Using Digital Health Technologies to Manage the Psychosocial Symptoms of Menopause in the Workplace: A Narrative Literature Review

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Abstract

Many women experience vasomotor, psychosocial, physical and sexual symptoms during their menopausal life-stage. Specifically, the psychosocial symptoms of menopause can include loss of confidence, issues with self-identity and body image, inattention and loss of memory, increased levels of stress, and a higher risk of developing anxiety and depression. In the workplace, such symptoms can impact the woman's capacity to perform to her optimal levels. Even so, many women do not seek help to manage their symptoms due to feelings of embarrassment, the possibility of experiencing adverse reactions from others, or the cultural taboos that are attached to the condition.

Digital health technologies, including virtual consultations, therapeutic interventions, and participation in online communities of support, provide an important means by which women can obtain information about menopause. In the field of mental health, digital technologies have an increasing evidence base. This paper considers how mental health practitioners can adapt, utilise or recommend digital health strategies to support older women in occupational settings to manage their psychosocial symptoms of menopause.

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Introduction

The use of digital health technologies to support the delivery of health services, including primary health interventions, has increased markedly over the past two decades (Abidi et al., 2018; Galletly, 2019). E-health and internet-based services enable consumers to access health services, engage with health professionals, and self-monitor or self-manage their health conditions in ways that were not possible in the 20th century (Bucci et al., 2019; Murthy, 2018). Outcomes of the use of digital health strategies include more accessible and equitable healthcare, higher levels of health literacy and, overall, better health and social outcomes for people in the community (Azrin, 2019).

For women with health issues, e-health strategies have led to a widening of options for the delivery of virtual consultations, therapies and strategies (Kerin et al., 2017; Nielsen et al., 2020). This includes internet-based interventions for mental health conditions such as stress, depression and anxiety (Lee & Cho, 2019; Maleki et al., 2020; Yang et al., 2019). Specific female population groups that have achieved positive outcomes utilizing digital health technologies include refugee women, who are increasingly likely to use online information and communication technologies to support themselves and their families (Shah et al., 2019); women with addictions (Murphy, 2018); older people who are involved in digital support groups to improve their levels of mental health (Andrews et al., 2019); and parents seeking information on how to raise their children (Kay et al., 2018).

There is, however, a dearth of research related to the use of and outcomes achieved by women who experience symptoms of menopause, in particular the psychosocial symptoms that detrimentally impact the older women's quality of life. This paper provides a narrative literature review that discusses the value of digital health strategies to support women to manage the stress, anxiety and depression they may experience as a result of menopause, with a particular focus on women in occupational settings. Outcomes of the discussion include a raised awareness of, first, the major issues for professional women who experience the psychosocial symptoms of menopause; and second, the digital health strategies that can be used by mental health practitioners to support menopausal women. The paper also makes a valuable contribution to mental health practitioners interested in developing practice and undertaking evaluations, to commence building a body of research into a specialty area that intersects women's health, mental health, digital health and occupational health.

Menopause and mental health

The World Health Organisation (WHO) (2007) defines natural menopause as the absence of menses ('periods') for 12 consecutive months, a result of the decline in oestrogen levels due to the normal ageing process. Menopause usually occurs between the ages of 44–55 years of age, although 1 in 100 women may experience menopause prior to 40 years of age (Hardy et al., 2018). In addition, menopause can be induced in women at an earlier age as a result of surgery, serious illness or medication (Hoga et al., 2014).

In countries where the population is ageing, one third of a woman's life is spent in the peri-menopausal, menopausal or post-menopausal phases of life (Gold, 2011). The peri-

menopausal phase occurs immediately prior to menopause and is characterised by a lower frequency of the menses and some of the symptoms of menopause; while the post-menopausal phase occurs after the symptoms of menopause have settled or ceased (Makara-Studzińska et al., 2014). During the peri-menopausal and menopausal phases, many women—regardless of ethnic origin, cultural heritage, and socio-demographic background— experience vasomotor, psychosocial (including mental health), physical and sexual symptoms that range, in terms of the levels of discomfort experienced, from mild to severe (National Institute for Health and Care Excellence [NICE], 2017). From a mental health perspective, there is a higher risk that menopausal women will develop anxiety and depression, when compared to premenopausal women (Freeman, 2010; Gibbs & Kulkarni, 2014; Hart, 2019). Additionally, menopausal women with a history of depression or physical health problems have a higher likelihood of developing a depressive illness (Weiss et al., 2016).

The higher risk of developing anxiety and depression during menopause crosses cultural boundaries, with research focussed on the correlation between and the effects of menopause and depression evident in China (Tang et al., 2019); India (Majumdar & Dasgupta, 2016); Poland (Kopciuch et al., 2017), Singapore (Ganasarajah et al., 2019), South Korea (Kim & Park, 2018) and Spain (Martin et al., 2019). Similarly, a US study highlights the prevalence of anxiety and depression in peri- and post-menopausal women who have no previous history of depressive or anxiety disorders (Hart, 2019).

In light of the increased likelihood that women will develop anxiety and depression during menopause, it is concerning that menopausal women report different symptoms of depression to younger, pre-menopausal women (Gibbs et al., 2015). For example, menopausal women exhibit higher levels of sleep disturbance, anger and hostility, fatigue or inertia, and a range of non-specific somatic symptoms. Such ambiguities raise questions for mental health practitioners about if/how depression is identified in the older woman, and suggest the need for ongoing screening during the peri-menopausal and menopausal phases (Clayton & Ninan, 2010).

Also of concern is the substantial proportion of older women who report a lack of availability of suitable or relevant information and support services to help them manage their menopausal experiences (Hardy et al., 2018); and/or the older women who choose not to seek help to manage their symptoms, due to feelings of embarrassment, the possibility of experiencing adverse reactions from others, or the cultural taboos that are attached to this stage of life (British Menopause Society, 2015; Makara-Studzińska et al., 2014). This situation raises further questions for mental health practitioners about the most appropriate interventions for the older women. For example, how can older women with symptoms of menopause be better supported? More specifically, how can these women be better supported in the workplace and thereby continue to contribute at optimal levels?

Method

The focus of the literature search was peer-reviewed research journal articles related to the digital health technologies that are utilised to meet the psychosocial needs of women who

are experiencing menopause. The databases searched were CINAHL Plus, MEDline, PsycINFO, PsycARTICLES, Web of Science, Science Direct and Wiley-Online. Boolean searches were utilised, employing the terms: (menopause or menopausal women or climacteric) AND (work*) AND (digital technology or digital intervention or E-health).

Findings of the searches identified a dearth of research articles in this specialty area of health service delivery. Specifically, fewer than five articles were identified between the dates 2010-2020. The search terms were therefore applied to Google Scholar and the grey literature, and identified a much larger number of articles, occupational reports, and websites.

In the context of the small number of peer-reviewed research journal articles identified and larger body of grey literature, the decision was made to generate a narrative synthesis of the findings. This synthesis includes consideration of the symptoms of menopause, with a focus on the psychosocial symptoms; the psychosocial issues older women experience in the workplace, including the impact of these experiences; and possible e-health strategies that could be used and/or developed by mental health practitioners to support menopausal women in the workplace.

Symptoms of menopause

As already noted, symptoms of menopause have been broadly identified as falling into the following broad categories: vasomotor, psychosocial, physical, and sexual (NICE, 2017). The most common symptom is vasomotor, the hot flush (or, as some countries describe these particular experiences, the hot 'flash'), which occurs in some 75 percent of menopausal women (B Well, 2017).

Table 1. Common menopausal symptoms (NICE, 2017, qs143).

Hot flashes
Night sweats
Vaginal dryness and discomfort during sex
Difficulty sleeping
Low mood or/and anxiety
Reduced sex drive (libido)
Problems with memory and concentration
Headaches
Palpitations
Joint stiffness, aches and pains
Reduced muscle mass
Recurrent urinary tract infections
Increased risk of developing osteoporosis

The symptoms of menopause may begin months or even years before the cessation of the menses and can last 4 years or longer after the last menstrual period. Of course, some women experience no troublesome symptoms during menopause; and some women experience only mild-to-moderate symptoms. On the other hand, a significant number of menopausal women experience levels of distress that require medical attention, including hormone replacement therapy (HRT) and psychopharmacotherapy (Hoga et al., 2014; Table 1).

There are also individual variations evident in the experiences of women, in relation to the duration, severity and impact of the symptoms of menopause (Perry, 2019). Of interest are the cultural variations that have been reported. For example, Makara-Studzińska et al. (2014) note that women in the United States are more likely to report pain associated with muscles and joints; women in Australia report mainly vasomotor symptoms and sexual dysfunction; women in Asia experience an increase in depressive disorders; and women in Europe note a higher incidence of sleep and depressive disorders. Reasons for these variations remain unknown.

Likewise, it is important to note that there are other age related challenges that accompany menopause. These challenges have both clinical and public health implications. For example, menopause influences the ageing process and health factors that affect overall life expectancy, such as those that reduce the risk of cardiovascular disease, osteoporosis and fracture; and an increased risk of breast and cervical cancers (Gold, 2011). Additionally, around the time of menopause—with correlations as yet unsubstantiated— bladder and bowel changes occur for some women, including a weakening of the pelvic floor in many women, leading to frequency of urination and/or the inconvenience and potential embarrassment related to urinary and faecal incontinence (Continence Foundation of Australia, 2010). This suggests, not only health-related challenges for those who experience such symptoms, but also a range of social issues.

Psychosocial symptoms of menopause

The psychosocial symptoms of menopause include those that affect the woman's psychological health, social wellbeing, and quality of life (Augoulea et al., 2019; Murthy, 2018). The symptoms experienced by menopausal women across diverse cultures, include increased levels of stress and feelings of nervousness (Majumdar & Dasgupta, 2016), loss of personal confidence and self-identity (Kim & Park, 2018), inattention and loss of memory (Lui-Filho et al., 2018), sleep disturbance (Baker et al., 2018; Lui-Filho et al., 2018), issues with body image, sexual dysfunction (Hong et al., 2019), and anxiety and depression (Hart, 2019; Hickey et al., 2012). Another and less discussed symptom is the grief experienced by some women from the loss of their reproductive facilities and diminished femininity (Hardy et al., 2017).

Interestingly, research undertaken by Hong et al. (2019) note a correlation between a woman's personal body image, levels of depression, sexual communication and sexual function which, in turn, affect the woman's quality of life. Other studies suggest self-concept is a key moderating factor in menopausal women, with a healthy self-concept linked to a reduced likelihood of developing depression (Geukes et al., 2019; Quiroga et al., 2017). On the other hand, women in their middle-ages may experience psychosocial issues due to factors that are not connected to menopause, such as expanding professional roles and broadening family responsibilities, including caring roles for older parents (Hardy et al., 2017; Hoga et al., 2014). This raises questions about the basis of the psychosocial symptoms experienced, and the approach taken by the health professionals who support these women, to unpack all possible contributing factors.

Menopause in the workplace

The number of women over the age 50 years in the workplace is increasing in many countries (Gold, 2011). For example, in the UK, women comprise 45 percent of employed people aged over 50 years, representing 3.5 million workers (Office of National Statistics [ONS], 2017). The experience of menopause is of particular concern to professions that are dominated by women—for example, Christopher et al. (2018) estimate that some 100,000 nurses located in Australia belong to 'Generation X' (i.e. born between the early 1960s to late 1970s), most of whom are women who have experienced or are experiencing menopause. Similar trends in the nursing workforce are forecast globally (Gurková et al., 2020).

Regardless of occupation, women who experience menopausal symptoms will find that these symptoms impact their capacity to perform their work effectively (Geukes et al., 2019). Examples of this situation abound. First, it has been estimated that between 20% and 40% of menopausal women experience hot flushes and night sweats that negatively impact their vocational lives, including discomfort/distraction and fatigue at work (Ayers & Hunter, 2013). Second, there are reports that the anxiety and depression experienced by some women during menopause have detrimentally impacted their career trajectory (Molefi-Youri, 2019). Third, researchers have identified the negative impact of menopausal women's higher levels of stress, loss of confidence and loss of memory, related to the way in which older women are perceived—or perceive themselves to be perceived— in the workplace, in particular acute or fast-paced occupational settings (Griffiths et al., 2009). A fourth example relates to the women's perceptions of how they are managing their symptoms and how this affects their worklife balance (Christopher et al., 2018; Geukes et al., 2019). Specifically, women report that symptoms of menopause are more difficult to manage in the workplace because of the stigma, embarrassment, silence of other women about their experiences, or lack of information available on the topic (Brewis et al., 2017; Currie & Moger, 2020).

Menopause, health interventions and support services

The most effective treatment for the more problematic symptoms of menopause, such as the vasomotor symptoms, is HRT (Tsiligiannis et al., 2020). While positive effects have also been identified through the use of exercise, food supplements, herbs, and acupuncture, the relief produced by HRT is demonstrably superior (Perry, 2019). HRT involves the use of synthetic oestrogen and/or progesterone by the woman, taken orally, transdermally or locally, with the regimen, dose and route dependent upon the woman's individual symptoms and circumstances. HRT is prescribed by a medical practitioner or other health professional with prescribing rights.

Yet not all women choose to use HRT, with possible reasons lying with its side-effects (Abernethy, 2018). These side effects include an increased risk in the development of cardiovascular disease, cognitive dysfunction, and depression (Takahashi & Johnson, 2015). Additionally, women may choose to use HRT but nevertheless express interest in obtaining more information about the menopausal life-stages (Perry, 2019). Other women may

choose to use alternative therapies, with this choice often dependent upon the severity of the symptoms they experience (Kopciuch et al., 2017).

More specifically related to the workplace, non-pharmacological support for older women is offered in some locations, such as the UK, where information and guidance is provided by employers and trade union representatives in female dominated workplaces, such as the health and education professions (e.g. Trades Union Congress [TUC], 2013; NASUWT & The Teachers' Union, 2016; Royal College of Nursing, 2014, 2018). Even so, and as noted by Hardy et al. (2018), this guidance has a thin evidence-base. Improving the quality of such information, and ensuring it is available across the full range of occupational settings, worldwide, could lead to better levels of support for women, enabling them to work at optimal levels for longer (Griffiths et al., 2010). Likewise, facilitating coping skills or strategies in women and/or minimising their levels of menopausal discomfort in the workplace could assist in building and maintaining a healthy workforce (Altmann, 2015).

Digital health strategies, menopause and mental health clinical practice

The internet has become an important, even key means by which primary health interventions can be effectively delivered to people and populations (Abidi et al., 2018).The important role played by digital health strategies, including e-health and internet-based support services was highlighted during the COVID-19 pandemic, with physical distancing requirements forcing changes to occur to the way health professionals deliver health services generally (De Luca & Salvatore Calabro, 2020; Webster, 2020; Wynn, 2020). For example, in Australia, where there is universal health coverage, the government response included additional funding for a range of e-health services in all states and territories (Australian Digital Health Agency, 2020)

Digital health strategies provide an effective means by which women seek and find advice, share information, and access interventions related to their health issues or potentially embarrassing personal problems, without the constraints of time, place or limited social circles (Cronin, 2017). For example, in a study of women undergoing hysterectomy, the internet was reported to be one of several sources of information and was a place where women accessed and received emotional and informational support (Bunde et al., 2006). Another study found that half of the US population has accessed online information about their personal health, with women's health identified as the most highly sought topic(s) (Fox & Duggan, 2012).

Such online engagement includes the transfer of information through knowledge brokerage, For example, Christensen and Petrie (2013) described situations where topic experts (such as clinicians) 'translate' complex information on, for example, chronic conditions, into accessible health information that can be applied in practical ways for community members. Other strategies utilised are online, self-help communities (e.g. Facebook groups, 'meetup' groups, 'supportgroups.com'), which focus on providing help and information on a range of health-related topics, such as medication side effects and symptoms management (Vaughan Sarrazin et al., 2014). The quality of the information exchanged in these forums is variable,

however, and most often based on opinion, personal experience or myth, rather than research evidence (Gilmour et al., 2012).

Positive examples of internet-based services explain why the European Commission (2012) described e-health, including digital innovations and online strategies, as an important means of developing flexible, convenient and discrete opportunities for the help-seeking people. In particular, digital strategies can be attractive to those who live busy lives or have a limited income, such as women. For instance, the gender pay-gap disparity remains a limiting factor for many women, particularly in a female-dominant profession such as nursing (Punshon et al., 2019). Online strategies or interventions provide new, affordable and inclusive opportunities to empower women and thereby improve their quality of life (Lange Nielsen, 2018).

Despite the growth in online strategies and interventions, research demonstrating the efficacy of these interventions and online communities is limited. One exception to this lies with the specialty field of mental health. For example, the use of digital mental health strategies is on the increase, particularly by women who are middle-aged, comfortably affluent, often employed, and generally well educated, with these strategies demonstrating clinically effective outcomes for mild to moderate depression and anxiety (Cuijpers et al., 2015). Søgaard Neilsen and Wilson (2019) also note that safe, effective and high-quality digital health resources can be successfully developed to align with the requirements of particular cohorts of patients, such as menopausal women.

However, the digital therapeutic marketplace is largely unregulated and there is risk of unethical and commercial vendors taking advantage of market opportunities that may exist. This situation reinforces the vulnerability of menopausal women when it comes to selecting safe and evidence based digital therapeutic interventions and self-help resources (Bagness & Holloway, 2015; Ferguson et al., 2018). To counter these influences, it is becoming increasingly important that mental health practitioners take a more active role in critiquing and recommending suitable and safe digital therapeutics to the help-seeking public (Wilson, 2018).

Practice solutions

For women who experience the psychosocial symptoms of menopause, mental health practitioners can take a more proactive role in providing support. In the workplace, including healthcare settings, this could include mental health practitioners advocating for and enabling the provision of the following:

- Regular screening for depression in older women, including colleagues and clients, in primary health settings, highlighting the differences in the symptoms of depression exhibited by menopausal women and younger women.
- Modification of workplace environments that exacerbate the discomforts potentially experienced by menopausal women, including the introduction of cotton or natural fibre (non-synthetic) uniforms and/or ensuring temperate environments for workplace or meeting venues.

- Development of evidence-based, women-centred information or self-help guides, focussed on managing the symptoms of menopause, to be made available for employees and clients/patients. Many mental health practitioners have the expertise to support the development of these guides, which would ideally include links to online resources, such as psycho-education, counselling support, and information about non-pharmacological and pharmacological therapies, together with referral pathways when needed, particularly for those who continue to work.

With a particular focus on supporting women who are experiencing problematic psychosocial symptoms of menopause at work, mental health practitioners are also encouraged to:

- Enable older women, including colleagues and clients, to speak out about their experiences of menopause, supporting them to overcome feelings of embarrassment and assisting with breaking down the stigma and cultural taboos attached to this life-stage.
- Actively discuss specific issues with older women, including colleagues and clients, who disclose they are experiencing symptoms of menopause, and explore ways and means of managing these issues, particularly for professional women who experience challenges in their place of work as a consequence of menopause.
- Regularly access the information made available about menopause on reputable websites, such as the Australasian and British Menopause Societies, to keep abreast of the latest developments.
- In light of the cultural taboos often associated with menopause, make a point of asking older women about their menopausal symptoms and, if they disclose their symptoms, where they are accessing help.

By implementing these simple steps into their practice, mental health practitioners will be better positioned to support older women to move through a stage of life that many described as challenging.

Recommendations for future research

Panay and Fenton (2016) argue the need for research on the experience of menopause in the 21st century due to its impact on the economy and productivity. Also of concern is the dearth of research, noted in previous sections of this paper, in the use of digital health technologies to support women, including professional women, to manage the more problematic symptoms of menopause.

Research opportunities could include examination of stories from women who have chosen not to use HRT but nevertheless effectively manage the symptoms of menopause in the workplace. Such research would ideally involve consideration of the preferences and effectiveness of women who use digital health technologies, such as online counselling or telehealth interventions and technologies that support improvements in health literacy. This article has provided a first step to enabling the progress of this research.

Others aspects of research, identified earlier on this article, include the quandary raised by Makara-Studzińska et al. (2014) in relation to the symptoms of menopause that are culturally connected. For example, why do older women in the US report the pain associated with muscles and joints during menopause, more than women of other cultures? Why do older women in Australia report vasomotor symptoms and sexual dysfunction more that women located in other countries? Another quandary to examine is the potential link between menopause and the bladder and bowel changes occur for some women. Such changes can have a huge impact on the quality of life of older women, particularly those who continue in paid employment in busy work environments, such as nursing. Research of this nature could also lead to the development of workforce strategies based on rigorous research that actively support the retention and improved quality of life of women who experience menopause.

Conclusion

The discussion undertaken in this narrative literature review demonstrates the need for research aimed at supporting peri-menopausal and menopausal women in the workforce using safe, effective and trustworthy digital health technologies and interventions. Digital interventions are known to be effective solutions for help-seeking populations with mild to moderate mental health issues, such as anxiety and depression. Such technologies have expanded over the past two decades, and particularly since the advent of the COVID-19 pandemic. There is an opportunity, then, to apply these technologies and strategies across a range of health specialties, including the intersect between women's health, mental health and occupational health. Supporting older women in professional settings provides a means of ensuring that this large population group, worldwide, is able to continue to work at their optimal levels. This is particularly important for the female dominated professions, such as nursing and teaching, which face ongoing workforce shortages.

References

Abernethy, K. (2018). Making sense of hormone replacement therapy. Practice Nursing, 29(Sup1), S10–S14. https://doi.org/10.12968/npre. 2015.13.9.452

Abidi, S., Vallis, M., Piccinini-Vallis, H., Imran, S. A., & Abidi, S. S. R. (2018). Diabetes-related behavior change knowledge transfer to primary care practitioners and patients: Implementation and evaluation of a digital health platform. JMIR Medical Informatics, 6(2), e25. https://doi.org/10.2196/medinform.9629

Altmann, R. (2015). A new vision for older workers: Retain, retrain, recruit. Independent Report. London: Department of Work and Pensions.

Andrews, J., Brown, L., Hawley, M., & Astell, A. (2019). Older adults' perspectives on using digital technology to maintain good mental health: Interactive group study. Journal of Medical Internet Research, 21(2), e11694. https://doi.org/10.2196/11694

Augoulea, A., Moros, M., Lykeridou, A., Kaparos, G., Lyberi, R., & Panoulis, K. (2019). Psychosomatic and vasomotor symptom changes during transition to menopause. Przegląd Menopauzalny, 18(2), 110–115. https://doi.org/10.5114/pm.2019.86835

Australian Digital Health Agency. (2020). Inside digital health – COVID-19 special edition No. 4. Canberra: Australian Government. Ayers, B., & Hunter, M. (2013). Health-related quality of life of women with menopausal hot flushes and night sweats. Climacteric: The Journal of the International Menopause Society, 16(2), 235–239. https://doi.org/10.3109/13697137.2012.688078

Azrin, S. (2019). Practical strategies to reduce premature mortality and improve health in people with schizophrenia: Outcomes in realworld settings: 2019 Congress of the Schizophrenia International Research Society, 10–14 April 2019, Orlando, Florida. Schizophrenia Bulletin, 45(Supplement_2), S133–S133. https://doi.org/10.1093/schbul/sbz022.110

B Well. (2017). Women's health – The menopause. Belfast Health and Social Care Trust. Retrieved September 1, 2020, from http://www. bwellbelfast.hscni.net/wp-content/uploads/2017/11/Womens-Health- The-Menopause.pdf

Bagness, C., & Holloway, D. (2015). Managing the menopause at work. Practice Nursing, 26(11), 538–541. https://doi.org/10.12968/pnur.2015.26.11.538

Baker, F., de Zambotti, M., Colrain, I., & Bei, B. (2018). Sleep problems during the menopausal transition: Prevalence, impact, and management challenges. Nature and Science of Sleep, 10, 73–95. https://doi.org/10.2147/nss.s125807

Brewis, J., Beck, V., Davis, A., Matheson, J. (2017). The effects of menopause transition on women's economic participation in the UK. Research Report. Department of Education. Retrieved September 1, 2020, from https://www.gov.uk/government/publications/menopause-transition-effects-on-womens-economicparticipation

British Menopause Society. (2015). Chief medical officer calls for workplaces to be more menopause friendly. Retrieved September 1, 2020, from https://thebms.org.uk/2015/12/chief-medical-officer-calls-forworkplaces- to-be-more-menopause-friendly

Bucci, S., Schwannauer, M., & Berry, N. (2019). The digital revolution and its impact on mental health care. Psychology and Psychotherapy, 92(2), 277–297. https://doi.org/10.1111/papt.12222

Bunde, M., Suls, J., Martin, R., & Barnett, K. (2006). Hystersisters online: Social support and social comparison among hysterectomy patients on the internet. Annals of Behavioural Medicine, 31(3), 271–278. https://doi.org/10.1207/s15324796abm3103_9

Christensen, H., & Petrie, K. (2013). Information technology as the key to accelerating advances in mental health care. The Australian and New Zealand Journal of Psychiatry, 47(2), 114–116. https://doi.org/ 10.1177/0004867412471088

Christopher, S., Fethney, J., Chiarella, M., & Waters, D. (2018). Factors influencing turnover in GenX nurses: Results of an Australian survey. Collegian, 25(2), 217–225. https://doi.org/10.1016/j.colegn.2017.06.003

Clayton, A., & Ninan, P. (2010). Depression or menopause? Presentation and management of major depressive disorder in perimenopausal and postmenopausal women. Primary Care Companion to the Journal of Clinical Psychiatry, 12(1). https://doi.org/10.4088/PCC.08r00747blu

Continence Foundation of Australia. (2010). Menopause. Retrieved September 1, 2020, from https://www.continence.org.au/pages/menopause.html

Cronin, C. (2017). Understanding the needs of women with adenomyosis through social media. Journal of Nursing and Women's Health, 2, 105. https://doi.org/10.29011/2577-1450.100005

Cuijpers, P., Riper, H., & Andersson, G. (2015). Internet-based treatment of depression. Current Opinion in Psychology, 4, 131–135. https://doi.org/10.1016/j.copsyc.2014.12.026

Currie, H., & Moger, S. (2020). Menopause – understanding the impact on women and their partners. Post Reproductive Health, 25(4), 183–190. https://doi.org/10.1177/2053369119895413

De Luca, R., & Salvatore Calabro, R. (2020). How the COVID-19 pandemic is changing mental health disease management: The growing need of telecounseling in Italy. Innovations in Clinical Neuroscience, 17(4–6), 16–17.

European Commission. (2012). eHealth Action Plan 2012–2020: Innovative healthcare for the 21st century. Retrieved September 1, 2020, from https://ec.europa.eu/digital-single-market/en/news/ehealth-action-plan-2012-2020-innovative-healthcare-21st-century

Ferguson, C., Davidson, P. M., Scott, P. J., Jackson, D., & Hickman, L. D. (2018). Preparing nurses to be prescribers of digital therapeutics. Contemporary Nurse, 51(1), 1–4. https://doi.org/10.1080/10376178.2015.1130360

Fox, S., Duggan, M. (2012). Mobile Health 2012: Pew Research Centre. Retrieved September 1, 2020, from https://www.pewinternet.org/2012/11/08/mobile-health-2012

Freeman, E. (2010). Associations of depression with the transition to menopause. Menopause (New York, N.Y.), 17(4), 823–827. https://doi.org/10.1097/gme.0b013e3181db9f8b

Galletly, C. (2019). More access for some but not others: Is it better? The Australian and New Zealand Journal of Psychiatry, 53(11), 1041–1043. https://doi.org/10.1177/0004867419883689

Ganasarajah, S., Sundström Poromaa, I., Thu, W., Kramer, M., Logan, S., Cauley, J., Yong, E., & Thu, W. (2019). Objective measures of physical performance associated with depression and/or anxiety in midlife Singaporean women. Menopause (New York, N.Y.), 26(9), 1045–1051. https://doi.org/10.1097/GME.0000000000001355

Geukes, M., Anema, J., van Aalst, M., de Menezes, R., & Oosterhof, H. (2019). Improvement of menopausal symptoms and the impact on work ability: A retrospective cohort pilot study. Maturitas, 120, 23–28. https://doi.org/10.1016/j.maturitas.2018.10.015

Gibbs, Z., & Kulkarni, J. (2014). Risk factors for depression during peri-menopause. In D. Barnes (Ed.). Women's reproductive mental health across the lifespan (pp. 215–233). Springer. Gibbs, Z., Lee, S., & Kulkarni, J. (2015). The unique symptom profile of peri-menopausal depression. Clinical Psychologist, 19(2), 76–84. https://doi.org/10.1111/cp.12035

Gilmour, J., Huntington, A., Broadbent, R., Strong, A., & Hawkins, M. (2012). Nurses' use of online health information in medical wards. Journal of Advanced Nursing, 68(6), 1349–1358. https://doi.org/10.1111/j.1365-2648.2011.05845.x

Gold, E. (2011). The timing of the age at which natural menopause occurs. Obstetrics and Gynecology Clinics of North America, 38(3), 425–440. https://doi.org/10.1016/j.ogc.2011.05.002

Griffiths, A., Knight, K., Nor, M., Mahudin, D. (2009). Ageing, work related stress and health. Reviewing the evidence. Institute of Work, Health & Organisations.

Griffiths, A., MacLennan, S., & Wong, Y. (2010). Women's experience of working through the menopause. Institute of Work, Health & Organisations. https://doi.org/10.1016/j.maturitas.2013.07.005.

Gurková, E., Zeleníková, R., Friganovic, A., Uchmanowicz, I., Jarošová, D., Papastavrou, E., & Žiaková, K. (2020). Hospital safety climate from nurses' perspective in four European countries. International Nursing Review, 67(2), 208–217. https://doi.org/10.1111/inr.12561

Hardy, C., Griffiths, A., & Hunter, M. (2017). What do working menopausal women want? A qualitative investigation into women's perspectives on employer and line manager support. Maturitas, 101, 37–41. https://doi.org/10.1016/j.maturitas.2017.04.011

Hardy, C., Griffiths, A., & Hunter, M. (2018). Menopause and work: An overview of UK guidance. Occupational Medicine (Oxford, England)), 68(9), 580–585. https://doi.org/10.1093/occmed/kqy134

Hart, J. (2019). Menopause: Shifting hormones linked to anxiety and depression symptoms. Alternative and Complementary Therapies, 25(5), 254–256. https://doi.org/10.1093/occmed/kqy134

Hickey, M., Bryant, C., & Judd, F. (2012). Evaluation and management of depressive and anxiety symptoms in midlife. Climacteric: The Journal of the International Menopause Society, 15(1), 3–9. https://doi.org/10.3109/13697137.2011.620188

Hoga, L., Rodolpho, J., Gonçalves, B., & Quirino, B. (2014). Women's experiences of menopause: A systematic review protocol of qualitative evidence. JBI Database of Systematic Reviews and Implementation Reports, 12(7), 72–81. https://doi.org/10.11124/jbisrir-2015-1948

Hong, J. H., Kim, H. Y., Kim, J. Y., & Kim, H. K. (2019). Do psychosocial variables mediate the relationship between menopause symptoms and sexual function in middle-aged perimenopausal women? The Journal of Obstetrics and Gynaecology Research, 45(5), 1058–1065. https://doi.org/10.1111/jog.13927

Kay, M., Burroughs, J., Askew, S., Bennett, G., Armstrong, S., & Steinberg, D. (2018). Digital weight loss intervention for parents of children being treated for obesity: A prospective cohort feasibility trial. Journal of Medical Internet Research, 20(12), e11093. https://doi.org/10.2196/11093

Kerin, L., McNicholas, F., & Lawlor, A. (2017). Hearing the lived experience of young women with a rare genetic disorder 22q11.2DS regarding integrated care. International Journal of Integrated Care, Supplement, 17(5), A227. https://doi.org/10.5334/ijic.3537

Kim, K., Park, S. (2018). Horticultural therapy program for middleaged women's depression, anxiety, and self-identify. Complementary Therapies in Medicine, 39, 154–159. https://doi.org/10.1016/j.ctim.2018.06.008

Kopciuch, D., Paczkowska, A., Zaprutko, T., Michalak, M., & Nowakowska, E. & (2017). Conventional or natural pharmacotherapy and the prevalence of anxiety and depression during menopause. Alternative Therapies in Health and Medicine, 23(2), 12–19.

Lange Nielsen, S. (2018). Report on international practice on digital apps. Glasgow: The Digital Health & Care Institute.

Lee, Y., & Cho, S. (2019). Technology-supported interventions for pregnant women: A systematic review. Computers, Informatics, Nursing: CIN, 37(10), 501–512. https://doi.org/10.1097/CIN.0000000000000535

Lui-Filho, J., Orcesi Pedro, A., Francisco Baccaro, L., Costa-Paiva, L., Pedro, A., & Baccaro, L. (2018). Risk factors associated with intensity of climacteric symptoms in Brazilian middle-aged women: A population-based household survey. Menopause, 25(4), 415–422. https://doi.org/10.1097/GME.0000000000001022

Majumdar, S., & Dasgupta, A. (2016). Quality of life among menopausal women - Is it still an enigma? Indian Journal of Community Health, 28(4), 383–388.

Makara-Studzińska, M. T., Kryś-Noszczyk, K. M., & Jakiel, G. (2014). Epidemiology of the symptoms of menopause: An intercontinental review. Menopausal Review, 3(3), 203–211. https://doi.org/10.5114/pm.2014.43827

Maleki, F., Massahikhaleghi, P., Tehrani-Banihashemi, A., Davoudi, F., & Nojomi, M. (2020). Community-based preventive interventions for depression and anxiety in women. Archives of Iranian Medicine, 23(3), 197–206.

Martin, C., Larroy, C., López-Picado, A., & Fernández-Arias, I. (2019). Accuracy of the menopause rating scale and the menopause quality of life questionnaire to discriminate menopausal women with anxiety and depression. Menopause (New York, N.Y.), 26(8), 856–862. https://doi.org/10.1097/GME.0000000000001338

Molefi-Youri, W. (2019). Is there a role for mindfulness-based interventions (here defined as MBCT and MBSR) in facilitating optimal psychological adjustment in the menopause? Post Reproductive Health, 25(3), 143–149. https://doi.org/10.1177/2053369119835964

Murthy, P. (2018). Guidelines for psychosocial interventions in addictive disorders in India: An introduction and overview. Indian Journal of Psychiatry, 60(Suppl 4), S433–S439. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_35_18

NASUWT & The Teachers' Union. (2016). Managing the Menopause in the workplace. NASUW. Birmingham: The Teachers Union.

National Institute for Health and Care Excellence (NICE). (2017). Menopause (qs143). Retrieved September 1, 2020, from http://www.nice.org.uk/guidance/conditions-and-diseases/gynaecological-conditions/menopause

Nielsen, K., Dahl-Petersen, I., Jensen, D., Ovesen, P., Damm, P., Jensen, N., Thøgersen, M., Timm, A., Hillersdal, L., Kampmann, U., Vinter, C., Mathiesen, E., & Maindal, H, On behalf of the Face-it Study Group. (2020). Protocol for a randomised controlled trial of a co-produced, complex, health promotion intervention for women with prior gestational diabetes and their families: The Face-it study. Trials, 21(1), 1–12. https://doi.org/10.1186/s13063-020-4062-4

Office of National Statistics (ONS). (2017). Overview of the UK Population: March 2017. Retrieved September 1, 2020, from https://www.ons.gov.uk/releases/overviewoftheukpopulationmarch2017

Panay, N., & Fenton, A. (2016). Menopause in the 21st century: The need for research and development. Climacteric, 19(3), 213–214. https://doi.org/10.1186/s13063-020-4062-4

Perry, M. (2019). Menopausal symptoms and hormone replacement therapy. Journal of Community Nursing, 33(3), 61–66.

Punshon, G., Maclaine, K., Trevatt, P., Radford, M., Shanley, O., & Leary, A. (2019). Nursing pay by gender distribution in the UK Does the Glass Escalator still exist? International Journal of Nursing Studies, 93, 21–29. https://doi.org/10.1016/j.ijnurstu.2019.02.008

Quiroga, A., Larroy, C., & González-Castro, P. (2017). Climacteric symptoms and their relation to feminine self-concept. Climacteric: The Journal of the International Menopause Society, 20(3), 274–279. https://doi.org/10.1080/13697137.2017.1310192

Royal College of Nursing. (2014). Menopause: Lifestyle and therapeutic approaches. RCN guidance for nurses, midwives and health visitors. RCN.

Royal College of Nursing. (2018). The menopause at work: Guidance for RCN Representatives. RCN.

Shah, S., Hess, J., & Goodkind, J. (2019). Family separation and the impact of digital technology on the mental health of refugee families in the United States: Qualitative study. Journal of Medical Internet Research, 21(9), e14171. https://doi.org/10.2196/14171

Søgaard Neilsen, A., & Wilson, R. L. (2019). Combining e-mental health intervention development with human computer interaction (HCI) design to enhance technology-facilitated recovery for people with depression and/or anxiety conditions: An integrative literature review. International Journal of Mental Health Nursing, 28(1), 22–39. https://doi.org/10.1111/inm.12527

Takahashi, T., & Johnson, K. (2015). Menopause. The Medical Clinics of North America, 99(3), 521–534. https://doi.org/10.1016/j.mcna.2015.01.006

Tang, R., Luo, M., Li, J., Peng, Y., Wang, Y., Liu, B., Liu, G., Wang, Y., Lin, S., & Chen, R. (2019). Symptoms of anxiety and depression among Chinese women transitioning through menopause: Findings from a prospective community-based cohort study. Fertility and Sterility, 112(6), 1160–1171. https://doi.org/10.1016/j.fertnstert.2019.08.005

Trades Union Congress (TUC). (2013). Supporting working women through the menopause. TUC.

Tsiligiannis, S., Wick-Urban, B., van der Stam, J., & Stevenson, J. (2020). Efficacy and safety of a low-dose continuous combined hormone replacement therapy with 0.5 mg 17b-estradiol and 2.5 mg dydrogesterone in subgroups of postmenopausal women with vasomotor symptoms. Maturitas, 139, 20–26.

Vaughan Sarrazin, M., Cram, P., Mazur, A., Ward, M., & Schacht Reisinger, H. (2014). Patient perspectives of dabigatran: Analysis of online discussion forums. The Patient, 7(1), 47–54. https://doi.org/10.1007/s40271-013-0027-y

Webster, P. (2020). Virtual health care in the era of COVID-19. The Lancet, 395(10231), 1180–1181. https://doi.org/10.1016/S0140-6736(20)30818-7

Weiss, S., Simeonova, D., Kimmel, M., Battle, C., Maki, P., & Flynn, H. (2016). Anxiety and physical health problems increase the odds of women having more severe symptoms of depression. Archives of Women's Mental Health, 19(3), 491–499. https://doi.org/10.1007/s00737-015-0575-3

Wilson, R. (2018). The right way for nurses to prescribe, administer and critique digital therapies. Contemporary Nurse, 54(4-5), 543–545. https://doi.org/10.1080/10376178.2018.1507679

World Health Organisation (WHO). (2007). Women, ageing and health: A framework for action. Focus on Gender. WHO.

Wynn, R. (2020). E-health in Norway before and during the initial phase of the Covid-19 pandemic. Studies in Health Technology and Informatics, 272, 9–12. https://doi.org/10.3233/SHTI200480

Yang, R., Vigod, S., & Hensel, J. (2019). Optional web-based videoconferencing added to office-based care for women receiving psychotherapy during the postpartum period: Pilot randomized controlled trial. Journal of Medical Internet Research, 21(6), e13172. https://doi.org/10.2196/13172