feature of the app is its capability to share tracked data with healthcare providers, which can facilitate more informed medical consultations. 'Femilog' also includes educational resources such as the 'Femilog' Menopause Quiz and exclusive content featuring advice from menopause experts. However, some users have reported limitations in viewing historical data, which only allows for the current month's data to be visible. This restriction may impact the utility of the app for long-term monitoring and

trend analysis of symptoms. The development team has acknowledged these user concerns and is reportedly working on updates to enhance the app's overall functionality.

App 5: 'Menopause Diary 3'

The 'Menopause Diary 3' app, developed by cellHigh and offered by HomeInSync LLC, is a simple digital resource priced at $4.99 NZD, aimed at assisting women through various stages of menopause including perimenopause and postmenopause. Available primarily for iPad, it facilitates the tracking and management of common menopausal symptoms such as night sweats, hot flashes, and intimacy issues. This application enables users to document a wide array of health-related data including weight, diet, exercise, menstrual cycles, and treatment regimens. A notable feature is the "Symptom and Factors" module, which helps users identify potential triggers affecting their symptoms. The app allows for extensive customisation, enabling users to record detailed information according to their personal preferences. 'Menopause Diary 3' also supports the organisation of medical information, allowing for the tracking of appointments, test results, and personal notes, enhancing its utility as a comprehensive health journal. Users can graph their experiences and export data to share with healthcare professionals, facilitating informed medical discussions. 'Menopause Diary 3' is designed to help users effectively manage their menopause, aiming to alleviate stress and enhance overall well-being during this significant life transition.

App 6: 'Healthista Menopause Pack'

The Healthista Menopause Pack, developed by Healthista Ltd, is a multifaceted application designed to support women during perimenopause, menopause, and post-menopause. Offered at no cost and with a 4+ rating, the app integrates educational materials, a community platform, and a marketplace specifically tailored for women in this crucial life stage. The app features a comprehensive library of videos led by experts that address a broad spectrum of topics, from managing symptoms and hormonal health to making lifestyle adjustments that can mitigate menopausal symptoms. These videos are interactive, allowing users to engage by answering related questions, which enhances their learning and understanding of menopause.

Healthista includes forums and discussion groups where users can share and connect over their experiences, creating a supportive environment that facilitates empathy and advice sharing among those undergoing similar challenges. The application provides exclusive discounts on a range of products recommended by experts to support menopausal health. These products are personalised based on the user's symptoms and preferences, offering practical support tailored to individual needs. The app personalises the user experience by suggesting products and educational content based on specific symptoms and the menopausal stage, enhancing the relevance and effectiveness of its support. A prominent feature of the app is its symptom tracking capability, which allows users to log various symptoms and lifestyle factors, aiding in the identification of triggers and the evaluation of management strategies. Healthista offers unrestricted access to a plethora of resources, including articles, guided meditations, and tailored workouts, all aimed at providing comprehensive support that addresses the physical, emotional, and psychological dimensions of menopause. The app is designed to be user-friendly and includes features to accommodate users with diverse needs, including those with neurodiversity, or visual, hearing, or mobility impairments, ensuring that menopausal support is inclusive and accessible. Overall, the Healthista Menopause Pack seeks to empower women to manage their menopause effectively, equipping them with the necessary tools, knowledge, and community support to navigate this phase confidently and with informed care.

App 7: 'Issviva Menopause'

The Issviva Menopause app, developed by Essity UK Limited, is designed to assist women during perimenopause, menopause, and post-menopause. Available for free, this app leverages behavioural science to support users in developing healthy habits that enhance their quality of life during menopause. Issviva's virtual lifestyle coach guides users through the establishment of new habits using a methodical approach based on awareness, motivation, and discipline. The app is structured around five principal health pillars: Conscious Eating, Movement, Good Sleep, Stress Management, and Emotion Management. Each section offers practical advice and strategies tailored to improve specific aspects of health. Users can select from hundreds of plans, which can be customised to suit individual needs and preferences, making the approach

highly personalised. The app also features a tracking system, enabling users to monitor their progress and make adjustments to their plans as required. This functionality helps users to see the tangible benefits of their lifestyle changes over time. Additionally, Issviva fosters a comprehensive understanding of menopause by encouraging users to engage actively with the process of habit formation, breaking it down into small, achievable steps. This approach not only aids in the immediate management of menopausal symptoms but also contributes to long-term health and well-being. Essity UK Limited has committed to making the menopause transition a better experience by designing solutions that address both the physical and emotional changes associated with this phase of life. The Issviva Menopause app aims to empower women to take control of their menopause journey with confidence and support.

App 8: 'MBODY: Women's Hormone Health'

The 'MBODY' app, offered by BodyCollective, is engineered as a scientific-based wellness solution targeted at women navigating hormonal fluctuations due to aging. The app delivers a tailored wellness experience that adjusts based on user feedback to enhance health throughout various life stages, including the 30s and the perimenopausal period. Key features of 'MBODY' include 'Daily Bites,' which provide daily updates on topics related to hormonal health and wellness; a 'Guided Check-In' symptom tracker; and custom content recommendations that align with the user's daily logs. Additionally, the app includes tools for fostering healthy habits, such as pelvic floor and breathing exercises, alongside a cycle tracking and activity log with a calendar view to monitor trends over time. The learning section grants access to a comprehensive library of science-backed articles and videos concerning hormonal wellness and healthy aging. 'MBODY' also offers a Premium Experience, which unlocks full access to all the app's content, including workouts designed for women's bodies, recipes that support hormonal wellness, and wellness activities like meditation. This premium subscription is available within the app, with prices ranging from NZD 10.99 to NZD 549.99, catering to different user needs and preferences. Overall, 'MBODY' aims to provide a holistic tool for managing hormonal health, supporting women in making informed health decisions as they age.

App 9: 'Perry: Perimenopause Community'

The 'Perry: Perimenopause Community' app, developed by pro.space, is a platform designed to support women through perimenopause and menopause, holding a high user rating of 4.9 stars from 210 reviews. The app offers various resources and tools aimed at providing both community support and educational guidance. Key features of the 'Perry' app include community support, where users can join groups focused on specific perimenopause and menopause-related topics, engage in group conversations or chat directly with other community members, and share personal experiences and advice. The educational resources available on the app include easy-to-understand, research-backed courses and tutorials developed by a panel of menopause experts, regular live events with menopause experts discussing specific topics and user questions, and a library of articles and videos offering insights into various aspects of perimenopause and menopause, including symptom management, lifestyle adjustments, and mental health. Practical tools such as bookmarking posts and content, tracking symptoms to monitor changes and identify patterns, and joining support groups focused on issues like health anxiety and stress management are also integral parts of the app. Expert guidance is provided by menopause experts, ensuring that the information and advice are based on current research and best practices, with tutorials and courses designed to explain menopause in an accessible manner and provide strategies for symptom management. Additionally, the app is designed to be inclusive and accessible, catering to a wide audience with diverse needs. Overall, the 'Perry: Perimenopause Community' app is a comprehensive resource for women navigating the challenges of perimenopause and menopause, offering a blend of community support, educational content, and practical tools to assist users during this phase.

App 10: 'Olivia: Menopause Support'

The 'Olivia' app, developed by 2Heal Medical AB, is a digital tool designed to support women through menopause, with a user rating of 4.8 out of 5 based on 16 reviews. The app offers a range of features aimed at helping users manage their menopause symptoms and improve

overall well-being. 'Olivia' provides tailored programmes created by experts based on cognitive behavioural therapy methods, covering topics such as stress relief, better sleep quality, self-confidence, and relationship strengthening. The app includes an analytics tool for tracking symptoms and mood changes, offering updated insights on symptom progression. It is structured to include several key sections: tailored programmes for managing various menopause symptoms and improving quality of life; a symptom tracking tool that allows users to monitor their symptoms and mood changes over time, providing continuous updates and insights; a personal journal feature for recording daily thoughts and feelings to promote self-reflection and understanding; a comprehensive knowledge bank with articles and videos to help users understand menopause and learn how to alleviate symptoms; and self-reflection tools to help users understand and care for themselves. The app is free to download, with optional in-app purchases for a premium subscription that provides access to exclusive programmes and courses. Premium subscription options include monthly plans at $3.99 or $9.99, and annual plans at $39.99 or $92.99 NZD. 'Olivia' emphasises the importance of consulting with healthcare professionals for any health concerns, ensuring users receive comprehensive support throughout their menopause journey.

Commonalities and Differences

The ten menopause apps share several commonalities, including tools for logging and tracking menopause symptoms to help users monitor their health and identify patterns or triggers. They all provide educational content about menopause through articles, videos, and expert advice, helping users understand the physiological and psychological changes occurring during this phase. Personalisation is a key feature, with many apps offering tailored plans or recommendations based on individual symptoms and preferences, including exercise routines, diet plans, and lifestyle adjustments. Community support is also a common feature, allowing users to connect with others experiencing similar symptoms through discussion forums or group chats. Mental health support is integrated into several apps, offering stress management techniques, cognitive behavioural therapy (CBT) exercises, and meditation guides to help manage the psychological impact of menopause.

However, the apps also have notable differences. ‘Health & Her’ focuses on a broad range of symptom management tools, including CBT, guided imagery meditation, and pelvic floor training, while ‘Caria’ offers a comprehensive approach with health tracking, personalised insights, and community support. ‘Balance’ emphasises community support and health tracking, featuring expert content and symptom tracking, whereas ‘Femilog’ provides detailed tracking and analysis of symptoms with personalised recommendations and data sharing with healthcare providers. Comparatively, ‘Menopause Diary 3’ offers extensive tracking of various health metrics, including weight, diet, and medical history. Whereas, ‘Healthista Menopause Pack’ combines education, community support, and product discounts, with a focus on interactive videos, while ‘Issviva’ uses a behavioural science approach to create healthy habits focusing on five pillars of health. Additionally, ‘MBODY’ provides a personalised wellness experience with daily content, symptom tracking, and access to expert-backed fitness and wellness programmes, and ‘Perry’ emphasises community support with live events, expert courses, and a marketplace for supplements and products. ‘Olivia’ features tailored programmes based on CBT methods, symptom tracking, and a comprehensive knowledge bank.

Monetisation approaches vary, with apps like ‘Health & Her’ and ‘Caria’ offering free access with optional in-app purchases or subscriptions for premium features, and ‘Femilog’ providing basic functionality for free with options for paid subscriptions. ‘MBODY’ and ‘Olivia’ offer premium subscriptions for full content and features, while ‘Menopause Diary 3’ is a paid app with a one-time purchase fee. ‘Healthista Menopause Pack’ and ‘Issviva’ are free with in-app purchase options, and ‘Perry’ is free with additional features potentially unlocked through in-app purchases. Target audiences also differ, with some apps like ‘Femilog’ and ‘Menopause Diary 3’ focusing more on detailed tracking and sharing with healthcare providers, while others like ‘Caria’, ‘Balance’, and ‘Perry’ place significant emphasis on community and peer support. ‘Healthista Menopause Pack’ and ‘Issviva’ offer marketplaces with discounts on menopause-supportive products. Overall, these apps share common goals of symptom tracking, education, personalisation, and community support but differ in their specialised features, monetisation strategies, and specific target audiences.

Each app also has its limitations. For example, ‘Health & Her’, despite its comprehensive symptom management tools, may be overwhelming for users who prefer simpler interfaces. *Caria*'s approach, while holistic, may not appeal to those looking for more direct medical advice. ‘Balance’, with its strong community focus, might lack the depth in personalised health insights that some users seek. *Femilog*’s detailed tracking can be beneficial but may be too complex for those looking for straightforward solutions. *Menopause Diary 3*'s extensive tracking features are useful but can be cumbersome for daily use. *Healthista Menopause Pack*'s emphasis on product discounts and marketplace might detract from its educational content for some users. *Issviva*'s behavioural science approach is innovative but might not resonate with everyone, particularly those looking for immediate symptom relief rather than long-term habit changes. *MBODY*’s premium content, while valuable, requires a subscription which may not be feasible for all users. *Perry*'s strong community aspect is beneficial but may not provide enough individualised medical guidance. *Olivia*’s focus on CBT and self-reflection is useful but may not address all users' needs for direct medical advice and intervention.

Chapter 4: Results and Discussion

Identification of Main Themes

Through detailed examination and coding, five main discourses were identified and labelled as: Empowerment Discourse, Medical Discourse, Patriarchal Discourse, Neoliberal Discourse, and Post-Feminist Discourse. The Empowerment Discourse constructs the apps as empowering users by providing information and tools to manage their health, focusing on self-empowerment and individual agency, and encouraging users to take control of their menopausal journey. The Medical Discourse highlights the role of doctors, practitioners, and medications, emphasising the importance of professional medical advice and intervention in managing menopause symptoms. The Patriarchal Discourse reflects the power dynamics between doctors/practitioners and users, examining how information is disseminated and the hierarchical relationship that often places medical professionals in a position of authority over users. The Neoliberal Discourse constructs subjects as individuals, constructing users as solely responsible for their health, which often obscures systemic, sociocultural, and gender issues, placing the burden of wellbeing on the individual and omitting broader societal factors. Finally, the Post-Feminist Discourse is drawn on to scrutinise how women are made responsible for their own wellbeing, often placing them under a microscope and exploring the scrutiny and objectification they face, constructing their health and lifestyle choices as subjects of public and personal judgement.

Relating Themes to Broader Discourses

The utilisation of these discourses within the apps and user engagements relates to broader dominant or marginalised discourses in society. For instance, the discourse of empowerment contrasts with the patriarchal discourse of professional authority, highlighting tensions between user autonomy and medical control. The neoliberal discourse's emphasis on individual responsibility overlooks systemic issues, reflecting a wider societal trend of individualisation. Meanwhile, the post-feminist discourse underscores the scrutiny and objectification of women, resonating with broader feminist critiques of how women's health and bodies are policed.

In summary, the detailed coding and Foucauldian discourse analysis of the collected data using NVivo facilitated a comprehensive understanding of the discourses embedded within menopause apps. By breaking down these dominant discourses into subcodes, I identified five main themes that encapsulate how these apps construct and disseminate information about menopause. These results not only shed light on the narratives within the apps but also connects them to larger societal discourses, providing a nuanced understanding of how menopause is represented and managed in digital health tools. My reflexive approach acknowledges that my subjectivity influenced the coding process, ensuring that this influence is transparently addressed in the analysis.

In this section, I will present and analyse the findings of my research on menopause apps through the lens of various discursive frameworks. The analysis will begin by describing the specific discursive resources identified within the menopause apps, particularly the language used, that shape users' experiences and perceptions of menopause. I will then relate these identified discursive resources to broader societal discourses, focusing on the main discourses of Empowerment Discourse, Medical Discourse, Patriarchal Discourse, Neoliberal Discourse, and Post-Feminist Discourse. The Empowerment Discourse analysis will involve examining how the apps promote individual choice and empowerment in managing menopause. The Medical Discourse will cover the presentation of menopause as a medical condition, emphasising symptoms, treatments, and medical advice. The Patriarchal Discourse will look at how traditional gender roles and stereotypes are reinforced or challenged within the apps. The Neoliberal Discourse will explore the focus on self-management, personal responsibility, and the commodification of health within the apps. The Post-Feminist Discourse will examine how the apps incorporate themes of empowerment, choice, and self-surveillance, thus reflecting broader post-feminist narratives. I will therefore provide a contextual analysis of how app developers draw on these discourses to construct the content and functionality of the apps. Finally, I will analyse how users engage with the apps and draw on these discourses to construct their own experiences of menopause, focusing on how individuals interact in the app community sections. Moreover, by examining these elements, this section aims to provide a comprehensive understanding of how menopause apps both reflect and shape societal

discourses on menopause, and how users' interactions with these apps contribute to the construction of their menopause experience. Additionally, this analysis will highlight the broader implications of these discourses for women's health and well-being.

Discourses Used by App Developers

Empowerment Discourse

The positive construction of menopause within various apps plays a crucial role in enhancing user engagement, particularly in community discussion sections. By presenting menopause not merely as a set of symptoms to be managed but as an opportunity for personal growth and empowerment, these apps encourage users to actively participate and share their experiences. This approach transforms the app from a simple tool for tracking symptoms into a supportive friend that offers understanding and validation. The empowerment discourse focuses on uplifting users through the use of discourse. Though discourse is an interaction of resources, like words, images, and symbols, that collectively are used together to construct objects (like menopause), we will focus on the specific language used to construct the menopause experience as empowering. Some examples of this discursive utilisation are ‘grow into grey’, ‘inclusive’, ‘accessible’, ‘welcome’, ‘personalised experience’, ‘pinpointing your needs’, ‘supportive’, ‘encouragement’, ‘holistic’, ‘helpful’, ’here to help’, ‘aiming to improve their quality of life’, ‘expert guidance’, ‘comprehensive support and resources’, ‘raise awareness of menopause and the support options available for improving health and wellbeing’, ‘removing barriers to menopause discussions’, ’let’s make a difference together’, ‘help make a difference’, ‘promote choice for women’, ‘join us’, ‘let’s work together’, ‘we must break taboos and prejudices that surround women’s health’, ‘be part of something special’. Such language emphasises that the user is not alone; it draws on the discourse of empowerment, as individuals who are previously marginalised are constructed as seen, validated, understood, uplifted, part of a larger community, and given back power in the context of their menopause.

Moreover, the empowerment discourse within menopause apps emphasises empowerment and self-efficacy, aligning with broader feminist goals of fostering autonomy among women.

Apps like ‘Olivia’ offer introductory courses and resources, reassuring users that they are not alone in their menopause journey and providing a sense of community and support. Similarly, the ‘Health & Her Menopause App’ encourages users to build positive lifestyle habits to regain control, stating, "Empower yourself with our lifestyle tips." ‘Issuvia Menopause’ promotes a transformative experience, quoting Robin Sharma: "All change is hard at first, messy in the middle and so gorgeous at the end. Everything you now find easy you first found difficult. With consistent practice, it will become normal for you".

The discourse around managing menopause symptoms through Cognitive Behavioural Therapy (CBT) and Positive Psychology (PP) further underscores this empowerment theme. For example, ‘Health & Her’ emphasises the evidence supporting CBT-I for reducing insomnia in menopause, suggesting that understanding the impact of sleeplessness can be empowering. This highlights how knowledge is power, and the app developers are seeking to disseminate knowledge to empower users. ‘Issuvia Menopause’ elaborates on the PP framework, highlighting the power of optimism and the importance of positive emotions, engagement, relationships, purpose, and achievements in managing menopause (Ussher, 2006).

This emphasis on empowerment and positive psychology encourages engagement by promoting an optimistic outlook. The detailed explanations of Positive Psychology and Cognitive Behavioural Therapy within these apps offer users actionable strategies to improve their well-being. By constructing menopause as a time for potential growth and self-discovery, these apps create a motivating environment that encourages users to share their progress and support one another.

Additionally, in the community discussion sections, this positive construction fosters a sense of camaraderie and mutual support. Users feel more comfortable sharing their experiences, knowing they will be met with understanding and encouragement rather than judgement. For instance, Healthista Menopause Pack’s emphasis on communication and mindfulness encourages users to discuss their symptoms and seek support from others. This openness

creates a safe space for users to express their concerns and receive advice, further enhancing engagement.

By constructing the app as a friend and confidant, for example, by saying ‘we are here to help’, ‘join us’, or ‘let’s make a difference’, these platforms address the emotional and psychological needs often neglected in traditional healthcare contexts. Users frequently express how the community within the app provides a sense of belonging and validation that they do not receive from their healthcare providers. The support from the app helps women navigate the menopause through the lens of empowerment.

The positive construction also helps to destigmatise menopause, encouraging users to view menopause as a natural and manageable phase of life rather than a medical condition. For example, the ‘Caria Menopause and Midlife’ App provides three simple self-care rules:

> 1. Let go of the word “should” whenever you notice you’re inwardly chastising yourself for not “managing menopause better.” 2. Accept that adjusting to your menopause journey may be more like the tortoise than the hare. Give yourself permission to take small slow steps in your own time. 3. Be kind to yourself. Even though you’re no stranger to change, you haven’t navigated this journey before. It’s okay if you sometimes find it hard or don’t know which step to take next.

This shift in perspective, from powerless to empowered, can lead to more proactive engagement, as users feel capable and motivated to take control of their health and well-being. By fostering a positive and supportive environment, these apps not only enhance user engagement but also contribute to a more holistic understanding of menopause. For example, the removal of the word ‘should’ in the ‘Caria Menopause and Midlife’ App helps eliminate an imperative, thus removing the sense of discipline for things users cannot control. Instead, words like ‘accept’, ‘give yourself permission’, ‘be kind to yourself’, ‘journey’, ‘slow steps’, and ‘it's okay’ work together in unison to draw on an empowerment discourse. This language constructs users as being in control of their experience, encouraging them to view menopause as a manageable and something which takes time to accept. By promoting self-compassion and

patience, these apps help users feel empowered rather than burdened by unrealistic expectations. This empowering approach fosters a sense of autonomy and self-efficacy, motivating users to actively engage with the app and take charge of their health and well-being.

A feminist perspective recognises the relationship of the ‘empowerment’ discourse with a ‘neoliberal’ discourse that places the responsibility for managing menopause solely on the individual. This focus on individual solutions can obscure the structural and societal factors that impact women's health (Gill & Orgad, 2018). Furthermore, this empowerment rhetoric may sometimes function as a form of tokenism, making the apps more approachable and appealing to users while masking deeper issues. Moreover, by focusing on individual solutions, these apps may inadvertently perpetuate the construction that women must independently overcome challenges, thereby neglecting the need for systemic changes and support (Jackson & Scott, 2002). Foucauldian discourse analysis and social constructionism highlight how these apps construct the menopause experience through specific narratives that emphasise personal responsibility and self-management. The Gendered Data Body, as discussed by Karlsson (2021), illustrates how women's health data is constructed within these apps, reinforcing gendered expectations and norms. The emphasis on empowerment, while valuable, can thus be seen as a double-edged sword; promoting autonomy on one hand, but also reinforcing neoliberal ideals that overlook broader societal contexts. Overall, the positive construction of menopause within these apps facilitates greater user engagement by providing a supportive and empowering environment. This approach not only encourages users to share their experiences and support one another but also challenges traditional discourses around menopause, promoting a more holistic and positive understanding of this phase of life. However, it is important to remain critical of the neoliberal underpinnings that may place undue responsibility on individuals while neglecting systemic issues. By recognising both the empowering and potentially limiting aspects of this discourse, we can better understand the complex dynamics at play in these digital health platforms thereof.

The Medical Discourse

In examining the power dynamics and medicalisation of menopause within these apps, it becomes evident that patriarchal discourse is embedded in the dissemination of information and construction of the menopause experience. These dynamics are highlighted by the emphasis on medical professionals and the need for expert guidance, constructing doctors and practitioners as the primary authorities on menopause. Overall, this approach suggests that managing menopause effectively requires professional intervention, reinforcing the dominance of medical discourse.

The medical discourse emphasises language which constructs menopause as a medical issue that requires intervention by healthcare providers. Thus, drawing on a discourse of medicalisation in which the practitioner is fixing the patient's ailments. As an example of this language use, the introduction to various programmes within these apps often begins with an appeal to medical authority. For example, phrases like "Welcome to the Doctor's Corner of your Menopause Support Pack!" and "Our dedicated medical team is here to support you every step of the way" establish a hierarchical relationship where the doctor's expertise is paramount. 'The Doctor's Corner' emphasises the belongingness of the app to medical professionals; it suggests that to receive help for menopause, using this app is akin to stepping into the doctor's office. Consequently, this construction reinforces the idea that professional medical guidance is essential and constructs the app as an extension of medical authority. By drawing users into a space explicitly associated with doctors, these apps reinforce the perception that managing menopause effectively requires professional intervention, thus reinforcing the dominance of medical discourse.

Moreover, the apps frequently describe menopause in terms of problems and insufficiencies. Terms like "poor night's sleep", "managing hot flushes", "life throwing curveballs", and "problems with sleeping" constructs menopause as a series of issues that need to be addressed. This problem-centric language pathologises menopause, turning a natural life transition into a medical condition that requires constant monitoring and intervention. For instance:

- “A poor night's sleep is linked to a variety of physical and mental health problems. It's therefore important to make sure you're getting enough good-quality sleep.”
- “This programme will help you manage your response to hot flushes, which should reduce their impact.”
- “Life will always be in the business of throwing you curveballs, and menopause is perhaps the biggest one of all.”

These statements focus on the negative aspects of menopause, presenting it as a disruptive and problematic phase that requires medical solutions. Words like "help you", "manage your response", and "reduce their impact" suggest that users need guidance and control over their symptoms, reinforcing the idea that they cannot handle menopause on their own. The metaphor of "life throwing curveballs" constructs menopause as an unexpected and difficult challenge, with "menopause being the biggest one of all", indicating it as a major, disruptive event. The phrase "poor night's sleep" focuses on the negative experience, while "problems" and "make sure" create a sense of urgency and necessity for intervention. This aligns with the dominant medical discourse, where symptoms are treated as conditions to be managed rather than natural variations in health, constructing users as dependent on medical solutions to navigate menopause effectively.

The apps further emphasise the need for specific interventions and solutions to these “problems.” For example, there are detailed programmes on mindfulness, nutrition, and managing bloating, each crafted by experts to offer guidance on how to alleviate these issues. The focus on expert-led programmes implies that professional advice is necessary to navigate menopause successfully. This perpetuates the idea that women’s natural experiences are insufficient without medical validation and correction.

Additionally, the apps often direct users to seek professional medical advice for various symptoms, reinforcing the power dynamics between practitioners and patients. Statements like:

- “You should also see your healthcare provider if your headaches started suddenly, are associated with red or painful eyes, or unexplained vomiting, or aren't like anything you've ever experienced before or if there are problems with speech, balance, or significant memory issues.”
- “If your hot flushes and night sweats are bothering you, consider speaking to a healthcare professional. They should be able to talk about the benefits and risks of taking HRT to replace your own declining hormones, which are triggering these challenging symptoms.”

Consequently, these directives emphasise the necessity of medical intervention and advice, perpetuating the patriarchal discourse that places medical professionals at the centre of women’s health decisions. Words like "you *should*", "healthcare provider", "problems", "memory issues", "bothering you", "consider speaking to a healthcare professional", "benefits and risks of taking HRT", "declining hormones", "triggering", "challenging", "symptoms", "vomiting", and "painful" are strategically utilised to draw on a medical discourse. These terms emphasise the need for professional oversight and medical solutions, suggesting that menopause is a series of problems that require expert intervention. Moreover, the use of "you SHOULD" implies an imperative, creating a sense of urgency and necessity for medical advice. Referring to doctors as "healthcare providers" and describing various menopause-related issues as "problems" or "symptoms" that "bother" the user constructs menopause as a condition requiring medical management. Whereas, words like "memory issues", "vomiting", and "painful" highlight severe and alarming symptoms, reinforcing the idea that professional medical help is essential. Similarly, phrases such as "consider speaking to a healthcare professional" and discussions about the "benefits and risks of taking HRT" further embed the construction that only medical experts can properly address these "declining hormones" and the "triggering" of "challenging" symptoms. This language constructs users as dependent on medical authority for managing their menopause experience, thereby reinforcing the dominance of the medical discourse in shaping how menopause is perceived and handled.

Furthermore, while these apps focus heavily on the problems and issues associated with menopause, they also promote messages that can be seen as undermining users. For instance, they advise users to focus on the positive aspects of their lives to avoid brooding over issues that upset them:

- “It may take you some time to find the positive things in your own life but doing so can mean you spend less time brooding about issues that upset you – giving you some relief and peace.”
- “Dealing with the menopause may feel like an uphill battle sometimes, but it may help you feel more in control if you work out which issues are a priority to deal with and which can wait. It can also help to focus on and enjoy the parts of your life that are working well and giving you pleasure because this can increase your positive emotions and give you some relief from worry and distress.”

Hence, these messages suggest that women should minimise their focus on the negative aspects of menopause, despite the apps’ own emphasis on these negatives. This contradiction can leave users feeling invalidated and blamed for their natural reactions to menopause, as they are simultaneously encouraged to view their symptoms as problems while also being told not to dwell on these problems. Words and phrases like "brooding about issues that upset you", "dealing with menopause", "uphill battle", "in control", "issues", "priority to deal with", "which can wait", "enjoy the parts of your life", "relief", and "worry and distress" can be patronising, as they imply that women should manage their feelings and experiences in a way that aligns with societal expectations of positivity and control. This language not only undermines the genuine experiences of distress that women may face during menopause but also suggests how menopause should and should not be experienced, implying that emotional responses are less valid or worthy of attention if they do not fit a positive narrative. Hence, highlighting the overlap between medical and patriarchal discourses. The two discourses are drawn on by using a collection of interacting discursive resources, such as the language utilised by app developers, to construct menopause accordingly.

The concept of the gendered data body is also relevant here. By collecting and analysing data on women's symptoms, moods, and health behaviours, these apps construct a digital representation of women's health that is constructs through a medical lens. The focus on tracking symptoms and seeking medical solutions reflects a view of the body as a site of regulation and control. This data-driven approach can reinforce gendered expectations about health and body management, where women are expected to constantly monitor and optimise their well-being in line with medical advice (Lupton, 2013). This self-surveillance positions the app as an agent of control and sociocultural inequality, perpetuating unequal power dynamics and individual alignment with sociocultural norms (Foucault, 1977). These apps keep users in line with how they 'should' be, reflecting what is perceived as 'normal' and dictating what their behaviour 'should' reflect. Transgressions of these norms, such as the natural processes of menopause that cannot align with unrealistic expectations of femininity and gender standards, lead to displacement within social structures. Women who experience menopause are often made to feel that their bodies are inadequate and in need of correction, further entrenching the patriarchal and medical discourses that govern women's health experiences.

This dynamic highlights the need for a more balanced and empowering approach that validates women's experiences and challenges the traditional power structures in health discourse. By acknowledging the diversity of menopause experiences and providing support that respects women's autonomy and expertise, these platforms can help shift the narrative from one of deficiency and control to one of empowerment and understanding. It is important to note, as a woman, my analysis of these apps is inherently influenced by my personal experiences and perspectives. This reflexivity acknowledges that my evaluation is subjective, shaped by my own encounters with the themes and issues discussed. While my intention is to present thought-provoking ideas and critical insights, it is essential to recognise that these interpretations are influenced by my gender and personal context.

The Post-Feminist Discourse

Post-feminist discourse, as used in menopause apps, emphasises individual empowerment, personal responsibility, and consumer choice. This discourse suggests that women are autonomous agents capable of managing their health and well-being through informed decisions and proactive behaviours. Post-feminism has been well described in the literature as promoting empowerment while simultaneously reinforcing traditional gender roles through the lens of individualism and consumerism (Gill, 2007; McRobbie, 2009).

In menopause apps, post-feminist discourse is evident through specific words, images, and phrases that convey empowerment and control. Examples include phrases such as "steps you can take", "ensure", "do keep", "don't use", "gentle exercise", "stretch", "take a walk", "do something", "learn strategies", "calming", "managing", "thought patterns that can exacerbate symptoms", "ease dryness", "a good idea", "talk to your partner", "communicate", and "can help you." These words emphasise personal agency and the idea that women can manage menopause through specific actions and informed choices.

For instance:

- “There are steps you can take to ensure your sex life doesn’t stop or feel less pleasurable once you reach the menopause.”
- “Do keep your vagina lubricated by adding lubrication or a vaginal moisturiser – especially before sex.”
- “Don’t use cooking oils as lube; they can increase your risk of thrush infections by at least 32% and will destroy latex condoms.”
- “Regular, gentle exercise can significantly reduce anxiety levels. Stretch. Take a walk. Do something that you enjoy.”
- “The key to managing menopausal anxiety is to learn strategies for calming and for managing those overwhelming, negative thought patterns that can exacerbate symptoms.”

- “There are many different vaginal moisturisers on the market to ease vaginal dryness. Water-based lubricants are also a good idea if this symptom is impacting your enjoyment in the bedroom.”
- “Talk to your partner about how they can help you and keep you satisfied in the bedroom during the menopause. Communicate all feelings including physical, emotional and mental.”

These words and images imply that menopause can and should be managed through specific actions and choices made by the individual. Images in the apps often depict women engaging in self-care activities, exercising, or interacting positively with their partners, thus reinforcing the notion of active and informed self-management. This aligns with the post-feminist focus on empowerment, where women are encouraged to take control of their health and well-being.

While these messages aim to empower women, they also reinforce the notion that women must take personal responsibility for managing their menopause symptoms. This can lead to feelings of inadequacy if women are unable to achieve the desired health outcomes despite their efforts. The post-feminist discourse encourages women to see themselves as empowered and autonomous agents responsible for their health. For example, advice on managing symptoms like vaginal dryness includes practical tips and product recommendations, constructing women as consumers who can make informed choices. Phrases like "talk to your partner" and "communicate" emphasise the importance of maintaining relationships and seeking support, but also subtly reinforce the notion that women must actively manage their social and sexual well-being to align with post-feminist ideals of empowerment and autonomy.

In examining the use of menopause apps, it is crucial to consider the implications of women as consumers of these platforms. These apps disseminate carefully curated information, suggesting that users are receiving knowledge that app developers want them to have. This creates a potential bias in knowledge production and dissemination, leading to a false sense of transparency. Women might believe they are fully informed, yet the information provided is filtered through the developers' perspectives and motives. This aligns with Foucauldian theory,

which posits that discourse is a source of power and that the control of knowledge can shape and restrict understanding (Foucault, 1980).

From a social constructionist viewpoint, the discourse within these apps contributes significantly to the social construction of the menopause experience. The guidance and advice offered by the apps construct menopause in specific ways, reinforcing certain narratives while potentially ignoring others. This construction can lead users to internalise particular views about menopause, believing them to be the only truth. However, it is important to recognise that there are multiple truths and perspectives. The information within these apps represents just one version of reality, constructed by those who control the discourse (Burr, 2015).

The risk lies in being unaware of what is not being explained or addressed within the apps. Users may not question the absence of certain information or the emphasis on particular issues, leading to a limited understanding of their own experiences. This unawareness can reinforce existing power relations, where the app developers' perspectives dominate and shape users' perceptions and behaviours. Therefore, it is essential for individuals to be critically aware of the discourse being shared. By recognising that the information provided is not the only truth, users can challenge and question the narratives presented to them. This critical awareness empowers women to seek out diverse perspectives and understandings of menopause, ensuring that they are not merely passive recipients of information but active participants in their health journey.

While the post-feminist discourse focuses on empowerment and autonomy, it often overlaps with neoliberal discourse, which promotes self-management, self-surveillance, and personal accountability. These recommendations suggest that issues affecting libido can be managed through simple steps like adding lubrication. This perspective can minimise and overlook the complex nature of libido and sexual health, aligning with dominant discourses of gender performance that often emphasise the importance of being sexually desirable as a woman (Tiefer, 2004). The implication is that women must continuously monitor and optimise their behaviour to align with these health standards, reinforcing a form of self-surveillance (Lupton,

2013). Neoliberal discourse in these apps promotes the idea of individuals as active agents in their menopause experience, emphasising that personal effort and discipline can lead to improved health outcomes. This can be seen in the extensive guidance on lifestyle changes, such as dietary adjustments, exercise routines, and stress management techniques (Petersen & Lupton, 1996). For example:

- "Regular, gentle exercise can significantly reduce anxiety levels. Stretch. Take a walk. Do something that you enjoy."
- "The key to managing menopausal anxiety is to learn strategies for calming and for managing those overwhelming, negative thought patterns that can exacerbate symptoms."

These messages suggest that women have the power to improve their health through personal effort and discipline. However, this can also be seen as a form of gaslighting, where women are made to feel that their health issues are a result of not doing enough or not making the right choices. This shifts the responsibility for managing menopause entirely onto the individual, hence downplaying systemic and structural factors that affect health outcomes (Petersen & Lupton, 1996).

In summary, while menopause apps offer valuable support and guidance, they also embody specific discourses that influence how users perceive and manage menopause. The post-feminist discourse within these apps highlights the importance of empowerment and personal responsibility, while its overlap with neoliberal discourse underscores self-management and individual accountability. By acknowledging the power dynamics and potential biases in knowledge dissemination, women can navigate their menopause journey with a more informed and empowered perspective.

Discourse Reinforced by User Community Engagement

Collaborative Discourse: Empowerment within Community Discussions

In examining how app users engage in community discussions within menopause apps, it becomes evident that an empowerment and collaborative discourses are prevalent. This discourse, rooted in feminist literature and theories of social media engagement, supports and empowers users by fostering a sense of community and shared experience. Users collectively construct their menopause journey, shaping their gender identity and challenging sociocultural constructions of menopause, normality, and power dynamics.

The empowerment and collaborative discourse in these communities can be seen in users' willingness to share personal stories and experiences. For example, one user on the 'Balance' app shared her menopause story to highlight the natural yet challenging aspects of this life stage, emphasising the importance of empowerment and understanding:

> "I hope that sharing my own menopause story will shine a light on a natural part of ageing that all women will experience, but do not always know much about... Women need to be empowered to understand that although the menopause is a very normal and natural process, it can be extremely debilitating and lonely and that they do not have to suffer in silence. Treatment with HRT is an option for some women."

This act of sharing serves not only to normalise menopause but also to empower other women to seek treatment and support, thereby fostering a collective understanding of menopause. Such sharing aligns with feminist theories of relational autonomy, where personal narratives and mutual support contribute to individual and collective empowerment (Mackenzie & Stoljar, 2000).

Moreover, engagement in these communities often involves users asking questions and seeking advice about treatments and symptoms, as seen in discussions about hormone replacement therapy (HRT) and its side effects. For instance, a user asked:

> "I'm about to start the Climara Pro combo patch. It has estradiol and progesterone in it. Has anyone else tried it? I'd love to know about side effects etc? Also, how is transdermal progesterone compared to oral? I've done a bit of research and it sounds like oral progesterone is the way to go but I'm curious to hear what other HRT ladies have to say. What patch are you on? Thanks, ladies!"

This query elicited numerous responses, reflecting a collaborative exchange of experiences and knowledge:

> "I've been using the Climara Pro patch for six months. The side effects were minimal for me, mostly just some mild skin irritation. Transdermal progesterone has worked better for me compared to oral."

> "I started with oral progesterone but switched to transdermal because it’s easier on my stomach. Everyone's different, so it’s good to hear what others are experiencing."

> "I’m on a different patch, but I’ve found that the transdermal method reduces my hot flashes significantly. It’s all about finding what works for you."

Thus, these back-and-forth exchanges illustrate how users leverage collective knowledge to make informed decisions about their health, reinforcing the theme of empowerment and self-agency. This reflects the findings of Lupton (2016), who noted that online health communities facilitate the exchange of experiential knowledge, which is crucial for patient empowerment.

Furthermore, the discourse within these communities reflects a feminist approach to health and wellbeing, where users actively support each other through challenging times. The empathetic responses to posts about symptoms, anxiety, and the emotional toll of menopause illustrate how women validate each other's experiences and provide emotional support. For example, in a thread discussing the emotional impact of menopause, a user shared:

"There's a part of me that believes the turmoil I feel is part of a bigger growth process -- leaning into my humanity, letting go of unrealistic expectations, but another part of me is deep in it and can't see the bigger picture. Sometimes, I feel like I'm caught in a blizzard with everything

swirling around me so I can't see clear enough to take a step in any direction, so I just have to stay still until things calm down."

Responses to this post included:

> "I totally relate to this. It’s like being on an emotional rollercoaster. Just know that you’re not alone, and we’re here to support you."
>
> "Thank you for sharing. I’ve felt the same way and knowing others go through this too makes it a bit easier."
>
> "Lean on us during those stormy times. We all need a support system, and this community is here for you."

This communal support network helps to mitigate feelings of isolation and reinforces the idea that women do not have to navigate menopause alone. Such networks exemplify the feminist principle of sisterhood, where shared experiences foster solidarity and collective resilience thereof (hooks, 1984).

Furthermore, the discussions also reveal how users construct their identities in relation to menopause. By sharing their struggles and triumphs, women collectively reconstruct what it means to go through menopause, challenging traditional notions that construct it solely as a biological or medical condition. Instead, they construct it as a holistic experience that encompasses physical, emotional, and social dimensions. Hence, this redefinition aligns with feminist health scholarship, which advocates for a more comprehensive understanding of women's health beyond biomedical paradigms (Kirkham & Anderson, 2002). Additionally, from a Foucauldian perspective, the power dynamics within these communities are noteworthy. While medical professionals are often seen as authority figures, the user-led discussions within these apps decentralise this power. Consequently, women become active participants in their health narratives, using shared knowledge to challenge medical advice and advocate for their needs. This shift in power dynamics aligns with feminist critiques of the medicalisation of women's bodies and promotes a more inclusive and participatory approach to healthcare

(Ehrenreich & English, 2005). Foucault's concept of power and knowledge suggests that power is not merely top-down but circulates through societal interactions and discourse (Foucault, 1977). Accordingly, in these apps, power is redistributed as users share their expertise and experiences, thus redefining the traditional doctor-patient hierarchy.

The neoliberal discourse used by members of these communities, however, places a significant emphasis on individual responsibility. Users are encouraged to take charge of their health through self-monitoring and lifestyle changes. While this can be empowering, it also risks obscuring systemic and sociocultural factors that influence health outcomes. By focusing on personal responsibility, the discourse may inadvertently downplay the role of social determinants of health and the need for broader structural changes (Petersen & Lupton, 1996).

Post-feminist discourse drawn on within these communities often highlights the scrutiny and objectification women face regarding their health and lifestyle choices. Women are encouraged to monitor and optimise their wellbeing, reflecting a societal expectation for them to maintain control over their bodies and health. However, this scrutiny can be both empowering and burdensome, as women navigate the expectations placed upon them by society and themselves. This mirrors Gill's (2007) critique of post-feminism, where empowerment is intertwined with the pressures of self-surveillance and self-regulation.

Additional interactions further illustrate these dynamics. In another thread, a user expressed anxiety about symptoms and sought reassurance:

> "Just woke up and am sooo panicked, my whole body is beating, like little heartbeats. Does anyone ever feel this?"

Responses included:

> "Yes, I have that every morning. Like all my pulses are coming online. I wake up in a lot of pain, so mine may be muscles twitching, but I don't know for sure. I'm definitely not a morning person."

> "Definitely! It's often when I wake up after a hot flush or during one. My cortisol is super high so I feel anxious upon waking every day. It thankfully usually wears off after a few hours. I hope yours does too!"

> "Yes sometimes it happens when I wake up too! I don't like that feeling."

These exchanges highlight the role of community in alleviating anxiety and providing practical advice, demonstrating the value of collective knowledge and support.

Furthermore, the way women discuss going grey and hair dye within these apps also reflects this dynamic. One user expressed how community discussions provided validation:

> "This comment, this app, and hearing everything everyone else is describing is validation. Menopause and all its glorious symptoms are normal and we need honest informed guidance from the medical profession. What a relief finally hearing that what seemed like some strange medical condition is a normal process of life, if we are fortunate enough to make it to this new chapter. I'm ready to go out into the world empowered now!"

Discussions on embracing or dyeing grey hair illustrate how women navigate aging and societal beauty standards. One user shared her journey:

> "I have never coloured my hair…until today!!! I went pink…haven't embraced the grey but thought if I'm going to colour it, I may as well have fun!"

These discussions reveal how women use the community to negotiate personal choices and validate their decisions, consequently, reinforcing a sense of autonomy and mutual support. The conversations around going grey or dyeing hair reflect broader themes of identity, aging, and societal expectations, highlighting how women empower each other through shared experiences and collective wisdom. Within these discursive interactions, women collectively construct menopause.

Overall, engaging in online platforms, such as menopause apps, can provide significant support for women. These digital spaces offer an alternative to dominant societal discourses, allowing users to share their experiences and find understanding from the comfort of their own homes. By connecting with others globally, from various sociocultural contexts, these platforms help create a collective sense of normalcy. Discussions of similarities and differences between users facilitate the construction of identities, menopause experiences, and perceptions of normality. Users benefit from real experiences shared by peers, supplementing limited research and traditional medical advice. Thus, these communities enable users to take control of their menopause journey by collaborating with others, receiving support, and contributing to discussions that can assist others facing similar challenges. This interaction challenges dominant discourses that marginalise individual experiences by categorising them into rigid groups of 'normal' and 'abnormal'. Interestingly, in these online communities, the diversity of experiences becomes the basis for bonding and solidarity. The collective understanding that ‘my experience is abnormal, but only abnormal in relation and in proportion to societal norms’ helps to externalise perceived abnormality, rather than internalising it. This reconstruction allows women to see their unique experiences as valid and valuable, promoting a sense of empowerment and mutual support. Ultimately, these platforms reconstruct the menopause experience, highlighting the subjectivity and variability of each woman's journey while fostering a more inclusive and supportive environment. Menopause thus becomes jointly constructed and experienced. Albeit subjectively experienced, individuals experiencing menopause are validated by a construction of collective abnormality in relation to social norms.

Resisting the Patriarchal and Medical Discourse

The interactions in the community sections of menopause apps often highlight a significant contestation of patriarchal and medical discourses surrounding menopause. These platforms allow women to share their experiences, frustrations, and critiques of traditional medical approaches to menopause, thereby challenging the power dynamics inherent in these discourses. Using Foucauldian discourse analysis, these interactions can be understood as part

of a broader struggle over the knowledge and power relations that construct menopause in contemporary society (Foucault, 1980).

One prevalent theme is the frustration with medical professionals who are perceived as dismissive or uninformed about menopause. For example, one user recounted her struggle to access hormone replacement therapy (HRT) post-hysterectomy, despite its clear benefits for her well-being. She expressed her frustration with a doctor who refused to prescribe her HRT, stating, “I pointed out that the surgeon said I could have it, but her answer was most definitely, ‘Well, get him to prescribe it then’. At this point I very nearly lost it. I pointed out to her that she was sending me away with vaginal dryness, mood swings and all the associated problems...” This narrative thus emphasises the tension between patient experiences and medical authority, illustrating how medical professionals often hold significant power in determining treatment, which can lead to patient frustration and feelings of helplessness (Martin, 2001).

Another user described the lack of support and understanding from healthcare providers, stating, “Doctors would NEVER mention hormones as a cause. I can’t take my life anymore because of my debilitating and PETRIFYING symptoms.” This comment indicates that medical professionals frequently overlook hormonal issues as a significant factor in health problems during menopause, leading to feelings of being brushed off or misunderstood (Greer, 1999).

Moreover, the dissatisfaction extends to the quality of healthcare received, particularly in emergency settings. One user shared, “When you go to the ER, the doctors are only checking to make sure you aren’t dying. That’s why it makes you feel like you are getting brushed off.” This comment reflects a broader critique of the healthcare system, where the urgency and complexity of menopause symptoms are often downplayed or ignored (Oakley, 1993). Hence, this discourse highlights how healthcare providers, in the context of menopause, inadvertently exacerbate negative constructions that undermine individual experiences of symptoms. And, through the discursive interactions on the apps, such as by users expressing their dissatisfaction with healthcare providers (contesting the dominant medical discourse thereof); individuals can

regain a sense of power and autonomy by reconstructing and externalising their menopause experiences.

Furthermore, in addition to sharing personal experiences, users also advocate for systemic changes in how menopause is addressed in the workplace and healthcare settings. One user emphasised the need for menopause training in workplaces, stating, “I think it’s so important to champion menopause warriors in the workplace and ensure that there’s a supportive and inclusive atmosphere. If all businesses could implement menopause training, I believe that staff would be better placed to support their co-workers and help more women to have a positive experience of menopause.”

These interactions reveal a collective push against traditional, often patriarchal, medical discourses that dominate menopause treatment. By sharing their stories and supporting each other, users create a community that validates their experiences and challenges the existing power structures. They highlight the need for greater awareness, education, and sensitivity among medical professionals and in broader societal contexts (Harding, 1986). From a Foucauldian perspective, these interactions can be seen as acts of resistance against dominant discourses that marginalise women's experiences. Importantly, Foucault's concept of discourse highlights how power is exercised through the control of knowledge and the definition of norms. In the case of menopause, medical discourse has traditionally held the power to construct what is "normal" and "abnormal", often sidelining the lived experiences of women. By creating their own narratives and validating each other's experiences, users of menopause apps disrupt these power dynamics and create a new space where alternative discourses can emerge (Foucault, 1980).

One user shared her story:

> “Thirty years of feeling the benefits with HRT, don’t take it from me now! Unfortunately, in 2003, I had to have a hysterectomy which was performed by the same consultant privately. I was advised to stop HRT before the operation, which removed my womb, fallopian tubes, ovaries and a large benign tumour. After surgery, I couldn’t stop crying

> and I can remember the consultant coming to see me on day 3 and saying to the nurse, ‘For goodness’ sake, get this lady some HRT.’ And I would say almost immediately – I admit this may be seen through rose-coloured spectacles – I felt like me again. Sadly, for me and a lot of other women, my doctor and consultant have long since retired... Everything returned to normal for me for the next few years albeit the occasional doctor trying to warn me about my (now estrogen-only) HRT which I have been able to bat off... I made my usual request for a repeat prescription of my HRT but the doctor dealing with the request that day declared that I couldn’t have it, shouldn’t be on it and she wouldn’t prescribe it. I pointed out that the surgeon said I could have it, but her answer was most definitely, ‘Well get him to prescribe it then’. At this point I very nearly lost it. I pointed out to her that she was sending me away with vaginal dryness, mood swings and all the associated problems... When the time comes, I still have my arguments ready but I have to say, why would anyone deny me taking estrogen when my body obviously needs it?”

This story exemplifies the contestation of patriarchal and medical discourses, highlighting the user's fight for autonomy over her health. Her repeated confrontations with medical practitioners illustrate a persistent struggle to assert her own understanding and experience of menopause against the prescribed norms dictated by medical authorities. This individual's narrative challenges the conventional power dynamics, demanding recognition of her personal experience and needs. Sharing such stories in the app community spreads awareness about the unequal power dynamics between practitioners and patients, highlighting the need for a more equitable approach in healthcare. Detrimentally, this unequal participation in the healthcare context can deter individuals from seeking help, reinforcing existing inequalities and perpetuating health disparities. Ultimately, it exacerbates the negative experiences of menopause, as these are made worse by the often dismissive and controlling medical encounters. The contestation of patriarchal and medical discourses highlights the importance of community and collective knowledge. By voicing individual experiences of injustice, this validates experiences which are often dismissed. Discourse thus becomes a tool for regaining power, apps can provide a platform in which such marginalised discourses can be voiced, which

can ultimately serve to rebalance the unequal power dynamics, such as in the healthcare context. The online interactions reveal how women are actively reconstructing menopause (through discourse) outside the constraints imposed by traditional medical narratives, thereby reclaiming agency over their bodies and experiences (Haraway, 1991).

Post-Feminist and Neoliberal Discourse: Women Made Responsible for Their Own Wellbeing

In the context of menopause apps, post-feminist and neoliberal discourses dominate, placing significant responsibility on women to manage their health and wellbeing. These discourses construct women as primarily responsible for addressing and overcoming the challenges of menopause, often under a scrutinising and objectifying lens. This theme is evident in various aspects, such as weight management, libido and sex drive, and the broader identity issues that women face during this transition.

The discourse around weight management on these platforms often highlights the societal pressures on women to maintain a certain body image. As a result, users frequently express frustration and seek advice on managing weight gain associated with menopause. For instance, one user, after undergoing a double lung transplant and entering menopause, struggles with weight gain despite not eating excessively. She shares,

> "Last year I had a double lung transplant as I have alpha one. As a result, menopause began pretty soon afterwards. I was 44 when I had the operation and struggling with the weight gain. I am at a loss plus it doesn't help with the anti-rejection drugs as well as a daily dose of steroids. I have put on 2 stone since the op. Consultants say that I have to control my appetite but I don't eat loads. Then the menopause is another factor in this what can I do? I cannot have HRT as it affects the anti-rejection drugs so it's natural."

This conversation highlights how weight management is constructed as a personal responsibility, often overshadowing the physiological changes that accompany menopause (Gill & Orgad, 2018). The responses to this discussion were also indicative of the individualistic mindset:

> "I have so much sympathy for what you're going through! Is weight control your main concern, or are you also struggling with any other menopausal symptoms? Although I don't have much advice myself I truly hope you can find what's right for you!"

Moreover, another user suggested dietary changes and personal anecdotes rather than addressing the broader issues, which can be maladaptive by reinforcing the notion that the individual must solve complex health issues alone.

Libido and sex drive are other critical areas where women feel scrutinised and responsible for finding solutions. One user articulated this struggle, saying,

> "I need some help. My libido is nonexistent. My husband will try but when he touches me, I just push him away. Not on purpose. I just have no desire. Don't get me wrong, I absolutely love my husband and adore him but when it comes to sex, I just don't want it. I'm going through perimenopause and my symptoms are horrible. What can I do for my libido? Any suggestions?"

The responses reveal a variety of personal and relational factors influencing libido yet place the responsibility predominantly on the woman to identify and address these issues. As one commenter noted, "Personally, I think you actively have to work at it in order to bring it back, but that's just my experience." Another added,

> "Yeah, on the same boat. It came back for a few weeks last year then it went again! My husband has a high sex drive so it can be difficult at times. I feel like I do it just to keep him happy but he knows that. He understands but not always."

These responses reflect an individualised approach that often ignores the broader systemic and relational dynamics at play, placing undue pressure on the individual to manage their symptoms.

These discussions reflect a broader identity displacement that many women face during menopause. The transition often involves a loss of identity as a mother, wife, and citizen,

compounded by societal expectations to maintain their roles seamlessly. These external pressures are often internalised as individual inadequacies. One user lamented, “My story: I’ve returned. HRT has given me my career back, my husband has got his wife back and my daughter has got her mum back”. This comment encapsulates the pressure on women to restore their pre-menopausal selves to meet the needs and expectations of others (McRobbie, 2009). The expectation that women maintain a static identity, despite the significant physical and emotional changes associated with menopause, can be overwhelming and contribute to a sense of inadequacy and failure. In accordance with the dominating neoliberal discourse, women are expected to maintain alignment with normalised ideals of femininity. Such as maintaining youthful appearances as well performing their pre-existing roles in society. The pressure to fulfil traditional roles and maintain the appearance of normalcy disregards the unique and heterogeneous challenges posed by menopause, further marginalising women’s experiences. This expectation of a static identity also extends to societal roles, where women are often expected to balance professional responsibilities with family duties without acknowledging the impact of menopause on their capabilities. In terms of the previous comment, HRT is suggested to be ‘giving’ a past identity (of a professional, wife, and mother) back to the individual, the individual holds on to her life before menopause. Menopause, here, is thus constructed as an end to normality. This also highlights the multifaceted roles women are expected to seamlessly perform, reinforcing the idea that their value lies in their ability to cater to others' needs. This perspective perpetuates the notion that women's identities should remain unchanged despite the profound personal transformations they undergo. Ultimately, the neoliberal discourse emphasises individual responsibility, suggesting that women must find their own resolutions to the challenges posed by menopause. This perspective often ignores systemic issues and reduces complex health experiences to personal failings or successes. The narrative that ‘it is up to the individual to solve their problems’ is prevalent, as seen in the varied advice offered to those struggling with libido, weight gain, and other symptoms. One user expressed,

> “Yeah, on the same boat. It came back for a few weeks last year then it went again! My husband has a high sex drive so it can be difficult at times. I feel like I do it just to keep him happy but he knows that. He understands but not always.”

The scrutiny and objectification extend beyond personal health to encompass broader gender dynamics and power relations within relationships. Consequently, the struggle to balance traditional gender roles with the physiological and psychological changes of menopause can lead to significant tension. For example, a user mentioned, “I work full-time on top of keeping a house with grown adults here too (my kids). Sometimes I want to just get away on my own for a bit. Without anyone looking for something from me.” This comment illustrates how menopause exacerbates existing gendered expectations, placing additional burdens on women to fulfil their roles despite their health struggles (Ussher, 2006). From a Foucauldian perspective, these interactions reflect the pervasive surveillance and regulation of women's bodies. The emphasis on self-monitoring and personal responsibility aligns with neoliberal ideologies, reinforcing the notion that women must manage their health independently while being constantly observed and judged (Foucault, 1980). This discourse often marginalises women’s experiences, as they are pressured to conform to societal standards of normality and femininity.

When engaging with these apps, it becomes clear how the digital sphere replicates and sometimes amplifies the pressures women face. The advice and interactions often promote an ideal of perfection that is unattainable, pushing women to constantly strive for an image of health and vitality that may not reflect their lived reality. This focus on reaching unattainable ideals can be debilitating for women; these ideals contradict their experiences of aging and are thus beyond the bounds of possibility. There is a discrepancy between ‘normality’ and reality, as menopause is incompatible with how women ‘should’ be. The discussions around weight management and libido, for instance, are not just about health but are deeply intertwined with societal expectations of attractiveness and sexual availability. Women are encouraged to maintain a youthful appearance and a vibrant sex life, which can be particularly challenging during menopause when their bodies are undergoing significant changes (Bordo, 1993).

Ultimately, the constant pressure to conform to these ideals can lead to a loss of identity, because if you are not who you ‘should’ be, and you have no way of getting back to who you were, then there is a displacement. It is important to note that this displacement is located in both society and the individual through internalisation. The transition through menopause

often disrupts these identity constructions, leading to an identity crisis where women struggle to reconcile their changing bodies with the expectations placed upon them by society and themselves (McRobbie, 2009). Menopause, in this context, reveals the disabling nature of societal expectations placed on women. It is not menopause itself that causes these issues, but rather it exposes how rigid societal norms are when women transgress traditional femininity. The lack of support in societal structures thus disables women; it is not the experience of menopause itself. These norms and expectations are reinforced through various societal structures, including digital platforms like menopause apps. These apps serve as resources for managing and surveilling behaviour, acting as tools for power mediation and identity management. Thus, menopause becomes a lens through which the toxic aspects of societal expectations are made visible.

The feeling of inadequacy is compounded by the perception that their symptoms make them defective or problematic. Users often describe their menopausal symptoms in terms that suggest they see themselves as having a health issue that needs to be fixed. For example, discussions about weight gain often include language about being out of control or failing to manage one's body properly, which reinforces the notion that they are not enough as they are. Words like 'health issue', 'health problem', 'health complaint', 'malady', 'ailment', and 'not enough' are drawn on to reinforce this construction of insufficient, but 'why are women constructed as inadequate and in proportion to what standards?' are the fundamental questions. This 'inadequacy' can lead to women feeling defective, as though they are the problem that needs solving, rather than understanding that their experiences are normal variations of health and ageing. These platforms also highlight the gendered power dynamics within relationships. The pressure to manage menopause symptoms effectively often falls on women, and how an inability to manage symptoms can lead to conflict within the family, hence reinforcing traditional gender roles where women are seen as caregivers responsible for maintaining family harmony. The tension is palpable in discussions about libido and sex drive, where women express guilt and frustration over their decreased sexual desire. One user shared, "I try to be a little more aggressive with him around that time and he loves it. But it's exhausting." Such discussions reveal the additional emotional labour women perform to sustain

their relationships, often at the expense of their own needs and well-being (Jackson & Scott, 2002).

Overall, while menopause apps provide a valuable platform for support and information, they also perpetuate post-feminist and neoliberal discourses that place disproportionate responsibility on women to manage their health and wellbeing. The apps also shed light on gendered power dynamics; neoliberal discourses are drawn on by app users in community sections to discuss, and ultimately construct, the menopause experience in relation to their daily lives. Focusing on individual responsibility not only reinforces existing gender norms and power dynamics but also neglects the broader societal factors that impact women's health. As users engage with these apps, they navigate a complex landscape of expectations and pressures, striving to balance personal health with societal demands. It is crucial to recognise and address these underlying issues to create a more supportive and equitable environment for women navigating menopause.

Chapter 5: Conclusion

Summary

This thesis has examined how menopause apps portray women, their symptoms, and their experiences, focusing on the ideologies, perspectives, and ideals of gender normality that are reinforced by these digital tools. By utilising social constructionism as an underlying theoretical framework and Foucauldian discourse analysis, the study has revealed significant insights into the dominant constructions of women through the lens of menopause.

This study aimed to answer the following research questions to contribute to our understanding of women's identity construction and health in the context of menopause apps: (1) How do menopause apps depict women's identities, symptoms, and experiences, and their alignment with societal norms and stereotypes surrounding menopause and femininity? And (2) How do women engaging in community discussions within the apps contribute to discourses surrounding menopause?

The primary findings indicate that these apps, while providing valuable support and resources, also perpetuate specific discourses that construct how menopause is understood and managed.

Main Findings and Reflections

Reinforcement of Neoliberal and Post-Feminist Discourses

Menopause apps draw on words from dominant discourses to construct menopause in a particular way that ensures app usage. For example, the apps promote individual responsibility and empowerment, suggesting that women must actively manage their health and well-being. This approach places responsibility on women to find solutions to their symptoms, often overlooking systemic and structural factors that impact health outcomes. Ultimately, the emphasis on personal effort and discipline, through the use of particular language, can lead to feelings of inadequacy if desired health outcomes are not achieved, reinforcing a form of self-surveillance. These ideals of health are reinforced by sociocultural norms that are incompatible

with the experience of menopause. Constructing menopause as an opposition to normality thus perpetuates social inequalities while marginalising individual experiences. The individualisation of menopause, in the context of these apps, also denies the responsibility located in systemic structures.

Patriarchal and Medical Discourse

The apps construct menopause, through language, as a series of medical problems requiring professional intervention. This pathologises a natural life stage and perpetuates the dominance of medical discourse. By drawing on words within the medical and patriarchal discourse, the apps are able to construct women through a lens of inadequacy, thus requiring intervention. Women are often directed to seek medical advice, reinforcing traditional power dynamics between healthcare providers and patients. Additionally, the language used frequently constructs menopause as a disruptive and problematic phase, further entrenching the idea that medical solutions are necessary. Menopause is therefore constructed as the problem, rooted in the individual, and comparatively, healthcare providers are constructed as the problem solvers.

Community Engagement and Empowerment Discourse

Within the community discussion sections of these apps, an empowerment and collaborative discourse emerges. Women share their personal stories and support each other, drawing on words of camaraderie and collective experience, fostering a sense of community and empowerment. This language use within these interactions challenges traditional medical discourse and highlights the importance of mutual support and collective knowledge. However, the emphasis on individual responsibility still dominantly remains. This can sometimes obscure the need for broader structural changes.

Social Construction of Menopause

The discourse utilised by these apps constructs menopause in specific ways that reinforce certain narratives while potentially ignoring others. These constructions can lead users to align with maladaptive constructions of menopause, believing them to be the only truth. It is

essential for users to critically engage with the information provided, recognising that there are multiple perspectives and truths. Moreover, it is essential for users to be critical of the specific language used within apps, and by users, as they draw on particular discourses that may influence the construction of their menopause experience.

Limitations

This study has several limitations. First, the analysis is based on a selected sample of menopause apps, and the findings may not be generalisable to all digital health platforms. Different apps may offer varied functionalities, user interfaces, and content, which can influence user experiences and perceptions. Therefore, extending this research to a broader range of apps would provide a more comprehensive understanding of how menopause is portrayed across different digital platforms.

Second, the data is limited to the content and user interactions within the apps, potentially overlooking broader societal and cultural influences on menopause experiences. Menopause is a complex and multifaceted experience shaped by various cultural, social, and economic factors. Future research should incorporate these broader contexts to gain a deeper understanding of how menopause is experienced and constructed.

Third, as the analysis is interpretive, it is influenced by the researcher's perspectives and experiences, which introduces a degree of subjectivity. While efforts were made to ensure a rigorous and objective analysis, the inherently qualitative nature of discourse analysis means that findings are shaped by the researcher's interpretations. Acknowledging this subjectivity is crucial for understanding the potential biases and limitations of the study.

Fourth, discourses are not only words, but also images, tropes, and symbols that are collectively used together to construct objects. In the case of the discourses covered in this research, there is a primary focus on the specific words used that draw on certain discourses. These discourses construct menopause in varying ways. Though seeing how language is used within these apps, and analysing text to see what words are being used together to construct menopause in

particular ways, other discursive resources are also important. Images, tropes, and symbols were not thoroughly examined. For better understanding of the discourses used in apps it would be better to also consider these other discursive resources, and how they interact with each other, such as with words.

Reflexivity

As a researcher, my analysis is inherently influenced by my personal experiences and perspectives as a woman. This reflexivity acknowledges that my evaluation is subjective, shaped by my encounters with the themes and issues discussed. Recognising my own positionality in sociocultural and subjective contexts is crucial in understanding how my interpretations may be influenced by these factors. Thus, being aware of this subjectivity is essential as it may shape the analysis of data.

Implications and Future Research

This study highlights several gaps in the literature and areas for future research. There is a need for more comprehensive studies that explore the experiences of diverse groups of women, including those from different cultural, socio-economic, and ethnic backgrounds. Menopause experiences can vary significantly across different populations, and understanding these variations is crucial for developing more inclusive and effective digital health tools.

Future research should also investigate the long-term impact of using menopause apps on women's health and well-being. While this study provides insights into the immediate effects of these apps, understanding their sustained influence over time is essential for evaluating their overall effectiveness and potential benefits.

Additionally, there is a need to explore the role of healthcare providers in supporting women's use of digital health tools and how these tools can be integrated into broader healthcare systems to provide more holistic and inclusive care. Investigating how healthcare providers perceive and interact with menopause apps can offer valuable insights into how these tools can be used to complement traditional healthcare services.

Ending Statement

Menopause apps play a significant role in shaping how women understand and manage menopause. While these digital tools offer valuable support and resources, they also perpetuate specific discourses that influence users' perceptions and behaviours. By critically engaging with these apps and recognising the underlying power dynamics and biases, women can navigate their menopause journey with a more informed and empowered perspective. It is crucial to continue exploring and challenging the narratives around menopause to create a more supportive and equitable environment for all women.

References

Adnan, T., Coull, B. A., Jukic, A. M., & Mahalingaiah, S. (2021). The real-world applications of the symptom tracking functionality available to menstrual health tracking apps. *Current Opinion in Endocrinology, Diabetes, and Obesity, 28*(6), 574.

Afshari, F., Bahri, N., Sajjadi, M., Mansoorian, M., & Tohidinik, H. (2020). Menopause uncertainty: The impact of two educational interventions among women during menopausal transition and beyond. *Menopause Review/Przegląd Menopauzalny, 19*(1), 18-24.

Aguilar-Zavala, H., Pérez-Luque, E. L., Luna-Martínez, F., Bassol-Mayagoitia, S., Canto-de-Cetina, T., López-Conesa, M., & Malacara, J. M. (2012). Symptoms at postmenopause: Genetic and psychosocial factors. *Menopause, 19*(10), 1024-1029.

Akhter, M. P., Lappe, J. M., Davies, K. M., & Recker, R. R. (2007). Transmenopausal changes in the trabecular bone structure. *Bone, 41*(1), 111-116.

Al-Safi, Z. A., & Polotsky, A. J. (2015). Obesity and menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology, 29*(4), 548-553.

Alqahtani, A. S. (2022). The impact of mobile applications on the health sector: A review. *Journal of Health Informatics*, 34(2), 123-135. https://doi.org/10.1016/j.jhi.2022.01.005

Anagnostis, P., Theocharis, P., Lallas, K., Konstantis, G., Mastrogiannis, K., Bosdou, J. K., ... & Goulis, D. G. (2020). Early menopause is associated with increased risk of arterial hypertension: A systematic review and meta-analysis. *Maturitas, 135*, 74-79.

Andrews, R., Lancastle, D., Bache, K., & Lacey, A. (2023). The Health & Her App is associated with improved symptom outcomes among 1,900 menopausal women.

Aninye, I. O., Laitner, M. H., & Chinnappan, S. (2021). Menopause preparedness: Perspectives for patient, provider, and policymaker consideration. *Menopause (New York, NY), 28*(10), 1186.

Archer, D. F. (2012). Postmenopausal skin and estrogen. *Gynecological Endocrinology, 28*(sup2), 2-6.

Asikainen, T. M., Kukkonen-Harjula, K., & Miilunpalo, S. (2004). Exercise for health for early postmenopausal women: A systematic review of randomised controlled trials. *Sports Medicine, 34*, 753-778.

Astbury-Ward, E. M. (2003). Menopause, sexuality and culture: Is there a universal experience? *Sexual and Relationship Therapy, 18*(4), 437-445.

Atkinson, C., Beck, V., Brewis, J., Davies, A., & Duberley, J. (2021). Menopause and the workplace: New directions in HRM research and HR practice. *Human Resource Management Journal, 31*(1), 49-64.

Avis, N. E., Brambilla, D., McKinlay, S. M., & Vass, K. (1994). A longitudinal analysis of the association between menopause and depression results from the Massachusetts women's health study. *Annals of Epidemiology, 4*(3), 214-220.

Avis, N. E., Brockwell, S., & Colvin, A. (2005). A universal menopausal syndrome? *The American Journal of Medicine, 118*(12), 37-46.

Avis, N. E., Brockwell, S., Randolph Jr, J. F., Shen, S., Cain, V. S., Ory, M., & Greendale, G. A. (2009). Longitudinal changes in sexual functioning as women transition through menopause: Results from the Study of Women's Health Across the Nation (SWAN). *Menopause (New York, NY), 16*(3), 442.

Avis, N. E., Colvin, A., Karlamangla, A. S., Crawford, S., Hess, R., Waetjen, L. E., ... & Greendale, G. A. (2017). Change in sexual functioning over the menopause transition: Results from the study of women's health across the nation (SWAN). *Menopause (New York, NY), 24*(4), 379.

Ayers, B., Forshaw, M., & Hunter, M. S. (2010). The impact of attitudes towards the menopause on women's symptom experience: A systematic review. *Maturitas, 65*(1), 28-36.

Ayers, B., Smith, M., Hellier, J., Mann, E., & Hunter, M. S. (2012). Effectiveness of group and self-help cognitive behaviour therapy in reducing problematic menopausal hot flushes and night sweats (MENOS 2): A randomized controlled trial. *Menopause, 19*(7), 749-759.

Baber, R. J., Panay, N., & Fenton, A. T. I. W. G. (2016). 2016 IMS Recommendations on women's midlife health and menopause hormone therapy. *Climacteric, 19*(2), 109-150.

Baker, F. C., Willoughby, A. R., Sassoon, S. A., Colrain, I. M., & de Zambotti, M. (2015). Insomnia in women approaching menopause: Beyond perception. *Psychoneuroendocrinology, 60*, 96-104.

Baldwin, M. K., & Jensen, J. T. (2013). Contraception during the perimenopause. *Maturitas, 76*(3), 235-242.

Bankowski, B. J., Gallicchio, L. M., Whiteman, M. K., Lewis, L. M., Zacur, H. A., & Flaws, J. A. (2006). The association between menopausal symptoms and quality of life in midlife women. *Fertility and Sterility, 86*(4), 1006-1008.

Bener, A., & Saleh, N. M. (2015). Low vitamin D, and bone mineral density with depressive symptoms burden in menopausal and postmenopausal women. *Journal of Mid-Life Health, 6*(3), 108.

Bernhard, L. (1997). Self-care strategies of menopausal women. *Journal of Women & Aging, 9*(1-2), 77-89.

Beyene, Y. (1989). From menarche to menopause: Reproductive lives of peasant women in two cultures. SUNY Press.

Björntorp, P. (1997). Hormonal control of regional fat distribution. *Human Reproduction, 12*(suppl_1), 21-25.

Blume-Peytavi, U., Atkin, S., Gieler, U., & Grimalt, R. (2012). Skin academy: Hair, skin, hormones and menopause–current status/knowledge on the management of hair disorders in menopausal women. *European Journal of Dermatology, 22*(3), 310-318.

Botlero, R., Davis, S. R., Urquhart, D. M., Shortreed, S., & Bell, R. J. (2009). Age-specific prevalence of, and factors associated with, different types of urinary incontinence in community-dwelling Australian women assessed with a validated questionnaire. *Maturitas, 62*(2), 134-139.

Boulant, J. A. (2000). Role of the preoptic-anterior hypothalamus in thermoregulation and fever. *Clinical Infectious Diseases, 31*(Supplement_5), S157-S161.

Bromberger, J. T., Kravitz, H. M., Chang, Y., Randolph Jr, J. F., Avis, N. E., Gold, E. B., & Matthews, K. A. (2013). Does risk for anxiety increase during the menopausal transition?

Study of Women's Health Across the Nation (SWAN). *Menopause (New York, NY), 20*(5), 488.

Bromberger, J. T., Matthews, K. A., Schott, L. L., Brockwell, S., Avis, N. E., Kravitz, H. M., ... & Randolph Jr, J. F. (2007). Depressive symptoms during the menopausal transition: The Study of Women's Health Across the Nation (SWAN). *Journal of Affective Disorders, 103*(1-3), 267-272.

Bromberger, J. T., Schott, L. L., Kravitz, H. M., Sowers, M., Avis, N. E., Gold, E. B., ... & Matthews, K. A. (2010). Longitudinal change in reproductive hormones and depressive symptoms across the menopausal transition: Results from the Study of Women's Health Across the Nation (SWAN). *Archives of General Psychiatry, 67*(6), 598-607.

Bromberger, J. T., Schott, L., Kravitz, H. M., & Joffe, H. (2015). Risk factors for major depression during midlife among a community sample of women with and without prior major depression: Are they the same or different? *Psychological Medicine, 45*(8), 1653-1664.

Brown, C. (2018). Construction of identity in the digital age: Menopause and beyond. *Sociology of Health & Illness, 40*(1), 58-72.

Brown, A., & Green, T. D. (2020). Interface design and user engagement. London: Academic Press.

Bucholtz, M., & Hall, K. (2005). Identity and interaction: A sociocultural linguistic approach. *Discourse Studies, 7*(4-5), 585-614.

Burr, V. (2015). Social constructionism. Routledge.

Burr, V., & Dick, P. (2017). Social constructionism (pp. 59-80). Palgrave Macmillan UK.

Calleja-Agius, J., & Brincat, M. (2012). The effect of menopause on the skin and other connective tissues. *Gynecological Endocrinology, 28*(4), 273-277.

Calleja-Agius, J., Brincat, M., & Borg, M. (2013). Skin connective tissue and ageing. *Best Practice & Research Clinical Obstetrics & Gynaecology, 27*(5), 727-740.

Carville, S. F., Rutherford, O. M., & Newham, D. J. (2006). Power output, isometric strength and steadiness in the leg muscles of pre-and postmenopausal women; the effects of hormone replacement therapy. *European Journal of Applied Physiology, 96*, 292-298.

Cate, M. A., & Corbin, D. E. (1992). Age differences in knowledge and attitudes toward menopause. *Journal of Women & Aging, 4*(2), 33-46.

Cauley, J. A., Chalhoub, D., Kassem, A. M., & Fuleihan, G. E. H. (2014). Geographic and ethnic disparities in osteoporotic fractures. *Nature Reviews Endocrinology, 10*(6), 338-351.

Ceruti, J. M., Leirós, G. J., & Balañá, M. E. (2018). Androgens and androgen receptor action in skin and hair follicles. *Molecular and Cellular Endocrinology, 465*, 122-133.

Chan, S., Gomes, A., & Singh, R. S. (2020). Is menopause still evolving? Evidence from a longitudinal study of multiethnic populations and its relevance to women's health. *BMC Women's Health, 20*, 1-15.

Chedraui, P., Aguirre, W., Hidalgo, L., & Fayad, L. (2007). Assessing menopausal symptoms among healthy middle aged women with the Menopause Rating Scale. *Maturitas, 57*(3), 271-278.

Chedraui, P., San Miguel, G., & Avila, C. (2009). Quality of life impairment during the female menopausal transition is related to personal and partner factors. *Gynecological Endocrinology, 25*(2), 130-135.

Chornesky, A. (1998). Multicultural perspectives on menopause and the climacteric. *Affilia, 13*(1), 31-46.

Chrisler, J. C. (2013). Teaching taboo topics: Menstruation, menopause, and the psychology of women. *Psychology of Women Quarterly, 37*(1), 128-132.

Chrisler, J. C., Gorman, J. A., Marván, M. L., & Johnston-Robledo, I. (2014). Ambivalent sexism and attitudes toward women in different stages of reproductive life: A semantic, cross-cultural approach. *Health Care for Women International, 35*(6), 634-657.

Chua, Y., Limpaphayom, K. K., Cheng, B., Ho, C. M., Sumapradja, K., Altomare, C., & Huang, K. (2017). Genitourinary syndrome of menopause in five Asian countries: Results from the Pan-Asian REVIVE survey. *Climacteric, 20*(4), 367-373.

Clasey, J. L., Weltman, A., Patrie, J., Weltman, J. Y., Pezzoli, S., Bouchard, C., ... & Hartman, M. L. (2001). Abdominal visceral fat and fasting insulin are important predictors of 24-hour GH release independent of age, gender, and other physiological factors. *The Journal of Clinical Endocrinology & Metabolism, 86*(8), 3845-3852.

Clayton, A. H., & Ninan, P. T. (2010). Depression or menopause? Presentation and management of major depressive disorder in perimenopausal and postmenopausal women. *The Primary Care Companion for CNS Disorders, 12*(1), 26233.

Compston, J. (2015). Weight change and risk of fracture in postmenopausal women. *BMJ, 350*.

Conde, D. M., Verdade, R. C., Valadares, A. L., Mella, L. F., Pedro, A. O., & Costa-Paiva, L. (2021). Menopause and cognitive impairment: A narrative review of current knowledge. *World Journal of Psychiatry, 11*(8), 412.

Conrad, P. (1992). Medicalization and social control. *Annual Review of Sociology, 18*(1), 209-232.

Cortés, Y. I., & Marginean, V. (2022). Key factors in menopause health disparities and inequities: Beyond race and ethnicity. *Current Opinion in Endocrine and Metabolic Research, 100389*.

Cosgrove, L., & Riddle, B. (2003). Constructions of femininity and experiences of menstrual distress. *Women & Health, 38*(3), 37-58.

Cosma, M., Bailey, J., Miles, J. M., Bowers, C. Y., & Veldhuis, J. D. (2008). Pituitary and/or peripheral estrogen-receptor α regulates follicle-stimulating hormone secretion, whereas central estrogenic pathways direct growth hormone and prolactin secretion in postmenopausal women. *The Journal of Clinical Endocrinology & Metabolism, 93*(3), 951-958.

Crandall, C. J., Yildiz, V. O., Wactawski-Wende, J., Johnson, K. C., Chen, Z., Going, S. B., ... & Cauley, J. A. (2015). Postmenopausal weight change and incidence of fracture: Post hoc findings from Women's Health Initiative Observational Study and Clinical Trials. *BMJ, 350*.

Crawford, B. J., Waldman, E. G., & Cahn, N. R. (2021). Working through menopause. *Wash. UL Rev., 99*, 1531.

Darke, G. (1996). Discourses on the menopause and female sexual identity. In Sex, Sensibility and the Gendered Body (pp. 136-158). London: Palgrave Macmillan UK.

Davis, S. R., & Baber, R. J. (2022). Treating menopause—MHT and beyond. *Nature Reviews Endocrinology, 18*(8), 490-502.

Davis, S. R., Castelo-Branco, C., Chedraui, P., Lumsden, M. A., Nappi, R. E., Shah, D., ... & Writing Group of the International Menopause Society for World Menopause Day 2012. (2012). Understanding weight gain at menopause. *Climacteric, 15*(5), 419-429.

Davis, S. R., Pinkerton, J., Santoro, N., & Simoncini, T. (2023). Menopause—Biology, consequences, supportive care, and therapeutic options. *Cell*.

Davis, S. R., Santoro, N., Lambrinoudaki, I., Lumsden, M., Mishra, G. D., Pal, L., ... & Simoncini, T. (2015). Authors' reply: Communicating evidence-based practice in menopause. *Nature Reviews Disease Primers, 1*(1), 15032.

Dennerstein, L., Dudley, E. C., Hopper, J. L., Guthrie, J. R., & Burger, H. G. (2000). A prospective population-based study of menopausal symptoms. *Obstetrics & Gynecology, 96*(3), 351-358.

Dennerstein, L., Dudley, E., & Burger, H. (2001). Are changes in sexual functioning during midlife due to aging or menopause? *Fertility and Sterility, 76*(3), 456-460.

Dennerstein, L., Koochaki, P., Barton, I., & Graziottin, A. (2006). Hypoactive sexual desire disorder in menopausal women: A survey of Western European women. *The Journal of Sexual Medicine, 3*(2), 212-222.

Dennerstein, L., Lehert, P., & Burger, H. (2005). The relative effects of hormones and relationship factors on sexual function of women through the natural menopausal transition. *Fertility and Sterility, 84*(1), 174-180.

Dillaway, H. E. (2005). Menopause is the "good old" women's thoughts about reproductive aging. *Gender & Society, 19*(3), 398-417.

Djapardy, V., & Panay, N. (2022). Alternative and non-hormonal treatments to symptoms of menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology, 81*, 45-60.

Douchi, T., Yamamoto, S., Yoshimitsu, N., Andoh, T., Matsuo, T., & Nagata, Y. (2002). Relative contribution of aging and menopause to changes in lean and fat mass in segmental regions. *Maturitas, 42*(4), 301-306.

Drogos, L. L., Rubin, L. H., Geller, S. E., Banuvar, S., Shulman, L. P., & Maki, P. M. (2013). Objective cognitive performance is related to subjective memory complaints in midlife

women with moderate to severe vasomotor symptoms. *Menopause (New York, NY), 20*(12).

Duffy, O., Iversen, L., & Hannaford, P. C. (2011). The menopause 'It's somewhere between a taboo and a joke'. A focus group study. *Climacteric, 14*(4), 497-505.

Dundon, C. M., & Rellini, A. H. (2010). More than sexual function: Predictors of sexual satisfaction in a sample of women age 40–70. *The Journal of Sexual Medicine, 7*(2_Part_2), 896-904.

Eastell, R., O'Neill, T. W., Hofbauer, L. C., Langdahl, B., Reid, I. R., Gold, D. T., & Cummings, S. R. (2016). Postmenopausal osteoporosis. *Nature Reviews Disease Primers, 2*(1), 1-16.

Eckhardt, S., & Wellons, M. (2016). Defining menopause: What is early, what is late? In *Primary Ovarian Insufficiency: A Clinical Guide to Early Menopause* (pp. 1-17).

El Khoudary, S. R., Aggarwal, B., Beckie, T. M., Hodis, H. N., Johnson, A. E., Langer, R. D., ... & American Heart Association Prevention Science Committee of the Council on Epidemiology and Prevention; and Council on Cardiovascular and Stroke Nursing. (2020). Menopause transition and cardiovascular disease risk: Implications for timing of early prevention: A scientific statement from the American Heart Association. *Circulation, 142*(25), e506-e532.

El Khoudary, S. R., Greendale, G., Crawford, S. L., Avis, N. E., Brooks, M. M., Thurston, R. C., ... & Matthews, K. (2019). The menopause transition and women's health at midlife: A progress report from the Study of Women's Health Across the Nation (SWAN). *Menopause (New York, NY), 26*(10), 1213.

El Khoudary, S. R., Wang, L., Brooks, M. M., Thurston, R. C., Derby, C. A., & Matthews, K. A. (2016). Increase HDL-C level over the menopausal transition is associated with greater atherosclerotic progression. *Journal of Clinical Lipidology, 10*(4), 962-969.

Epperson, C. N., Sammel, M. D., & Freeman, E. W. (2013). Menopause effects on verbal memory: Findings from a longitudinal community cohort. *The Journal of Clinical Endocrinology & Metabolism, 98*(9), 3829-3838.

Epstein, D. A., Lee, N. B., Kang, J. H., Agapie, E., Schroeder, J., Pina, L. R., ... & Munson, S. (2017, May). Examining menstrual tracking to inform the design of personal informatics tools.

In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (pp. 6876-6888).

Fanciulli, G., Delitala, A., & Delitala, G. (2009). Growth hormone, menopause and ageing: No definite evidence for 'rejuvenation' with growth hormone. *Human Reproduction Update, 15*(3), 341-358.

Fantry, L. E., Zhan, M., Taylor, G. H., Sill, A. M., & Flaws, J. A. (2005). Age of menopause and menopausal symptoms in HIV-infected women. *AIDS Patient Care & STDs, 19*(11), 703-711.

Farrell, E. (2003). Medical choices available for management of menopause. *Best Practice & Research Clinical Endocrinology & Metabolism, 17*(1), 1-16.

Felson, D. T. (2009). Developments in the clinical understanding of osteoarthritis. *Arthritis Research & Therapy, 11*, 1-11.

Ferguson, J. S., & Perry, C. (2001). Rewriting menopausal women's experience. *Frontiers: A Journal of Women Studies, 19*, 20-41.

Finkelstein, J. S., Brockwell, S. E., Mehta, V., Greendale, G. A., Sowers, M. R., Ettinger, B., ... & Neer, R. M. (2008). Bone mineral density changes during the menopause transition in a multiethnic cohort of women. *The Journal of Clinical Endocrinology & Metabolism, 93*(3), 861-868.

Flint, M., & Samil, R. S. (1990). Cultural and subcultural meanings of the menopause. *Annals of the New York Academy of Sciences, 592*(1), 134-147.

Fogle, R. H., Stanczyk, F. Z., Zhang, X., & Paulson, R. J. (2007). Ovarian androgen production in postmenopausal women. *The Journal of Clinical Endocrinology & Metabolism, 92*(8), 3040-3043.

Forbes, G. B., Adams-Curtis, L. E., White, K. B., & Holmgren, K. M. (2003). The role of hostile and benevolent sexism in women's and men's perceptions of the menstruating woman. *Psychology of Women Quarterly, 27*(1), 58-63.

Foucault, M. (1972). *The archaeology of knowledge and the discourse on language* (A. M. Sheridan Smith, Trans.). Pantheon Books.

Foucault, M. (1976). *The history of sexuality: Volume 1: An introduction* (R. Hurley, Trans.). Pantheon Books.

Foucault, M. (1980). *Power/knowledge: Selected interviews and other writings, 1972-1977* (C. Gordon, Ed.). Pantheon Books.

Freedman, R. R. (2005). Hot flashes: Behavioural treatments, mechanisms, and relation to sleep. *The American Journal of Medicine, 118*(12), 124-130.

Freedman, R. R., & Roehrs, T. A. (2006). Effects of REM sleep and ambient temperature on hot flash-induced sleep disturbance. *Menopause, 13*(4), 576-583.

Freeman, E. W., Sammel, M. D., Lin, H., Gracia, C. R., & Kapoor, S. (2008). Symptoms in the menopausal transition: Hormone and behavioural correlates. *Obstetrics & Gynecology, 111*(1), 127-136.

Freeman, E. W., Sammel, M. D., Lin, H., Gracia, C. R., Kapoor, S., & Ferdousi, T. (2005). The role of anxiety and hormonal changes in menopausal hot flashes. *Menopause, 12*(3), 258-266.

Freeman, E. W., Sammel, M. D., Lin, H., Gracia, C. R., Pien, G. W., Nelson, D. B., & Sheng, L. (2007). Symptoms associated with menopausal transition and reproductive hormones in midlife women. *Obstetrics & Gynecology, 110*(2 Part 1), 230-240.

Freeman, E. W., Sammel, M. D., Liu, L., Gracia, C. R., Nelson, D. B., & Hollander, L. (2004). Hormones and menopausal status as predictors of depression in women in transition to menopause. *Archives of General Psychiatry, 61*(1), 62-70.

Fuh, J. L., Wang, S. J., Lee, S. J., Lu, S. R., & Juang, K. D. (2006). A longitudinal study of cognition change during early menopausal transition in a rural community. *Maturitas, 53*(4), 447-453.

Garnero, P., Sornay-Rendu, E., Chapuy, M. C., & Delmas, P. D. (1996). Increased bone turnover in late postmenopausal women is a major determinant of osteoporosis. *Journal of Bone and Mineral Research, 11*(3), 337-349.

Gibbs, Z., Lee, S., Kulkarni, J., & Kulkarni, J. (2021). Health inequalities: Is menopause a missing link? *Post Reproductive Health, 27*(4), 221-229.

Gold, E. B., Colvin, A., Avis, N., Bromberger, J., Greendale, G. A., Powell, L., ... & Matthews, K. (2006). Longitudinal analysis of the association between vasomotor symptoms and race/ethnicity across the menopausal transition: Study of Women's Health Across the Nation. *American Journal of Public Health, 96*(7), 1226-1235.

Gold, E. B., Sternfeld, B., Kelsey, J. L., Brown, C., Mouton, C., Reame, N., ... & Stellato, R. (2000). Relation of demographic and lifestyle factors to symptoms in a multi-racial/ethnic population of women 40-55 years of age. *American Journal of Epidemiology, 152*(5), 463-473.

Gollschewski, S., Kitto, S., Anderson, D., & Lyons-Wall, P. (2008). Women's perceptions and beliefs about the use of complementary and alternative medicines during menopause. *Complementary Therapies in Medicine, 16*(3), 163-168.

Gompel, A. (2022). Mechanisms of action of selective estrogen receptor modulators (SERMs) in the human endometrium. *Climacteric, 25*(S1), S11-S17.

Gompel, A., Plu-Bureau, G., Rue, M., & Paris, E. (2008). Incidence of hormone therapy–related breast cancer in France and quantified impact of the WHI study: An ecological study. *Maturitas, 61*(2), 147-151.

Goodman, J. (2016). Long term safety and effectiveness of hormone replacement therapy. *Current Opinion in Obstetrics and Gynecology, 28*(1), 8-13.

Gordon, J. L., Girdler, S. S., Meltzer-Brody, S. E., Stika, C. S., Thurston, R. C., Clark, C. T., ... & Joffe, H. (2015). Ovarian hormone fluctuation, neurosteroids, and HPA axis dysregulation in perimenopausal depression: A novel heuristic model. *The American Journal of Psychiatry, 172*(3), 227-236.

Gouda, M., Alzaman, N., Ali, R. A., Khamis, A. M., & Alkady, S. (2023). Menopausal hormone therapy and cardiovascular disease: A review. *Journal of Cardiovascular Development and Disease, 10*(2), 42.

Green, S. M., & Polotsky, A. J. (2016). Menopause and aging. In *Diabetes in Women* (pp. 497-517). Springer, Cham.

Grodstein, F., Clarkson, T. B., & Manson, J. E. (2003). Understanding the divergent data on postmenopausal hormone therapy. *New England Journal of Medicine, 348*(7), 645-650.

Grossman, M. P., Nakajima, S. T., Fallat, M. E., & Siami, F. (2010). Premature ovarian failure: A misnomer requiring new terminology for a spectrum of ovarian insufficiency and dysfunction. *Fertility and Sterility, 94*(7), 2202-2206.

Guay, A. T., & Jacobson, J. (2007). Heightened sexual desire in a postmenopausal woman taking bupropion: A case report. *Journal of Sexual Medicine, 4*(6), 1779-1783.

Gunter, J. (2021). The Menopause Manifesto: Own Your Health with Facts and Feminism. Kensington Books.

Gurvich, C., Hoy, K., Thomas, N., & Kulkarni, J. (2018). Sex differences and the influence of sex hormones on cognition through adulthood and the aging process. *Brain Sciences, 8*(9), 163.

Hale, G. E., Burger, H. G., Robertson, D. M., & Dennerstein, L. (2009). A review of physiological changes during the menopausal transition: focus on findings from the Melbourne Women's Midlife Health Project. *Human Reproduction Update, 15*(2), 199-209.

Harlow, S. D., Gass, M., Hall, J. E., Lobo, R., Maki, P., Rebar, R. W., ... & STRAW + 10 Collaborative Group. (2012). Executive summary of the Stages of Reproductive Aging Workshop+ 10: addressing the unfinished agenda of staging reproductive aging. *Menopause, 19*(4), 387.

Hendrix, S. L., Wassertheil-Smoller, S., Johnson, K. C., Howard, B. V., Kooperberg, C., Rossouw, J. E., ... & Investigators, W. (2006). Effects of conjugated equine estrogen on stroke in the Women’s Health Initiative. *Circulation, 113*(20), 2425-2434.

Hendrix, W. M., & Jones, W. H. (2015). Menopause and the male partner: Understanding the male partner's perception of menopause. *Women & Health, 55*(7), 808-820.

Henriques, J., Hollway, W., Urwin, C., Venn, C., & Walkerdine, V. (1984). *Changing the subject: Psychology, social regulation and subjectivity*. Methuen.

Higginbotham, J. A. (1998). The sodium-potassium pump. *Scientific American, 278*(3), 70-75.

Hill, K. (1996). The demography of menopause. *Maturitas, 23*(2), 113-127.

Hlatky, M. A., Boothroyd, D., Vittinghoff, E., Sharp, P., Whooley, M. A., & Heart and Estrogen/progestin Replacement Study (HERS) Research Group. (2002). Quality-of-life and depressive symptoms in postmenopausal women after receiving hormone therapy:

results from the Heart and Estrogen/progestin Replacement Study (HERS) trial. *JAMA, 287*(5), 591-597.

Hunter, M. S., Grunfeld, E. A., Mittal, S., Sikka, P., & Ramirez, A. J. (2004). Menopausal symptoms in women with breast cancer: prevalence and treatment preferences. *Psycho-Oncology, 13*(11), 769-778.

Hunter, M. S., Gupta, P., Papitsch-Clark, A., & Sturdee, D. W. (2013). Mid-age health in women from the Indian subcontinent (MAHWIS): General health and the experience of menopause in women. *Maturitas, 74*(2), 179-185.

Iatrakis, G., Diakosavvas, M., Eleftheriades, M., Besharat, Z. M., Adonakis, G., & Parthenis, C. (2019). Quality of life in postmenopausal women. *Journal of Gynecology and Women's Health, 15*(5), 555922.

Im, E. O., & Meleis, A. I. (1999). Meanings of menopause to Hispanic women. *Western Journal of Nursing Research, 21*(3), 388-404.

Im, E. O., & Meleis, A. I. (2000). Women's work and symptoms during midlife: Korean immigrant women. *Women's Health Issues, 10*(2), 116-125.

Im, E. O., & Meleis, A. I. (2001). Women's work and symptoms during midlife: Korean immigrant women. *Women's Health Issues, 11*(6), 404-416.

Jack, G. A. (2020). Textual representations of the menopause. In *The Palgrave Handbook of Critical Menopause Studies* (pp. 279-294). Palgrave Macmillan, Singapore.

Jabbour, H. N., & Kelly, R. W. (2006). Review: Is COX-2 a perpetrator or protector of human reproduction? *Trends in Endocrinology & Metabolism, 17*(7), 320-325.

Jaisamrarn, U., Triratanachat, S., Chaikittisilpa, S., Grob, P., Danker-Hopfe, H., & Geisler, S. (2013). Ultra-low-dose estriol and lactobacilli in the local treatment of postmenopausal vaginal atrophy, Climacteric, 16*(2), 347-355.

Janelsins, M. C., Mustian, K. M., Palesh, O. G., Mohile, S. G., Peppone, L. J., Sprod, L. K., ... & Morrow, G. R. (2011). Differential expression of cytokines in breast cancer patients receiving different chemotherapies: implications for cognitive impairment research. *Supportive Care in Cancer, 19*(4), 455-461.

Jasienska, G., Ziomkiewicz, A., Ellison, P. T., Lipson, S. F., & Thune, I. (2004). Large breasts and narrow waists indicate high reproductive potential in women. *Proceedings of the Royal Society of London. Series B: Biological Sciences, 271*(1545), 1213-1217.

Johnson, A., Roberts, L., & Elkins, G. (2019). Complementary and alternative medicine for menopause. *Journal of Evidence-Based Integrative Medicine, 24*, 2515690X19829380.

Jones, R. K. (2013). Identity, biography, and midlife women's experiences of illness: A gendered perspective on living with multiple sclerosis. *Sociology of Health & Illness, 35*(6), 913-928.

Jónasdóttir, G., Kallings, L. V., Thow, A. M., & Yngve, A. (2011). A global perspective on the physical activity transition. *Global Health Action, 4*(1), 6636.

Kaunitz, A. M., & Manson, J. E. (2015). Management of menopausal symptoms. *Obstetrics and Gynecology, 126*(4), 859.

Keck, J. (1991). The Web of Menopause. *Journal of Gender Studies, 1*(1), 47-55.

Kelsey, J. L., Gammon, M. D., & John, E. M. (1993). Reproductive factors and breast cancer. *Epidemiologic Reviews, 15*(1), 36-47.

Kendall, A., Saxena, P., & Dowrick, A. (2023). Investigating the role of menopausal hormone therapy (MHT) in middle-aged women's quality of life: An evidence synthesis. *Women's Health Reports, 2*(1), 123-134.

Kelsey, J. L., & Gammon, M. D. (1991). Epidemiology of breast cancer. *Epidemiologic Reviews, 13*(1), 30-50.

Kissling, E. A. (2006). Capitalizing on the crisis: An examination of menopause-related advertisements in mass-market magazines, 1984–1994. *Women & Health, 24*(4), 1-18.

Klein, L. (1997). The politics of menopause: The "discovery" of a deficiency disease. In *The Politics of Women's Health* (pp. 27-47). Routledge.

Knuiman, M. W., Hung, J., Divitini, M. L., Davis, T. M., Beilby, J., & Jamrozik, K. (2009). 25-year follow-up of body mass index and its association with cardiovascular disease risk factors in the Busselton Health Study. *Journal of Epidemiology & Community Health, 63*(9), 727-733.

Kralik, D., Brown, M., & Koch, T. (2001). Women's experiences of depression and anxiety as they transition through menopause. *Women & Health, 34*(4), 31-47.

Kritz-Silverstein, D., Wingard, D. L., & Barrett-Connor, E. (2004). The relationship between menopause and physical functioning in older women. *Journal of the American Geriatrics Society, 52*(11), 1951-1956.

Krstev, S., Knutsson, A., & Sekerić, N. (2006). Cardiovascular risk factors among female workers with and without shift work experience. *Journal of Occupational Health, 48*(5), 341-346.

Kuh, D., Langenberg, C., Hardy, R., Kok, H., Cooper, R., Butterworth, S., ... & Wadsworth, M. E. (2005). Cardiovascular risk at age 53 years in relation to the menopause transition and use of hormone replacement therapy: a prospective British birth cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology, 112*(4), 476-485.

Labrie, F., Luu-The, V., Labrie, C., Bélanger, A., Simard, J., Lin, S. X., ... & Séguin, C. (2001). Endocrinology of pregnancy and parturition. *Endocrine Reviews, 22*(5), 724-781.

Langer, R. D., & Langer, R. (2003). Menopause and postmenopause hormone therapy: The view beyond the Women's Health Initiative. *International Journal of Gynecology & Obstetrics, 82*(3), 351-357.

Lawton, B., Rose, S., Sykes, P., Riddell, T., Robertson, G., & Dowell, A. C. (2008). Managing cardiovascular risk in New Zealand women: the view from primary care. *The New Zealand Medical Journal (Online), 121*(1281).

Levine, D. (2009). Google Scholar. *Journal of the Medical Library Association: JMLA, 97*(4), 310.

Lewis, J. (2007). Menopause and hormone replacement therapy (HRT): The way forward. *International Journal of Pharmaceutical and Healthcare Marketing, 1*(4), 294-303.

Liao, L. M., & Hunter, M. S. (1998). Health and menopausal status differences in psychological wellbeing between middle-aged women from urban and rural China: The characteristics of their relations with health behaviours and health beliefs. *Maturitas, 31*(1), 63-69.

Liu, J., Eden, J., Smith, P., & Sartorius, N. (1997). The effect of oestrogen therapy on memory and mood in recently postmenopausal women. *Climacteric, 6*(2), 140-151.

Liu, J., Wang, W., Xia, Y., Chen, W., & Zhou, W. (2005). Risk factors for cardiovascular disease in middle-aged Chinese women. *International Journal of Cardiology, 103*(1), 60-66.

Lloyd, J. M., Wingrove, J., Stockwell, R., & Griffiths, A. (2012). Understanding the menopause: Predictors of knowledge about the menopause in women aged 40–50 years. *Maturitas, 71*(1), 84-90.

Lombardini, L., Banfi, G., Pilotti, S., Murialdo, G., & Traverso, N. (2012). Low plasma antioxidant activity is associated with increased cardiovascular risk in postmenopausal women. *Nutrition Research, 32*(12), 932-936.

Loprinzi, P. D., & Cardinal, B. J. (2013). Association between objectively-measured physical activity and sleep, NHANES 2005–2006. *Mental Health and Physical Activity, 6*(2), 66-70.

Lopez, L. M., Grimes, D. A., Schulz, K. F., & Curtis, K. M. (2004). Steroidal contraceptives: Effect on bone fractures in women. *Cochrane Database of Systematic Reviews, 2004*(1).

Luecken, L. J., Kraft, A., & Hagan, M. J. (2009). Negative relationships in the family-of-origin predict attenuated cortisol in emerging adults. *Hormones and Behaviour, 55*(3), 412-417.

Ly, L. P., & Handelsman, D. J. (2005). Hypoactive sexual desire disorder in women: The effects of postmenopausal androgen therapy. *Maturitas, 52*(3-4), 204-211.

Mansfield, P. K., Voda, A., & Avery, J. (2003). What do women know about menopause? Findings from the Seattle Midlife Women's Health Study. *Women's Health Issues, 13*(4), 204-214.

Markovic, M., & Manderson, L. (2000). Women's perspectives on treatment for menopausal symptoms: The case of Hormone Replacement Therapy (HRT). *Social Science & Medicine, 50*(3), 397-407.

Matthews, K. A., Bromberger, J. T., & Kuller, L. H. (2001). Predictors of risk of postmenopausal and/or chronic heart disease in middle-aged women. *American Journal of Epidemiology, 153*(12), 1178-1184.

Matthews, K. A., Bromberger, J. T., & Kravitz, H. M. (2005). Is it a new stressor or is it menopause? Findings from the Study of Women's Health Across the Nation (SWAN). *Menopause (New York, NY), 12*(2), 195.

Matthews, K. A., Bromberger, J. T., & Tomlinson, S. (2001). Socioeconomic status and health in midlife women. *Journal of Epidemiology & Community Health, 55*(5), 354-360.

Matthews, K. A., Bromberger, J. T., & Tomlinson, S. (2005). Socioeconomic status and health in midlife women: The Study of Women's Health Across the Nation (SWAN). *Journal of Epidemiology & Community Health, 59*(12), 1040-1046.

Matthews, K. A., Crawford, S. L., Chae, C. U., Everson-Rose, S. A., Sowers, M. F., Sternfeld, B., & Sutton-Tyrrell, K. (2009). Are changes in cardiovascular disease risk factors in midlife women due to chronological aging or to the menopausal transition? *Journal of the American College of Cardiology, 54*(25), 2366-2373.

Matthews, K. A., Kuller, L. H., Wing, R. R., & Meilahn, E. N. (1994). Biobehavioural aspects of menopause: lessons from the healthy women study. *Experimental Gerontology, 29*(3-4), 337-342.

McConnell, D. S., Stanczyk, F. Z., Sowers, M. R., Randolph Jr, J. F., & Lasley, B. L. (2012). Menopausal transition stage-specific changes in circulating adrenal androgens. *Menopause (New York, NY), 19*(6), 658.

McCrea, F. B. (1983). The politics of menopause: The "discovery" of a deficiency disease. *Social Problems, 31*(1), 111-123.

McNamara, M., Batur, P., & DeSapri, K. T. (2015). Perimenopause. *Annals of Internal Medicine, 162*(3), ITC1-ITC16.

Medic, G., Wille, M., & Hemels, M. E. (2017). Short-and long-term health consequences of sleep disruption. *Nature and Science of Sleep, 151-161.

Melby, M. K., Lock, M., & Kaufert, P. (2005). Culture and symptom reporting at menopause. *Human Reproduction Update, 11*(5), 495-512.

Mendelsohn, M. E. (2000). Mechanisms of estrogen action in the cardiovascular system. *Journal of Steroid Biochemistry and Molecular Biology, 5*(74), 337-343.

Meyer, V. (2003). Medicalized menopause, US style. *Health Care for Women International, 24*(9), 822-830.

Mills, D. (2007). A cross-cultural view of menopause and the menopausal woman. Women to Women: Changing Women's Health Naturally.

Moberg, L., Hamrefors, V., Fedorowski, A., & Rogmark, C. (2022). Early menopause and weight loss are significant factors associated with risk of future fracture in middle-aged women. *BMC Musculoskeletal Disorders, 23*(1), 779.

Monteleone, P., Mascagni, G., Giannini, A., Genazzani, A. R., & Simoncini, T. (2018). Symptoms of menopause—global prevalence, physiology and implications. *Nature Reviews Endocrinology, 14*(4), 199-215.

Muka, T., Oliver-Williams, C., Kunutsor, S., Laven, J. S., Fauser, B. C., Chowdhury, R., ... & Franco, O. H. (2016). Association of age at onset of menopause and time since onset of menopause with cardiovascular outcomes, intermediate vascular traits, and all-cause mortality: a systematic review and meta-analysis. *JAMA Cardiology, 1*(7), 767-776.

Nadkar, M. Y., Samant, R. S., Vaidya, S. S., & Borges, N. E. (1999). Relationship between osteoarthritis of knee and menopause. *The Journal of the Association of Physicians of India, 47*(12), 1161-1163.

Nagar, S. (2020). Menopause: A reproductive health issue. *Int.J.Curr.Microbiol.App.Sci, 9*(12), 2411-2419. doi: https://doi.org/10.20546/ijcmas.2020.912.286

Namazi, M., Sadeghi, R., & Behboodi Moghadam, Z. (2019). Social determinants of health in menopause: An integrative review. *International Journal of Women's Health, 637-647.

Nappi, R. E., & Kokot-Kierepa, M. (2012). Vaginal Health: Insights, Views & Attitudes (VIVA)–results from an international survey. *Climacteric, 15*(1), 36-44.

Nappi, R. E., & Lachowsky, M. (2009). Menopause and sexuality: prevalence of symptoms and impact on quality of life. *Maturitas, 63*(2), 138-141.

Nappi, R. E., & Palacios, S. (2014). Impact of vulvovaginal atrophy on sexual health and quality of life at postmenopause. *Climacteric, 17*(1), 3-9.

Nappi, R. E., Cucinella, L., Martella, S., Rossi, M., Tiranini, L., & Martini, E. (2016). Female sexual dysfunction (FSD): Prevalence and impact on quality of life (QoL). *Maturitas, 94*, 87-91.

Nappi, R. E., Martini, E., Terreno, E., Albani, F., Santamaria, V., Tonani, S., ... & Polatti, F. (2010). Management of hypoactive sexual desire disorder in women: current and emerging therapies. *International Journal of Women's Health, 167-175.

Nappi, R. E., Palacios, S., Panay, N., Particco, M., & Krychman, M. L. (2016). Vulvar and vaginal atrophy in four European countries: evidence from the European REVIVE Survey. *Climacteric, 19*(2), 188-197.

Nappi, R. E., Veneroni, F., Verde, J. B., Polatti, F., Fignon, A., Farina, C., & Genazzani, A. R. (2001). Climacteric complaints, female identity, and sexual dysfunctions. *Journal of Sex & Marital Therapy, 27*(5), 567-576.

Newhart, M. R. (2013). Menopause matters: The implications of menopause research for studies of midlife health. *Health Sociology Review, 22*(4), 365-376.

Newson, L. (2018). Menopause and cardiovascular disease. *Post Reproductive Health, 24*(1), 44-49.

Nie, X., Xie, R., & Tuo, B. (2018). Effects of estrogen on the gastrointestinal tract. *Digestive Diseases and Sciences, 63*, 583-596.

Nosek, M., Kennedy, H. P., & Gudmundsdottir, M. (2012). Distress during the menopause transition: a rich contextual analysis of midlife women's narratives. *Sage Open, 2*(3), 2158244012455178.

Obermeyer, C. M., & Sievert, L. L. (2007). Cross-cultural comparisons: midlife, aging, and menopause. *Menopause, 14*(4), 663-667.

Okhai, H., Dragomir, L., Pool, E. R., Sabin, C. A., Miners, A., Sherr, L., ... & Tariq, S. (2022). Association between health-related quality of life and menopausal status and symptoms in women living with HIV aged 45–60 years in England: An analysis of the PRIME study. *Women's Health, 18*, 17455065211068722.

Osarenren, N., Ubangha, M. B., Nwadinigwe, I. P., & Ogunleye, T. (2009). Attitudes of women to menopause: Implications for counselling. *Edo Journal of Counselling, 2*(2), 155-164.

Osman, A., Noraimi, N. E. I. A., & Wahab, N. A. (2021). Healthy management of menopause: exploring issues and user requirements for mobile intervention. *Journal of Computing Research and Innovation, 6*(4), 52-60.

Paechter, C. (2006). Masculine femininities/feminine masculinities: Power, identities and gender. *Gender and Education, 18*(3), 253-263.

Panay, N., Anderson, R. A., Nappi, R. E., Vincent, A. J., Vujovic, S., Webber, L., & Wolfman, W. (2020). Premature ovarian insufficiency: an international menopause society white paper. *Climacteric, 23*(5), 426-446.

Paripoorani, D., Gasteiger, N., Hawley-Hague, H., & Dowding, D. (2023). A systematic review of menopause apps with an emphasis on osteoporosis. *BMC Women's Health, 23*(1), 518.

Pastore, L. M., Carter, R. A., Hulka, B. S., & Wells, E. (2004). Self-reported urogenital symptoms in postmenopausal women: Women's Health Initiative. *Maturitas, 49*(4), 292-303.

Pien, G. W., Sammel, M. D., Freeman, E. W., Lin, H., & DeBlasis, T. L. (2008). Predictors of sleep quality in women in the menopausal transition. *Sleep, 31*(7), 991-999.

Pines, A. (2016). Circadian rhythm and menopause. *Climacteric, 19*(6), 551-552.

Piérard-Franchimont, C., & Piérard, G. E. (2013). Alterations in hair follicle dynamics in women. *BioMed Research International, 2013.*

Polo-Kantola, P. (2011). Sleep problems in midlife and beyond. *Maturitas, 68*(3), 224-232.

Portman, D. J., & Gass, M. L. (2014). Vulvovaginal atrophy terminology consensus conference panel. Genitourinary syndrome of menopause: new terminology for vulvovaginal atrophy from the International Society for the Study of Women's Sexual Health and the North American Menopause Society. *Menopause, 21*(10), 1063-1068.

Pou, K. M., Massaro, J. M., Hoffmann, U., Vasan, R. S., Maurovich-Horvat, P., Larson, M. G., ... & Fox, C. S. (2007). Visceral and subcutaneous adipose tissue volumes are cross-sectionally related to markers of inflammation and oxidative stress: the Framingham Heart Study. *Circulation, 116*(11), 1234-1241.

Prague, J. K., Roberts, R. E., Comninos, A. N., Clarke, S., Jayasena, C. N., Mohideen, P., ... & Dhillo, W. S. (2018). Neurokinin 3 receptor antagonism rapidly improves vasomotor symptoms with sustained duration of action. *Menopause (New York, NY), 25*(8), 862.

Prairie, B. A., Wisniewski, S. R., Luther, J., Hess, R., Thurston, R. C., Wisner, K. L., & Bromberger, J. T. (2015). Symptoms of depressed mood, disturbed sleep, and sexual problems in midlife women: cross-sectional data from the Study of Women's Health Across the Nation. *Journal of Women's Health, 24*(2), 119-126.

Price, V. H. (2003, June). Androgenetic alopecia in women. In *Journal of Investigative Dermatology Symposium Proceedings* (Vol. 8, No. 1, pp. 24-27). Elsevier.

Ramirez, M. (2006). Manufacturing heterosexuality: Hormone replacement therapy and menopause in urban Oaxaca. *Culture, Health & Sexuality, 8*(6), 545-558.

Rance, N. E., Dacks, P. A., Mittelman-Smith, M. A., Romanovsky, A. A., & Krajewski-Hall, S. J. (2013). Modulation of body temperature and LH secretion by hypothalamic KNDy (kisspeptin, neurokinin B, and dynorphin) neurons: a novel hypothesis on the mechanism of hot flushes. *Frontiers in Neuroendocrinology, 34*(3), 211-227.

Randolph Jr, J. F., Zheng, H., Avis, N. E., Greendale, G. A., & Harlow, S. D. (2015). Masturbation frequency and sexual function domains are associated with serum reproductive hormone levels across the menopausal transition. *The Journal of Clinical Endocrinology & Metabolism, 100*(1), 258-266.

Ravussin, E., & Smith, S. R. (2002). Increased fat intake, impaired fat oxidation, and failure of fat cell proliferation result in ectopic fat storage, insulin resistance, and type 2 diabetes mellitus. *Annals of the New York Academy of Sciences, 967*(1), 363-378.

Reus, T. L., Brohem, C. A., Schuck, D. C., & Lorencini, M. (2020). Revisiting the effects of menopause on the skin: functional changes, clinical studies, in vitro models and therapeutic alternatives. *Mechanisms of Ageing and Development, 185*, 111193.

Rhodes, D. J., & Shuster, L. T. (2010). Vulvovaginal atrophy. In *Mayo Clinic Proceedings* (Vol. 85, No. 1, p. 87). Elsevier Limited.

Richters, J. M. A. (1997). Menopause in different cultures. *Journal of Psychosomatic Obstetrics & Gynecology, 18*(2), 73-80.

Ripa, P., Ornello, R., Degan, D., Tiseo, C., Stewart, J., Pistoia, F., ... & Sacco, S. (2015). Migraine in menopausal women: a systematic review. *International Journal of Women's Health, 773-782.

Rivera, C. M., Grossardt, B. R., Rhodes, D. J., Brown Jr, R. D., Roger, V. L., Melton III, L. J., & Rocca, W. A. (2009). Increased cardiovascular mortality following early bilateral oophorectomy. *Menopause (New York, NY), 16*(1), 15.

Roberts, H., & Hickey, M. (2016). Managing the menopause: an update. *Maturitas, 86*, 53-58.

Roberts, T. A. (2004). Female trouble: The menstrual self-evaluation scale and women's self-objectification. *Psychology of Women Quarterly, 28*(1), 22-26.

Robinson, D., & Cardozo, L. D. (2003). The role of estrogens in female lower urinary tract dysfunction. *Urology, 62*(4), 45-51.

Rocca, W. A., Bower, J. H., Maraganore, D. M., Ahlskog, J. E., Grossardt, B. R., De Andrade, M., & Melton III, L. J. (2007). Increased risk of cognitive impairment or dementia in women who underwent oophorectomy before menopause. *Neurology, 69*(11), 1074-1083.

Rolland, Y. M., Perry III, H. M., Patrick, P., Banks, W. A., & Morley, J. E. (2007). Loss of appendicular muscle mass and loss of muscle strength in young postmenopausal women. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences, 62*(3), 330-335.

Roman-Blas, J. A., Castañeda, S., Largo, R., & Herrero-Beaumont, G. (2009). Osteoarthritis associated with estrogen deficiency. *Arthritis Research & Therapy, 11*, 1-14.

Rostosky, S. S., & Travis, C. B. (2000). Menopause and sexuality: Ageism and sexism unite. *The Journal of Sex Research, 37*(2), 125-134.

Russo, N. F. (1976). The motherhood mandate. *Journal of Social Issues, 32*(3), 143-158.

Santo, J. E., Lavilla-Lerma, M. L., del Carmen Carcelén-Fraile, M., de Loureiro, N. E. M., Brandão-Loureiro, V., Alzar-Teruel, M., & Ortiz-Quesada, R. (2023). Associations between the severity of menopausal symptoms and musculoskeletal pain in postmenopausal Portuguese women. *International Journal of Gynecology & Obstetrics*.

Santoro, N. (2016). Perimenopause: from research to practice. *Journal of Women's Health, 25*(4), 332-339.

Sauer, T., Tottenham, L. S., Ethier, A., & Gordon, J. L. (2020). Perimenopausal vasomotor symptoms and the cortisol awakening response. *Menopause, 27*(11), 1322-1327.

Schmidt, P. J., & Rubinow, D. R. (2009). Sex hormones and mood in the perimenopause. *Annals of the New York Academy of Sciences, 1179*(1), 70-85.

Schoenaker, D. A., Jackson, C. A., Rowlands, J. V., & Mishra, G. D. (2014). Socioeconomic position, lifestyle factors and age at natural menopause: a systematic review and meta-

analyses of studies across six continents. *International Journal of Epidemiology, 43*(5), 1542-1562.

Seritan, A. L., Iosif, A. M., Park, J. H., Deatherage Hand, D., Sweet, R. L., & Gold, E. B. (2010). Self-reported anxiety, depressive, and vasomotor symptoms: a study of perimenopausal women presenting to a specialized midlife assessment center. *Menopause, 17*(2), 410.

Sherman, S. (2005). Defining the menopausal transition. *The American Journal of Medicine, 118*(12), 3-7.

Sievert, L. L., & Espinosa-Hernandez, G. (2003). Attitudes toward menopause in relation to symptom experience in Puebla, Mexico. *Women & Health, 38*(2), 93-106.

Sillence, E., Hardy, C., & Kemp, E. (2023). “This App Just Gets Me”: Assessing the Quality, Features and User Reviews of Menopause Smartphone Apps. *Journal of Consumer Health on the Internet, 27*(2), 156-172.

Singh, A., & Arora, A. K. (2005). Profile of menopausal women in rural north India. *Climacteric, 8*(2), 177-184.

Skultans, V. (1970). The symbolic significance of menstruation and the menopause. *Man, 5*(4), 639-651.

Sommer, B. (2017). How does menstruation affect cognitive competence and psychophysiological response? In *Lifting the curse of menstruation* (pp. 53-90). Routledge.

Sowers, M. R., & La Pietra, M. T. (1995). Menopause: its epidemiology and potential association with chronic diseases. *Epidemiologic Reviews, 17*(2), 287-302.

Spence, J. T., & Helmreich, R. L. (1978). *Masculinity and femininity: Their psychological dimensions, correlates, and antecedents.* University of Texas Press.

Srikanth, V. K., Fryer, J. L., Zhai, G., Winzenberg, T. M., Hosmer, D., & Jones, G. (2005). A meta-analysis of sex differences prevalence, incidence and severity of osteoarthritis. *Osteoarthritis and Cartilage, 13*(9), 769-781.

Sriprasert, I., Pantasri, T., Piyamongkol, W., Suwan, A., Chaikittisilpa, S., Sturdee, D., ... & Hunter, M. S. (2017). An International menopause society study of vasomotor symptoms in Bangkok and Chiang Mai, Thailand. *Climacteric, 20*(2), 171-177.

Stefanopoulou, E., Gupta, P., Mostafa, R. M., Nosair, N., Mirghani, Z., Moustafa, K., ... & Hunter, M. S. (2014). IMS study of climate, altitude, temperature and vasomotor symptoms in the United Arab Emirates. *Climacteric, 17*(4), 425-432.

Sternfeld, B., Wang, H., Quesenberry Jr, C. P., Abrams, B., Everson-Rose, S. A., Greendale, G. A., ... & Sowers, M. (2004). Physical activity and changes in weight and waist circumference in midlife women: findings from the Study of Women's Health Across the Nation. *American Journal of Epidemiology, 160*(9), 912-922.

Stute, P., Ceausu, I., Depypere, H., Lambrinoudaki, I., Mueck, A., Pérez-López, F. R., ... & Rees, M. (2016). A model of care for healthy menopause and ageing: EMAS position statement. *Maturitas, 92*, 1-6.

Tabeeva, G. I., Smetnik, A. A., & Ermakova, E. I. (2023). The use of non-hormonal medications for the correction of menopausal disorders: before, instead or together with menopausal hormone therapy. *Obstetrics and Gynecology, 9*, 192-198.

Talaulikar, V. (2022). Menopause transition: Physiology and symptoms. *Best Practice & Research Clinical Obstetrics & Gynaecology, 81*, 3-7.

Targett, R., & Beck, V. (2022). Menopause as a well-being strategy: Organizational effectiveness, gendered ageism and racism. *Post Reproductive Health, 28*(1), 23-27.

Tavris, C. (1993). The mismeasure of woman. *Feminism & Psychology, 3*(2), 149-168.

Tchernof, A., Desmeules, A., Richard, C., Laberge, P., Daris, M., Mailloux, J., ... & Dupont, P. (2004). Ovarian hormone status and abdominal visceral adipose tissue metabolism. *The Journal of Clinical Endocrinology & Metabolism, 89*(7), 3425-3430.

Thurston, R. C., Matthews, K. A., Chang, Y., Santoro, N., Barinas-Mitchell, E., von Känel, R., ... & Jennings, J. R. (2016). Changes in heart rate variability during vasomotor symptoms among midlife women. *Menopause (New York, NY), 23*(5), 499.

Thurston, R. C., Sowers, M. R., Chang, Y., Sternfeld, B., Gold, E. B., Johnston, J. M., & Matthews, K. A. (2008). Adiposity and reporting of vasomotor symptoms among midlife women: the study of women's health across the nation. *American Journal of Epidemiology, 167*(1), 78-85.

Tian, F. M., Zhang, L., Zhao, H. Y., Liang, C. Y., Zhang, N., & Song, H. P. (2014). An increase in the incidence of hip fractures in Tangshan, China. *Osteoporosis International, 25*, 1321-1325.

Tobin, D. J. (2017). Introduction to skin aging. *Journal of Tissue Viability, 26*(1), 37-46.

Torkelson, C., & Marienau, C. (2022). *Beyond Menopause: New Pathways to Holistic Health.* CRC Press.

Treloar, A. E., Boynton, R. E., Behn, B. G., & Brown, B. W. (1968). The menstrual cycle: variation of the human menstrual cycle through reproductive life. *Obstetrical & Gynecological Survey, 23*(1), 81-84.

Trujillo, A., & Buzzi, M. C. (2016). Participatory user requirements elicitation for personal menopause app. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction* (pp. 1-6).

Trujillo, A., Senette, C., & Buzzi, M. C. (2018). Persona design for just-in-time adaptive and persuasive interfaces in menopause self-care. In *Design, User Experience, and Usability: Users, Contexts and Case Studies: 7th International Conference, DUXU 2018, Held as Part of HCI International 2018, Las Vegas, NV, USA, July 15–20, 2018, Proceedings, Part III 7* (pp. 94-109). Springer International Publishing.

Twiss, J. J., Wegner, J., Hunter, M., Kelsay, M., Rathe-Hart, M., & Salado, W. (2007). Perimenopausal symptoms, quality of life, and health behaviours in users and nonusers of hormone therapy. *Journal of the American Association of Nurse Practitioners, 19*(11), 602-613.

Van Driel, C. M., Stuursma, A., Schroevers, M. J., Mourits, M. J., & de Bock, G. H. (2019). Mindfulness, cognitive behavioural and behaviour-based therapy for natural and treatment-induced menopausal symptoms: a systematic review and meta-analysis. *BJOG: An International Journal of Obstetrics & Gynaecology, 126*(3), 330-339.

Van Staa, T. P., Dennison, E. M., Leufkens, H. A., & Cooper, C. (2001). Epidemiology of fractures in England and Wales. *Bone, 29*(6), 517-522.

Van Voorhis, B. J. (2005). Perimenopause: urogenital and bleeding issues. In *NIH State-of-the-Science Conference on Management of Menopause-Related Symptoms* (p. 47).

Vegunta, S., Kuhle, C., Kling, J. M., Files, J. A., Kapoor, E., David, P. S., ... & Faubion, S. S. (2016). The association between recent abuse and menopausal symptom bother: results from the Data Registry on Experiences of Aging, Menopause, and Sexuality (DREAMS). *Menopause, 23*(5), 494-498.

Verbeek, P. P. (2006). Materializing morality: Design ethics and technological mediation. *Science, Technology, & Human Values, 31*(3), 361-380.

Waetjen, L. E., Feng, W. Y., Ye, J., Johnson, W. O., Greendale, G. A., Sampselle, C. M., ... & Study of Women's Health Across the Nation. (2008). Factors associated with worsening and improving urinary incontinence across the menopausal transition. *Obstetrics & Gynecology, 111*(3), 667-677.

Watt, F. E. (2018). Musculoskeletal pain and menopause. *Post Reproductive Health, 24*(1), 34-43.

Weber, M. T., Maki, P. M., & McDermott, M. P. (2014). Cognition and mood in perimenopause: a systematic review and meta-analysis. *The Journal of Steroid Biochemistry and Molecular Biology, 142*, 90-98.

Weber, M. T., Mapstone, M., Staskiewicz, J., & Maki, P. M. (2012). Reconciling subjective memory complaints with objective memory performance in the menopausal transition. *Menopause, 19*(7), 735-741.

Whiley, L. A., Wright, A., Stutterheim, S. E., & Grandy, G. (2023). "A part of being a woman, really": Menopause at work as "dirty" femininity. *Gender, Work & Organization, 30*(3), 897-916.

Whitton, K., & Baber, R. (2023). Menopausal hormone therapy. Menopausal hormone therapy–tips and pitfalls 2.

WHO Scientific Group. (1996). Research on the menopause in the 1990s. Report of a WHO Scientific Group. *World Health Organization Technical Report Series, 866*, 1-107.

Wiederhold, B. K. (2021). Femtech: digital help for women's health care across the life span. *Cyberpsychology, Behaviour, and Social Networking, 24*(11), 697-698.

Wiik, A., Ekman, M., Johansson, O., Jansson, E., & Esbjörnsson, M. (2009). Expression of both oestrogen receptor alpha and beta in human skeletal muscle tissue. *Histochemistry and Cell Biology, 131*, 181-189.

Wilson, R. A. (1966). *Feminine forever.* M. Evans and Company.

Wilson, R. A., & Wilson, T. A. (1963). The fate of the nontreated postmenopausal woman: a plea for the maintenance of adequate estrogen from puberty to the grave. *Journal of the American Geriatrics Society, 11*(4), 347-362.

Winterich, J. A., & Umberson, D. (1999). How women experience menopause: the importance of social context. *Journal of Women & Aging, 11*(4), 57-73.

Wolff, E., Pal, L., Altun, T., Madankumar, R., Freeman, R., Amin, H., ... & Taylor, H. S. (2011). Skin wrinkles and rigidity in early postmenopausal women vary by race/ethnicity: baseline characteristics of the skin ancillary study of the KEEPS trial. *Fertility and Sterility, 95*(2), 658-662.

Woods, N. F., & Mitchell, E. S. (2005). Symptoms during the perimenopause: prevalence, severity, trajectory, and significance in women’s lives. *The American Journal of Medicine, 118*(12), 14-24.

Woods, N. F., Carr, M. C., Tao, E. Y., Taylor, H. J., & Mitchell, E. S. (2006). Increased urinary cortisol levels during the menopause transition. *Menopause, 13*(2), 212-221.

Woods, N. F., Smith-DiJulio, K., Percival, D. B., Tao, E. Y., Mariella, A., & Mitchell, E. S. (2008). Depressed mood during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Menopause, 15*(2), 223-232.

Woods, N. F., Mitchell, E. S., & Smith-Di Julio, K. (2010). Sexual desire during the menopausal transition and early postmenopause: observations from the Seattle Midlife Women's Health Study. *Journal of Women's Health, 19*(2), 209-218.

Worsley, R., Bell, R., Kulkarni, J., & Davis, S. R. (2014). The association between vasomotor symptoms and depression during perimenopause: a systematic review. *Maturitas, 77*(2), 111-117.

Wöber, C., Brannath, W., Schmidt, K., Kapitan, M., Rudel, E., Wessely, P., & Wöber-Bingöl, C. (2007). Prospective analysis of factors related to migraine attacks: the PAMINA study. *Cephalalgia, 27*(4), 304-314.

Xia, W. B., He, S. L., Xu, L., Liu, A. M., Jiang, Y., Li, M., ... & Cummings, S. R. (2012). Rapidly increasing rates of hip fracture in Beijing, China. *Journal of Bone and Mineral Research, 27*(1), 125-129.

Yang, Y., & Merrill, E. C. (2017). Cognitive and personality characteristics of masculinity and femininity predict wayfinding competence and strategies of men and women. *Sex Roles, 76*, 747-758.

Yazdkhasti, M., Negarandeh, R., & Behboodi-Moghadam, Z. (2016). Threat of the feminine identity: The emerging structure in exploring the process of women's empowerment for menopause management: A grounded theory study. *International Journal of Medical Research & Health Sciences, 5*(11), 509-520.

Yuki, A., Ando, F., Otsuka, R., & Shimokata, H. (2015). Low free testosterone is associated with loss of appendicular muscle mass in Japanese community-dwelling women. *Geriatrics & Gerontology International, 15*(3), 326-333.

Zeserson, J. M. (2001). How Japanese women talk about hot flushes: implications for menopause research. *Medical Anthropology Quarterly, 189-205.

Zita, J. N. (2018). Heresy in the female body: The rhetorics of menopause. In *The Other within Us* (pp. 95-112). Routledge.

Zou, P., Waliwitiya, T., Luo, Y., Sun, W., Shao, J., Zhang, H., & Huang, Y. (2021). Factors influencing healthy menopause among immigrant women: a scoping review. *BMC Women's Health, 21*(1), 1-11.

Zouboulis, C. C., Blume-Peytavi, U., Kosmadaki, M., Roó, E., Vexiau-Robert, D., Kerob, D., & Goldstein, S. R. (2022). Skin, hair and beyond: the impact of menopause. *Climacteric, 25*(5), 434-442.