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Submitted to: Journal of Medical Internet Research
on: April 01, 2025

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Abstract

Background: Menopause is a significant time in a woman's life but only recently has there been open discussion about it in the media, workplaces, and in general society. With increasing frequency, women are choosing to use the internet to research topics related to the menopause. This makes it essential that online sources can provide safe, high-quality, and relevant information.

Objective: This study aimed to investigate the current state of the online information landscape about the menopause from the perspective of information-seekers, exploring: (1) information-seeking behavior related to the perimenopause and menopause, and (2) perceptions of online resources for the menopause.

Methods: A 10-15 minute online survey was conducted asking about the experience of the menopause and their use, and opinion of online resources specifically for the menopause. The survey was distributed via social media, email, and word-of-mouth. Quantitative data was explored using means and frequencies. Group differences between menopausal groups were analyzed using Chi-squared, Fisher's Exact, or Kruskal-Wallis test as appropriate. Qualitative data was analyzed using data-driven thematic analysis.

Results: Data from 627 participants were included in the analysis (early perimenopause: 27.27%, n=171/627; late perimenopause: 19.94%, n=125/627; post-menopause: 41.79%, n=262/627; surgical menopause: 11.00%, n=69/627). The majority of respondents had used the internet as a source of information (92.66%, n=581/627), with the internet being the first choice of information source 84.17% (n=489/627). The most commonly searched for information online was about menopause symptoms (82.44%, n=479/581), menopause treatment options (76.08%, n=442), and self-help tips or strategies (54.73%, n=318/581). The majority of participants trusted online information to some extent (98.09%, n=615/627), with a slightly lower proportion considering online information accurate to some extent (88.52%, n=555/627). The majority of participants found some but not all of the information they were looking for online (65.23%, n=379/581). Thematic analysis revealed 10 themes related to information quality and accessibility and sought after information (eg, symptom specifics, treatment, and non-formal management strategies). Analysis also indicated that information is lacking for several groups including those in medically induced or surgical menopause.

Conclusions: The study showed that online informational resources are widely accessed and widely perceived as useful and trustworthy. Despite this, it is crucial that the quality of online information is evaluated especially considering the large number of users who rely on it as their first or only informational source. Online searches were usually performed to find information related to symptoms, treatment, and self-help recommendations. Thematic analysis reveals gaps in the provision of online information with certain groups such as those in the surgical menopause lacking easy access to relevant information.

(JMIR Preprints 01/04/2025:75335)

DOI: <https://doi.org/10.2196/preprints.75335>

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Original Manuscript

Understanding experiences of and unmet needs in online searches for menopause information: a UK-wide exploratory survey

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Abstract

Background: Menopause is a significant time in a woman's life but only recently has there been open discussion about it in the media, workplaces, and in general society. With increasing frequency, women are choosing to use the internet to research topics related to the menopause. This makes it essential that online sources can provide safe, high-quality, and relevant information.

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menopause and their use, and opinion of online resources specifically for the menopause. The survey was distributed via social media, email, and word-of-mouth.

Quantitative data was explored using means and frequencies. Group differences between menopausal groups were analyzed using Chi-squared, Fisher's Exact, or Kruskal-Wallis test as appropriate. Qualitative data was analyzed using data-driven thematic analysis.

Results: Data from 627 participants were included in the analysis (early perimenopause: 27.27%, n=171/627; late perimenopause: 19.94%, n=125/627; post-menopause: 41.79%, n=262/627; surgical menopause: 11.00%, n=69/627). The majority of respondents had used the internet as a source of information (92.66%, n=581/627), with the internet being the first choice of information source 84.17% (n=489/627). The most commonly searched for information online was about menopause symptoms (82.44%, n=479/581), menopause treatment options (76.08%, n=442), and self-help tips or strategies (54.73%, n=318/581). The majority of participants trusted online information to some extent (98.09%, n=615/627), with a slightly lower proportion considering online information accurate to some extent (88.52%, n=555/627). The majority of participants found some but not all of the information they were looking for online (65.23%, n=379/581). Thematic analysis revealed 10 themes related to information quality and accessibility and sought after information (eg, symptom specifics, treatment, and non-formal management strategies). Analysis also indicated that information is lacking for several groups including those in medically induced or surgical menopause.

Conclusions: The study showed that online informational resources are widely accessed and widely perceived as useful and trustworthy. Despite this, it is crucial that the quality of online information is evaluated especially considering the large number of users who rely on it as their first or only informational source. Online searches were usually performed to find information related to symptoms, treatment, and self-help recommendations. Thematic

analysis reveals gaps in the provision of online information with certain groups such as those in the surgical menopause lacking easy access to relevant information.

Keywords

Menopause; Perimenopause; Online; Internet; Information

Introduction

Menopause is defined as the time at which there has been no menstrual period for 12 months. Menopause may be naturally occurring or may be medically or surgically induced [1]. Natural menopause occurs due to the decline of ovarian follicular function, typically occurring between the ages of 45 and 55 [2]. It is important to note that menopause can occur at any age and the age at which a specific woman experiences the menopause cannot be predicted.

Experiencing menopause before the age of 40 is known as premature menopause and may be caused by several physical conditions, although in some women causal factors cannot be identified [2]. The perimenopause, or menopause transition, is the period before the menopause where the frequency or duration of menstruation may change, and menopause symptoms may be present. On average, this occurs four years before the menopause [3]. Menopause and perimenopause are associated with a wide range of both physical and mental health symptoms, the severity of which vary from person-to-person. Symptoms are wide-ranging with some more well-known than others. Vasomotor symptoms, including hot flashes and night sweats, are common and are seen in as many as 80% affected individuals [4]. The effects of menopause can cause huge difficulties in multiple domains of daily life, including professionally, personally, and with regards to health and wellbeing. As many as 31% of women have to take time off work due to their symptoms [5], with some

having to give up work completely. Additionally, 74% of women blame menopause for the breakdown of their marriage, and 67% of women report an increase in arguments and domestic abuse in relation to menopause [6].

It is clear that menopause is complex, potentially resulting in a variety of interpersonal problems, health difficulties, and poorer wellbeing. Menopause and the menopause transition requires decisions to be made about when to reach out for help and which treatment intervention to use. Previous work has found that women feel unprepared for menopause and think that the early education of women and the wider society about the menopause is lacking [7]. Research has also demonstrated that technology is perceived as a beneficial resource to support individuals facing menopause, being broadly utilized for four health-related purposes: connecting and sharing, information seeking, monitoring and reflection, and self-care [8]. Research also demonstrates the widespread use of the internet to gather information related to women's health, with data from the United Kingdom (UK), revealing that 71% of women choose to use Google to find information about menopause, and 69% of women use other search engines or blogs as an additional source of information [9]. This is compared to only 59% of women using their General Practitioner (GP) or other health care professional to obtain this information. This highlights the need for safe, relevant, comprehensive, and clinically accurate information to be easily found online [9]. This high use of the internet as a source of information is also observed specifically for information about the menopause, with a reported usage rate of 74% in previous work [10].

To date, research has been focused on which informational sources women are using, online or otherwise, with limited research into the specifics of the information being sought. Some previous research identified the need for information regarding symptom and

treatment information [11,12], as well as the risks of secondary health conditions such as cancer [12]. To our knowledge there have been no studies addressing the specific informational needs of menopausal women in the UK when searching online. This is important, as the Menopause Priority Setting Partnership Steering Group has highlighted the need for research to identify ways to help people prepare for the perimenopause and menopause, as well as to develop awareness of when to seek help with one potential avenue to this improved preparation and knowledge being online resources [13]. Therefore, this study focuses on this knowledge gap, as without this information, creation of useful resources for help-seeking women is not feasible. More specifically, the aims of this study were to: (1) explore the information-seeking behavior of women in the menopause and menopause transition, and (2) explore the perceptions of online resources for menopause. These insights will also be valuable in the design of content and delivery of future online resources. Relevancy of information is potentially as important as its quality and what is classed as relevant may vary in women who are at different stages of menopause. Therefore, the current study also considered the influence of specific menopausal stage on online searching behaviors.

Methods

Materials

A novel 10–15-minute online survey was delivered using Qualtrics XM®, with the flow of questions dependent on previous answers. All questions were reviewed and approved by a practicing psychiatrist (SB). All aspects of the study including the consent form, participant information sheet, and questionnaire were completed in the same online survey. The survey comprised quantitative and qualitative questions on sociodemographic characteristics, menopause symptom presence and severity, and online informational source usage (ie,

participants' experiences with, and interest in, using online informational sources for menopause). Questions about online informational source usage focused on what type of information women search for online about menopause (eg, treatment options, health risks, or more general advice), and what type of source they feel most comfortable using. Motives behind using the internet to obtain information were explored, along with views on the currently available online resources. For the current analysis, only questions related to sociodemographic characteristics and online informational source usage were included. To see these questions, see Multimedia Appendix 1.

Participants

Recruitment was carried out between 5th January 2024 and 15th January 2024. Participants were required to be over the age of 18, living in the UK, not have been pregnant or breastfeeding in the past 12 months, and confirm that they were in the menopause or menopause transition and experiencing at least one related symptom (e.g., irregular or absent periods, hot flushes, night sweats). Participants were required to self-define which stage of the menopause or menopause transition they were in. Definitions of different menopause stages provided in the survey were based on the Staging of Reproductive Aging Workshop (STRAW) guidelines [14, 15]. Definitions of menopause stages provided in the survey were as follows: early perimenopause (significant change in the length or regularity of menstrual bleed not due to pregnancy, breastfeeding, stress, or a medical condition), late perimenopause (no menstrual bleeding in the past 3-11 months not due to pregnancy, breastfeeding, stress, or a medical condition), post-menopause (no menstrual bleeding in the past 12 months not due to pregnancy, breastfeeding, stress, or medical condition), and surgical menopause (no bleeding in the past 12 months due to hysterectomy with one or two ovaries retained, or another medical intervention).

Survey distribution

The survey was disseminated using paid adverts on social media, word of mouth, and emails sent to individuals who had previously participated in research carried out by the Cambridge Centre for Neuropsychiatric Research and had expressed interest in taking part in future studies. Participants were offered a chance to win one of three £50 (\$64.72) high street vouchers.

Statistical analysis

Quantitative data was analyzed in Excel (version 2407; Microsoft Office 365) and SPSS (version 29.0.1.1). Excel (version 2407; Microsoft Office 365) and PowerPoint (version 2407; Microsoft Office 365) were used to create figures. Comparisons between binary categorical variables were analyzed with Chi-squared (χ^2) or Fisher's Exact Test (FET) for low frequency data (less than five occurrences). Effect sizes are reported as Cramer's V (ϕ_c ; small=0.10, medium=0.30, large=0.50) [16]. For ordinal data with a likert scale (ie, perceived accuracy, perceived trustworthiness) Kruskal-Wallis H tests were utilised, with post hoc Dunn's tests subject to the Bonferroni-correction for multiple comparisons conducted where appropriate.

The Braun and Clarke framework for thematic analysis [17] was utilized for analysis of the open text data. A data-driven approach was adopted. Prior to writing the codebooks, one author (EF) read the open text data multiple times to gain familiarity with the data. The codebook was reviewed by a second author (NMK) who gave feedback to maximize the comprehensiveness of the codebook. Open text data was coded against the code book under blinded conditions by two authors (FMCC and LQ) and reviewed by a third author

(EF). The coding allocations were unblinded and compared, with any discrepancies being discussed until an agreement was reached. After the coding allocation was complete and finalized, the codes were organized into themes by two authors (FMcC and LQ) under blinded conditions. The theme lists generated were then compared with any discrepancies being discussed (FMcC, LQ, EF, KB) until a final theme list was reached. Any free text data which included “No” (or synonyms), “Not applicable” (or synonyms), or responses that were considered ambiguous or non-specific by both authors were labelled as not applicable and excluded from thematic analysis. Please note, the illustrative quotes provided as examples of any codes identified have not been revised in any way. Therefore, any spelling or grammatical errors are as provided by the participants.

Ethical approval

Ethical approval was awarded by Cambridge Psychological Research Ethics Committee (PRE.2023.124). Participants were required to give informed consent to participate electronically before the main body of the survey began.

Results

Survey uptake

In total, 774 participants consented to take part in the study, with 628 complete responses. One response was omitted from further analysis as the respondent disclosed that they had given false demographic information, leaving a final sample of 627 participants (early perimenopause (27.27%, $n=171/627$), late perimenopause (19.94%, $n=125/627$), post-menopause (41.79/627%, $n=262/627$), and surgical menopause (11.00% $n=69/627$)).

Demographics

Full sociodemographic characteristics of the overall sample are reported in Table 1

(sociodemographic characteristics for each of the menopause stages can be found in Table S1 in Multimedia Appendix 2). The average age of participants was 52.40 (SD=4.67; range=31-71). The majority of the sample were white (94.74%, n=594), identified as female (98.41%, n=617/627), were in paid employment (69.69%, n=446/627), and were married or in a civil partnership (60.47%, n=387/627). 49.22% held at least an undergraduate degree (n=315/627). 29.69% had an annual household income before tax of at least £45,000 (n=190/627). 40.35% of participants (n=253/627) reported having pre-existing conditions with symptoms that may overlap with the symptoms of the menopause.

Table 1. Sociodemographic characteristics

Socio-demographics	N (%)
Gender	
Female	617 (98.41)
Male	2 (0.32)
Non-binary	1 (0.16)
Other	5 (0.80)
Prefer not to answer	2 (0.32)
Ethnicity	
White	592 (94.74)
Black, Black British, Caribbean or African	16 (2.55)
Asian or Asian British	14 (2.23)
Mixed or multiple ethnic groups	3 (0.48)
Marital status	
Single	86 (13.72)
Married or civil partnership	379 (60.45)
Cohabiting	74 (11.80)
Separated	23 (3.67)
Divorced	41 (6.54)
Other	18 (2.87)
Prefer not to answer	6 (0.96)
Education*	
Below GCSE or equivalent	37 (5.90)
GCSEs, Scottish Higher or equivalent	106 (16.91)
A-Levels, International Baccalaureate (IB) or equivalent	133 (21.21)
Undergraduate degree	152 (24.24)
Postgraduate degree	154 (24.56)
Other	26 (4.15)
Prefer not to answer	19 (3.03)
Employment	
Employed full-time	289 (46.09)
Employed part-time	149 (23.76)

Self-employed	71 (11.32)
Parental leave	26 (4.15)
Student	4 (0.64)
Retired	39 (6.22)
Volunteer	14 (2.23)
Unemployed	44 (7.02)
Prefer not to answer	11 (1.75)
Annual household income (before tax)	
Less than £15,000	49 (7.81)
£15,001-£25,000	69 (11.00)
£25,001-£35,000	73 (11.64)
£35,001-£45,000	73 (11.64)
£45,001-£55,000	69 (11.00)
£55,001-£65,000	49 (7.81)
£65,001-£75,000	37 (5.90)
£75,001-£85,000	33 (5.26)
More than £85,001	78 (12.44)
Prefer not to answer	97 (15.47)

Key. * Total percentage may exceed 100% as participants were able to select more than one type of employment. GCSE: General Certificate of Secondary Education; A-Level: Advanced Level

Use of the internet

The vast majority of respondents had used the internet as a source of information (overall: 92.66%, n=581/627; early perimenopause: 94.74%, n=162/171; late perimenopause: 89.60%, n=112/125; post-menopause: 92.37%, n=242/262; surgical menopause: 94.20%, n=65/69). Of those who did not use the internet as a source of information (overall: 7.34%, n=46/627) the most common reason for not using the internet provided was not knowing where to start looking (39.96, n=17/46; Table S2 in Multimedia Appendix 2).

Of those who endorsed looking for information on the internet, the majority used the internet as their initial source of information (overall: 84.17%, n=489/581; early perimenopause: 88.89%, n=144/162; late perimenopause: 78.57%, n=88/112; post-menopause: 84.30%, n=204/242; surgical menopause: 81.54%, n=53/65). See Table 2 for a summary of informational resources accessed online. No group differences were observed regarding

the type of information resources accessed. Informational resources on the internet were most frequently found via a Google Search (87.95%, n=511/581).

Table 2. Information sources accessed online. Total percentages may exceed 100% because multiple information sources could be selected. Percentages were calculated by dividing the frequency of each code by the total number of responses (overall: n=581; early perimenopause: n=162; late perimenopause: n=112; Natural menopause: n=242; surgical menopause: n=65).

Information source	Overall, n (%)	Early peri, n (%)	Late peri, n (%)	Natural, n (%)	Surgical and medical, n (%)
NHS	447 (76.93)	130 (80.25)	82 (73.21)	180 (74.38)	55 (84.62)
Online/NHS					
Inform					
Websites	186 (32.01)	56 (34.57)	38 (33.93)	76 (31.40)	16 (24.62)
reporting					
other					
people's					
experiences					
Websites	103 (17.73)	27 (16.67)	35 (22.32)	40 (16.53)	11 (16.92)
suggesting					
in-person					
support					
options					
Charities	262 (45.09)	80 (49.38)	53 (47.32)	96 (39.67)	33 (50.77)
Websites	143 (24.61)	43 (26.54)	24 (21.43)	56 (23.14)	20 (30.77)
aimed at					

HCPs					
Social	359 (61.79)	98 (60.49)	80 (71.43)	145 (59.92)	36 (55.38)
media					
Scientific	73 (12.56)	18 (11.11)	9 (8.04)	33 (13.64)	13 (20.00)
literature					
Online news	205 (35.28)	55 (33.95)	37 (33.04)	86 (35.54)	27 (41.54)
sites with					
reports					
about the					
menopause					
Other	44 (7.57)	13 (8.02)	10 (8.93)	17 (7.02)	4 (6.15)

Key. NHS: National Health Service; HCPs: Health care professionals

Other information sources

The majority of online information seekers also sought information elsewhere (Overall: 75.56%, n=439/581), with a similar proportion between menopause stages (early perimenopause: 77.78%, n=126/162; late perimenopause: 78.57%, n=88/112; post-menopause: 71.90%, n=174/242; surgical menopause: 78.46%, n=51/65).

The majority of these had used a secondary source after using the internet as the primary source of menopause information (overall: 60.75%, n=353/581; early perimenopause: 67.90%, n=110/162; late perimenopause: 58.04%, n=65/112; post-menopause: 57.44%, n=139/242; surgical menopause: 60.00%, n=39/65; Table S3 in Multimedia Appendix 2). The most frequently cited reason for using a second source of information after the internet was to obtain as much information as possible (51.84%, n=183/353), followed by wanting verification that the information found online was correct (46.46%, n=164/353; Table S4 in Multimedia Appendix 2). A higher proportion of the surgical menopause group reported using a secondary sources of information as they could not find the information they were

looking for online (23.08%, $n=9/39$) compared to the early perimenopause group (7.27%, $n=8/110$; $X^2(3)=8.038$, $p=.045$, $\phi c=.15$). A larger proportion of the late perimenopause group (61.54%, $n=40/65$) wanted verification that the information found online was correct and could be believed than the post-menopause group (39.57%, $n=55/139$; $X^2(3)=9.803$, $p=.020$, $\phi c=.17$). A larger proportion of the early perimenopause group considered the information available online overwhelming (40.91%, $n=45/110$) than the post-menopause group (24.46%, $n=34/139$; $X^2(3)=8.376$, $p=.039$, $\phi c=.15$).

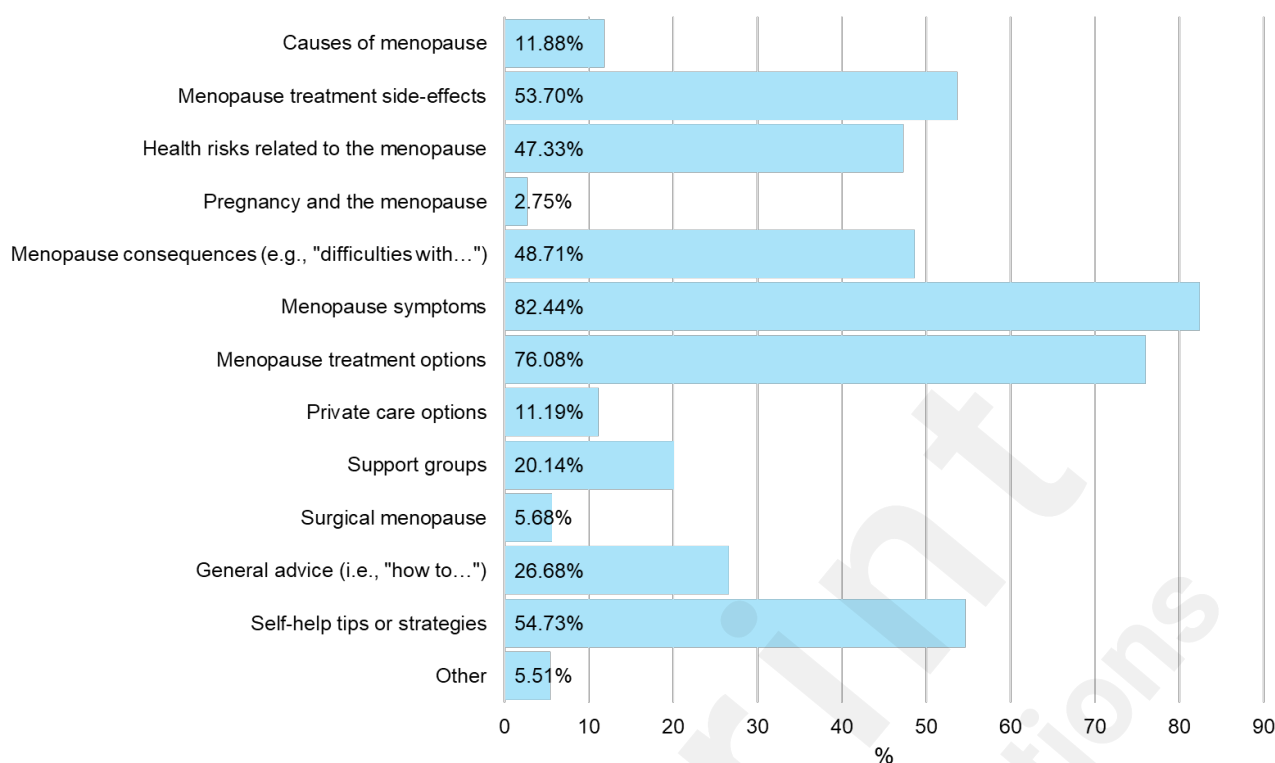
Of those who had not used a secondary informational source in addition to the internet, the most frequent reason for not doing so was not thinking symptoms were severe enough for further help-seeking (41.91%, $n=57/136$) and that they found enough information online (40.44%, $n=55/136$; Table S5 in Multimedia Appendix 2). The surgical menopause group had a higher proportion of individuals citing not using additional sources due to not trusting a health care professional (21.43%, $n=3/14$) compared to the post-menopause group (1.54%, $n=1/65$; $X^2(3)=11.889$, $p=.008$, $\phi c=.27$).

The source of information most frequently used other than the internet was a GP (80.41%, $n=353/439$; Table S6 in Multimedia Appendix 2). A higher proportion of the surgical menopause group had contacted a gynecologist compared to any other menopause stage (Figure 1; $X^2(3)=28.618$, $p<.001$, $\phi c=.26$). Utilization of a support group was more common in women in the surgical menopause ($X^2(3)=8.610$, $p=.035$, $\phi c=.14$). The early perimenopause group endorsed consulting a pharmacist less than any other group (Figure 1; $X^2(3)=10.067$, $p=.018$, $\phi c=0.15$).

Common online search topics

Figure 1 shows what information participants most frequently endorsed looking for online

(Table S7 in Multimedia Appendix 2). Information about menopause symptoms (82.44%, $n=479/581$), menopause treatment options (76.08%, $n=442/581$), and self-help tips or strategies (54.73%, $n=318/581$) were endorsed as the most frequent online searches. Of the 33 participants who endorsed searching for information about surgical menopause, 28 (85.85%) were in the surgical menopause. Searches related to pregnancy were more frequent in the late perimenopause group (5.36%, $n=6/112$) than the post-menopause (1.24%, $n=3/242$; $X^2(3)=8.232$, $p=.014$, $\phi_c=0.12$). Additionally, a larger proportion of the late perimenopause group (18.75%, $n=21/112$) had searched online for information about private care than the post-menopause group (8.68%, $n=21/242$; $X^2(3)=8.310$, $p=.040$, $\phi_c=0.120$). A larger proportion of the surgical menopause group had searched online for information online about the surgical menopause (43.08%, $n=28/65$) compared to all other groups (early perimenopause: 1.23%, $n=2/162$; late perimenopause: 0.89%, $n=1/112$; post-menopause: 0.83%, $n=2/242$; $X^2(3)=191.093$, $p<.001$, $\phi_c=0.57$). A higher proportion of participants in the late perimenopause group (33.04%, $n=37/112$) and post-menopause group had searched online for general advice for the menopause (i.e., “how to...”; 28.93%, $n=70/242$) compared to the surgical menopause group (13.85%, $n=9/65$; $X^2(3)=8.972$, $p=.030$, $\phi_c=0.12$).



Fig

Figure 1. Frequency of topics around the menopause searched for (n=581)

Regarding online searching for information about health risks related to the menopause (Table S8 in Multimedia Appendix 2), the most searched possible health risk was osteoporosis (68.36%; n=188/275). A higher proportion of participants in the surgical menopause group had searched online for information about osteoporosis (88.89%, n=32/36) than participants in the early (65.00%, n=52/80) and the late perimenopause group (55.36%, n=31/56; $X^2(3)=12.111$, $p=.007$, $\phi_c=0.21$). A higher proportion of participants in the late perimenopause group (46.43%, n=26/56) searched online for information about urinary tract infections than the early perimenopause (21.25%, n=17/80) and post-menopause groups (22.33%, n=23/103; $X^2(3)=13.772$, $p=.003$, $\phi_c=0.22$).

The treatment information most frequently searched online (Table S9 in Multimedia Appendix 2) was about transdermal hormone replacement therapy (HRT; 65.38%,

n=289/442), followed by oral HRT (41.40%, n=183/442), vaginal HRT (26.70%, n=118/442), lifestyle changes (38.69%, n=171/442), and testosterone (24.43%, n=108/442). A higher proportion of individuals in the surgical menopause group had searched online for information about lubricants (31.93%, n=15/47) than all other groups (early perimenopause: 9.85%, n=13/132; late perimenopause: 7.87%, n=7/89; post-menopause: 10.34%, n=18/174; $X^2(3)=20.136$, $p<.001$, $\phi_c=0.213$). A higher proportion of individuals in the late perimenopause group had searched online for information about complementary therapies (33.71%, n=30/89) than the early perimenopause (13.64%, n=18/132) and post-menopause (19.54%, n=34/174) groups ($X^2(3)=13.281$, $p=.004$, $\phi_c=0.173$).

The treatment side effects most frequently searched for online (Table S10 in Multimedia Appendix 2) were weight gain (59.94%, n=187/312), mood changes (57.05%, n=178/312), and risk of cancer (55.45%, n=173/312). Group differences were observed for online searches about irregular bleeding ($X^2(3)=17.780$, $p<.001$, $\phi_c=0.24$); with a higher proportion of participants in early (33.33%, n=31/93) and late (36.21%, n=21/58) perimenopause endorsing searching for online information about irregular bleeding than participants in the post-menopause (16.92%, 22/130) or surgical menopause (6.45%, n=2/31). Participants in the early (27.96%, n=26/93) and late (32.76%, n=19/58) perimenopause groups were proportionally more likely to look for information about dizziness as a treatment side effect than those in the post-menopause (13.85%, n=18/130) and surgical menopause groups (9.68%, 9/31; $X^2(3)=13.874$, $p=.003$, $\phi_c=0.21$).

In terms of general advice searched for online (Table S11 in Multimedia Appendix 2), the majority wanted information about how to ask for support generally (42.58%, n=66/155) or information about how to talk to a health care professional about the menopause (41.94%, n=65/155). No group differences were observed for general advice searching online.

Perceptions of the quality of the internet as a source of information

The majority of participants perceived information available in online sources as accurate to some extent (88.52%, $n=555/627$), with the largest proportion considering the sources available online to be moderately accurate (48.48%, $n=304/627$; Table S12 in Multimedia Appendix 2). There was a significant difference in the perceived accuracy of online information across menopause stage ($H(3)=8.507$, $p=0.37$). Post hoc tests revealed a significant difference in perceived accuracy between the post-menopause and surgical menopause groups ($p=0.37$), with those in the post-menopause considering the information available online to be of a higher accuracy.

The majority of participants trusted online sources of information to some extent (98.09%, $n=615/627$), with the largest proportion reporting moderate trust (62.20%, $n=390/627$; Table S12 in Multimedia Appendix 2). The online informational resources considered the most trustworthy were the National Health Service (NHS) or NHS inform websites (78.15%, $n=490/627$) and the websites of charities (63.96%, $n=401/627$; Table S12 in Multimedia Appendix 2). No significant differences in trustworthiness was observed between menopause stages.

The majority of participants who had looked online for information related to the menopause found some but not all of the information they were looking for online (65.23%, $n=379/581$), with only 4.48% ($n=26/581$) reporting that they had not found what they were looking for online (Table S3 in Multimedia Appendix 2). No differences were observed in perceived comprehensiveness between the menopause stages.

Qualitative analysis

593 qualitative responses were provided. Of these, 200 were labelled as “Not applicable”

and removed. A final dataset of 393 responses were analyzed. Thematic analysis revealed a total of 68 codes organized into 10 themes (see Table 3 for a summary of codes with a frequency of 5 or more in the data and Table S13 in Multimedia Appendix 2 for the complete list of identified codes).

Information quality and accessibility

Generally, perceptions of the quality of online resources expressed in free text responses were negative. Participants who commented on information quality indicated that they perceived available information to be generic. Additionally, there were concerns about the accuracy of the information available online with it being perceived as outdated and lacking transparency. Some participants commented on their perception that some online content framed to appear as information was instead deceptive advertising (*"I feel like I get sucked into social media ads targeted at 50+ year old women trying to sell me dubious supplements."*) For some participants, this resulted in a sense of distrust of the information available online.

Regarding the accessibility, participants commented on a perceived lack of research focused on the menopause. There was also a request for improved dissemination of research online (*"I'd like to be more familiar with research into the menopause."*). Additionally, there were reports that information is inaccessible as it is not written in an easy-to-understand way (*"I would like it all explained in a simpler way, as having brain fog made it hard for me to take it in."*). Similarly, some participants expressed that the information available online was overwhelming. As a potential solution, participants called for *"One site that has all the information, instead of being sent from site to site"*.

Treatment

Thematic analysis revealed a request for easier to understand information and guidance for treatment pathways and menopause interventions. Some participants specifically asked for

decision-support tools such as flow charts (*"Types of HRT - a nice flow-chart to help me choose"*). This included a request for information about the safety of menopause management options, including long-term outcomes (*"I have very little clue about what my options are together with what the side effects may be for me re. HRT or anything else."*). Additionally, participants mentioned needing more information about the association between menopause treatments such as HRT and pre-existing or co-morbid conditions such as cancer (*"Specific info & treatments for someone who has had triple negative breast cancer"*). Free text responses also requested more information related to specific types of HRT such as testosterone (*"More evidence of adding testosterone to the HRT options and it's benefits"*) as well as alternatives to HRT.

Groups lacking information

Free text data revealed a perception of information missing for certain groups including health care professionals, workplaces, individuals in the medical or surgical menopause, partners, and men and boys (*"Much more comprehensive information about possible and potential symptoms - I was totally unprepared as was my GP when I first started having symptoms."*), with requests for informational resources tailored to these groups to maximize their relevance.

Symptom specifics

Participants also requested more information about symptoms of the menopause. This included the complete list of menopausal symptoms including "atypical" symptoms such as dental symptoms, dry eyes, and migraines (*"finding concise information about the wide-ranging nature of symptoms is difficult"*, *"Medical professionals / NHS websites providing full lists of symptoms as some quite common ones aren't included, e.g. itchy ears and bleeding gums."*). Relatedly, free text data included requests for more comprehensive information of some domains of menopause symptoms such as urogenital and sexual

symptoms (*"More information about sex, painful sex"*).

Health care access and support (including offline)

Participants requested more online resources to provide recommendations of when it may be appropriate to seek formal support from a health care professional (*"When to see GP"*). In the free text data participants also expressed the importance of having access to menopause specialists (*"To be able to speak to a gynaecologist rather than a gp"*). Additionally, participants requested recommendations on how to speak to a health care professional about the menopause, including how to self-advocate (*"How to advocate for yourself when contacting a GP about menopause treatment"*).

Other support outside of formal care

In terms of online information in relation to support outside of health care professions, participants in this study requested additional resources to guide them in gaining support in the workplace (*"What are our rights re work support. How to get help when work becomes difficult [due] to symptoms"*). Further, support groups were mentioned as a useful support resource with participants either expressing their benefits or requesting improved access to directories to find relevant support groups.

Lifestyle support and self-management

Thematic analysis revealed an interest in online information regarding non-formal interventions to manage menopausal symptoms, including natural remedies such as supplements and lifestyle changes. Additionally, some participants mentioned wanting to see more online resources with information about food, diet, and exercise to manage symptoms of the menopause or to lose weight (*"Also more on exercising through menopause"*). Free text responses also included requests for reviews of supplements and other products specifically designed for use in the menopause (*"Reviews of natural supplements etc"*).

Menopause and co-occurring conditions

Thematic analysis revealed requests for improved online information and guidance about the association between the menopause and co-occurring conditions, including but not limited to chronic health conditions (*"Specifications about how other chronic conditions can overlap with menopause"*), psychological conditions (*"More advice about how the menopause can worsen existing general anxiety disorder", "[premenstrual dysphoric disorder] and it getting worse before menopause"*), and gynecological conditions (*"It is impossible to find any information for women who suffer with [polycystic ovary syndrome or PCOS] and how to manage this and the menopause at the same time and they interact with each other. We are in desperate need of guidance and support for PCOS & Menopause"*)

Patient empowerment

Thematic analysis also highlighted how online resources may be amended to empower patients. This included providing or enabling the sharing of narrative accounts in online spaces (*"Personal stories of women coping and how they cope"*) to understand the experiences and successful management strategies of other individuals in a similar circumstance. In a similar vein, some participants requested that online resources provide reassurance, conveying the benefits for comfort and encouragement (*"I think reassurance that you will get through it as it's quite daunting when you first go through it"*).

Perimenopause

Participants reported a perceived lack of online resources about perimenopause (*"There isn't much about early premenopause either. it would be helpful if NHS or other credible UK healthcare providers shared information on this. How long should one wait before taking any measures? It is ok to start later? What are the window of opportunity for taking which actions?"*) making it difficult to obtain information about this stage of the menopause

transition.



Table 3. Themes and codes identified from Thematic analysis. For readability, only codes with a frequency of 5 or more in the data are presented. See Table S13 in Multimedia Appendix 2 for the full list of codes with frequencies and percentages. Total percentages may exceed 100% because multiple codes/themes can apply to a single data point. Percentages were calculated by dividing the frequency of each code by the total number of responses (n=393).

Theme	Codename	Code description	Illustrative quote(s)	Frequency	%
Information quality and accessibility	Request for research	Perceived lack of research into the menopause (e.g., secondary health outcomes, treatment or management options and their efficacy), as well as a request for more accessible research information and data	"There is some data and scientific literature on and not-hormonal interventions. They are a hard read and not easy to translate to practical actions to take. Most of the products are lacking scientific evidence. There is a large scope to provide credible and applicable advice on non-HRT treatments and products."	30	7.63
	Information	Available information related to	"More specific information,	14	3.56

	perceived	as the menopause is perceived as	<i>instead of maybes or might be."</i>		
	generic or vague	generic or vague			
Distrust	of	There is a distrust of information	<i>"It is difficult to figure out what</i>	14	3.56
	information	available related to the	<i>to trust/believe"</i>		
		menopause			
Information		Available information related to	<i>"Official resources (e.g. NHS</i>	11	2.80
	perceived	as the menopause is perceived to	<i>websites) can be outdated"</i>		
	outdated	be outdated			
Information	is	Available information related to	<i>"Broken down into easy reading</i>	9	2.29
	difficult	to the menopause is considered	<i>would help trailing through the</i>		
	understand,	or difficult to understand or	<i>minefield of information is</i>		
	website(s)	are available websites are difficult to	<i>draining"</i>		
	difficult to use	use or navigate			
Information	is	Available information related to	<i>" it's very overwhelming to</i>	9	2.29
	overwhelming	the menopause is considered	<i>know what to trust"</i>		
		overwhelming			

Request for a centralized menopause information hub	A request for a single source which can be relied on to find information related to the menopause	"A site specifically about menopause with symptoms, what type of treatments, and finding help under one site."	9	2.29
Request for information source transparency	Importance of having the source of information (e.g., research by an academic institution, research by a company) provided	"I would like to see more accreditation and for people to not be able to make claims without sound evidence. Too many people trying to sell to us a quick fix"	7	1.78
Information is perceived as a sales pitch	Perception that information about treatments/supplements is not independent, and is a sales pitch	"[...] other resources have an agenda at best (or at worse 'commercialise' menopause, the new buzzword to market products and make money)."	7	1.78
		"Feel like I get sucked into		

			<i>social media ads targeted at</i>		
			<i>50+ year old women trying to</i>		
			<i>sell me dubious supplements."</i>		
Treatment	Decision support tools for treatment	Request for simple information, guidance and decision support tools (e.g., a flowchart) for care pathways and treatment or management options	<i>"options available and how to decide what's right for you"</i>	53	13.49
	Request for information about alternatives to HRT	Request for information on what to do if you cannot or don't want to take HRT	<i>"Treatment other than medication for people who can't use HRT"</i>	36	9.16
	Request for information about menopause treatment and pre-existing co-occurring	Request for more information on the cancer risk associated with HRT or for information about taking HRT during/after receiving treatment for cancer or other conditions (e.g.,	<i>"Specific info & treatments for someone who has had triple negative breast cancer"</i>	26	6.62

conditions	gynecological conditions, blood clots, stroke)				
Request	for	Request for more information on	"Warning of side effects"	17	4.33
menopause		the general safety of			
general treatment		menopause treatments,			
safety and side		including a list of possible short-			
effect information		and long-term side effects			
Request	for	Request for information about	"Detailed research evidence	16	4.07
information about		testosterone as a menopause	that shows If taking		
testosterone		treatment	testosterone can improve		
			symptoms of the menopause		
			and how this can be accessed		
			in the UK."		
HRT		Perceived misinformation about	"Accurate information about the	8	2.04
misinformation		HRT	health BENEFITS of [HRT] and		
			removal of the hugely out of		
			date and debunked 'scare		
			stories' about HRT."		

		Request for information on hormonal contraception	Request for information on hormonal contraception during the perimenopause/menopause	"More on effect of combined pill and coming off this during peri menopause"	5	1.27
Groups lacking information		Request for information available health professional(s)	Request for improved training for HCP(s) in terms of education or attitude/approach, or access to informational resources tailored to HCP(s)	"Resources to take to your GP if they are not up to date on the menopause."	14	3.56
		Request for information available health professional(s)	Request for improved training for HCP(s) in terms of education or attitude/approach, or access to informational resources tailored to HCP(s)	"Better training of GP's to understand and support us."		
		Request for information available health professional(s)	Request for improved training for HCP(s) in terms of education or attitude/approach, or access to informational resources tailored to HCP(s)	"More online resources for employers to access."	12	3.05
		Request for information available health professional(s)	Request for improved training for HCP(s) in terms of education or attitude/approach, or access to informational resources tailored to HCP(s)			
		Request for information available health professional(s)	Request for improved training for HCP(s) in terms of education or attitude/approach, or access to informational resources tailored to HCP(s)	"More recognition about surgical menopause and the impact of symptoms"	12	3.05

	medically							
	induced	or						
	surgical							
	menopause							
	Request	for	Request	for	menopause	"Menopause should be taught	8	2.04
	menopause		information	available	for and	to both women and men. I had		
	information/guida		tailored to	partners or	specific to	to make my husband read		
	nce for partners		relationships			others experiences so that he		
						understand my plight and the		
						help I needed."		
	Request	for	Request	for	menopause	"Educate boys and men, it's	7	1.78
	menopause		information	available	for and	important"		
	information/guida		tailored to	boys and	men			
	nce for men/boys							
Symptom	Request	for	Request	for	a full list of all	"More information about ALL	57	14.50
specifics	information about	possible	perimenopause	and	the symptoms and effects that			
	the full list of	menopause symptoms, as well			the menopause has on a			
	possible	as more information available			woman's body. Not every			

symptoms	about	symptoms	of	the	woman is affected by all or		
		perimenopause and menopause			even some of the symptoms."		
		(e.g., sexual symptoms,					
		genitourinary symptoms)					
Request	for	Request	for	information on how	"How to tell you are peri	16	4.07
information	to	to recognize or "spot"	that you	menopausal"			
help	identify	the	may	now	be	in	the
perimenopause/		perimenopause/menopause					
menopause							
Request	for	Request	for	more	"More information about the	15	3.82
information/		information/advice	for	mental	psychological symptoms and		
advice for mental		health/psychological	symptoms		how to manage them. Most		
health/		related to the menopause			information is heavily swayed		
psychological					towards the physical		
symptoms					symptoms. Not enough help or		
					information about the		
					psychological side."		
Request	for	Request	for	information about	"There's no information about	15	3.82

information about which	what symptoms are permanent
chronicity of perimenopause/menopause	and what are transient. For
symptoms symptoms are permanent and	example, is this my lot for the
which are temporary, and	rest of my life? Will I ever get
whether symptoms alleviate in	my sex drive, energy and
the post-menopausal stage	motivation back? Will I get my
	confidence back? Will I ever get
	my previously fast brain back or
	will I always feel inadequate.
	Before menopause I thought
	symptoms were transient but
	now it seems they are
	permanent and it makes me
	think 'if this is me now, what's
	the point of living'."
Request for Information related to the	"What happens after 8
information about recognition, understanding, or	menopause, how hormones

	hormones	explanation of the role of <i>balance</i> ."			
		hormones in health and the			
		menopause			
Health access support (including offline)	care	Request for	Request for advice on when to	"I would love to know the	23
	and	information about	seek professional care and the	<i>tipping point at which you</i>	
		when to seek	importance of online resources	<i>should go and talk to your gp"</i>	
		professional care	providing signposting to		
			professional care when	"When is [it] time to seek	
			appropriate	<i>medical advice without feeling</i>	
				<i>you are wasting their time."</i>	
		Importance of	Importance of having access to	"How to refer oneself to	19
		access to	menopause specialists, online	<i>specialist services"</i>	
		menopause	and in-person		
		specialists			
		Request for	Request for information/advice	"what to do when your GP wont	18
		advice on	on discussing menopause with	<i>prescribe what you think you</i>	
		discussing	health care professional(s),	<i>need, in my case a higher dose</i>	
		menopause with	including how to advocate for	<i>of oestrogen"</i>	

	health	care	oneself				
	professional(s)				<i>"How to approach a GP who seems poorly educated on menopause."</i>		
Other	support	Request	for	Request for information on how	<i>"Knowing my rights at work and</i>	14	3.56
outside of formal	care	information	on	to get menopause support in the	<i>what help I can get"</i>		
		getting support in	workplace				
		the workplace			<i>"More information about employee rights and employer responsibilities w[ith] regard to support"</i>		
		Request	for	Request for directory of or help	<i>"Support groups in my area"</i>	11	2.80
		directory	of	finding support groups			
		support groups					
		Perceived	utility	Perceived usefulness of online	<i>"what I found most helpful was</i>	6	1.53
		of online	support	support groups	<i>some facebook groups where</i>		
		groups			<i>women shared their experiences and stories as then</i>		

					<i>there was always something you could relate to and understand how they'd managed or what advice they gave or had found etc."</i>		
Lifestyle support and self-management	Request for information about non-formal menopause management	for	Request for information, advice or recommendations for non-formal management options of menopause symptoms not accessed via a health care professional (e.g., homeopathic options, supplements, lifestyle changes)	<i>"naturally treat/support hormonal changes with the appropriate supplements"</i>	27	6.87	
	Request for information about food, diet, exercise, and	for	Request for information about specific food or diet and exercise for menopause, as well as information related to weight	<i>"Recommendations on food types that can help symptoms."</i>	20	5.09	
				<i>"any specific food/diet to help</i>			

	weight	loss or management	<i>with the symptoms"</i>		
	management for				
	menopause				
	Request	for Request for more information	"Supplements that actually	16	4.07
	information about	about menopause product and	work , so many offer so much ,		
	menopause	supplements, including reviews	but don't deliver"		
	products and				
	supplements		"More information about		
			intimate moisturiser."		
Menopause and	Request	for Request for more information	The relationship with	24	6.11
co-occurring	information about	about the association between	menopause and pre existing		
conditions	menopause and	menopause and pre-existing	conditions."		
	pre-existing	conditions or co-morbid			
	conditions	conditions (e.g., physical health			
		conditions, mental health			
		conditions, gynecological			
		conditions)			
Patient	Request	for Request for more lived	"Women discussing interacting	15	3.82

empowerment	narrative	experience accounts	and	discussing	their		
	accounts			menopause	experiences"		
	Request	for	Request	for	online information	"How normal it is to talk about	7
	reassurance		to	provide	reassurance about	it, that you're not alone and that	
					the menopause experience	it will get better"	
Perimenopause	Perceived lack of	Perceived lack of	or	request	for	"I struggled to find much	18
	perimenopause	information	about	the	info[rmation]	on	4.58
	information	perimenopause			perimenopause"		

Key. HRT: Hormone Replacement Therapy

Discussion

The aims of this study were to explore the online information-seeking behavior of women in the menopause and menopause transition. Additionally, the study sought to gain insights into perceptions of online resources for menopause information. The majority of participants in the current study had used the internet as a source of menopause information. The internet appears to be not only highly accessible but also acceptable, with it being frequently used as the first point of information gathering. It also appears that the internet is considered a high-quality resource for menopause information, considered to be mostly accurate and trustworthy. This is concerning as reviews of online information for the menopause has revealed varying quality [18]; however, given the pace with which websites can be updated, a more recent audit of quality and content is required. Reassuringly, the NHS website was the most frequently accessed resource for menopause information and thus is likely to be evidence-based. However, qualitative analysis revealed a perception from the target audience for this resource that it may be considered out-of-date. Social media was the second most commonly accessed online resource for menopause information, revealing a considerable risk of misinformation. However, social media was not a resource which was frequently considered trustworthy. Therefore, the current study highlights a potential need for guidance for those searching for menopause information online about how to differentiate high-quality, evidence-based content from potentially unreliable sources. The majority of participants had also sought information from other sources, with an NHS GP being the most frequently reported contact. Crucially, around twenty-five percent of participants had only used the internet for information, not consulting any other informational source.

This further demonstrates the importance of validating the quality of information available online to tackle potential misinformation as well as maximizing the accuracy and utility of information found.

Information about menopause symptoms, menopause treatment options, and self-help tips or strategies were most frequently looked for online. This reflects previous research investigating informational needs for menopausal individuals [10, 11]. Other frequently searched topics were related to health, with participants endorsing having searched for information about menopause-related health-risks as well as the interaction between the menopause and other pre-existing conditions. Interestingly, although information about menopause symptoms was the most commonly searched for information online it appears that this information is also perceived to be not readily available. Many participants who provided a free text response requested an improved provision of information online related to menopause symptoms, with there being a request for resources to provide a more extensive list of possible symptoms. Given the wide range of potential menopause symptoms and the distress that can accompany their onset [19], access to comprehensive information is vital. This is especially important in reducing the potential uncertainty or fear associated with the onset of unfamiliar or infrequently discussed menopause symptoms. The current study revealed that online search behavior varies considerably between menopausal stages. Whilst the vast majority of participants, irrespective of menopause stage, made use of the internet as an informational resource, there were variations in the specific information that was searched for. For instance, those in the perimenopause searched online for information about general “how to” information and private care options, as well as complimentary therapies. This may indicate that participants in

this stage of the menopause may have had poor experiences of formal care offered through the public sector and so were potentially motivated to seek information about alternative avenues for help and symptom management. This indicates the complexity which governs online searches for information about menopause, including but not limited to specific stages. Given this, future resources should aim to address the concerns and needs of different menopausal groups. This will involve in-depth co-design of materials, ensuring a range of experiences and perspectives are captured and reflected in the resources generated. Beyond menopausal stage, thematic analysis revealed a perception of a lack of information for other specific groups such as those in medically induced or surgical menopause. Considering that surgical menopause is associated with poorer health-related quality of life outcomes [20] and more severe symptoms [21] compared to other menopausal groups, online information about menopause may not adequately address the unique needs of individuals who have undergone medically induced or surgical menopause. Therefore, there is a need to provide information which is relevant to the specific experiences of this sub-group.

Information about HRT was the most searched for treatment information in the current study, yet it is unclear whether these searches were a result of being offered HRT by a health care professional, or if it was self-directed research. HRT is one of the most frequently prescribed treatments for the management of menopause symptoms, and so these searches may indicate the goal to obtain as much information as possible about this treatment option. However, there is evidence that some individuals have to self-advocate to access HRT and so may be collecting relevant information to take to their health care professional in this pursuit. Other

than HRT, nearly a quarter of participants were looking for information about the use of testosterone for the management of menopause symptoms with many free text responses indicating an interest in this area. Testosterone is currently not licensed for use in the menopause in the UK [22], with access to testosterone usually reserved for individuals presenting with reduced sex drive, and when other HRT has not helped [23]. Although testosterone may not be widely prescribed, this study shows that there is obvious interest in its use. In fact, there was a ten-fold increase in the number of prescriptions of testosterone for women over 50 between 2015 and 2022 [24]. This increase may be associated with what has been described as the 'Davina McCall effect', with a sharp increase in the number of people receiving testosterone at the release of her first documentary about the menopause [24]. A further increase was also observed after she released a second documentary which included information about testosterone treatment [24]. Aside from HRT, around fifteen percent of participants reported looking for information about antidepressants. According to NICE guidelines [23], if there is no independent diagnosis of major depressive disorder (MDD), prescription of antidepressants to treat the symptoms of low mood and anxiety related to menopause is not recommended. In practice, it has previously been reported that women experiencing low mood in the menopause are prescribed selective serotonin reuptake inhibitors (SSRIs) [25]. Prescriptions of antidepressants are seemingly perceived as inappropriate for the menopause by those who have received them [26], and so this search behavior may reflect uncertainty regarding the suitability and efficacy of this treatment option for the menopause. Overall, the identified online search behaviors for menopause treatment information highlight a significant gap in accessible, comprehensive resources available on and offline. Therefore, there is a need for detailed and reliable

information on the therapeutic interventions available, which could both support the navigation of the complex landscape of menopause treatment and empower informed decision-making, both before and after contact with a health care professional. In fact, this was something frequently requested by participants with calls for improved information online and interest in decision-support tools such as flow charts which may assist individuals in identifying the most appropriate intervention for them. Ideally, these resources would also include details of interventions or self-help strategies which can be utilized outside of formal health care settings, with free text responses indicating interest in such an approach to manage the menopause.

Frequently searched for treatment side effects online included weight gain, mood changes, and risk of cancer. Concerns of cancer related to menopause treatments are frequent, fueled by conflicting research publications about the risks associated with HRT. However, for most individuals the benefits of HRT outweigh any potential risks [27], with it conferring both short-term symptom relief and longer-term protective health benefits [28]. Fears of HRT may also be propagated by health care professionals who reportedly infrequently provide an opportunity to discuss HRT, including both potential risks and benefits [29]. Therefore, the internet may offer an effective modality for providing comprehensive information about HRT, particularly in regard to the risks associated with it. Thematic analysis revealed a perception that misinformation is spread online about HRT, potentially contributing to unnecessary confusion or distress when seeking formal care.

The type of general advice most sought via online searches was how to ask for

support, both generally and from a health care professional. Evidence indicates poor formal care experiences for the menopause [26], with a high level of self-advocacy required. Therefore, increasing the skills needed to ask for help and advocate for support and health care are clearly needed, with the internet offering a convenient source to deliver this information. However, it appears that it may not yet be fulfilling this need, with free text responses requesting that online resources include more advice and recommendations related to this. In addition, thematic analysis revealed requests for how to ask for support in the workplace and workplace rights. Previous evidence indicates that generally workplaces do not provide information about the menopause [30], potentially necessitating online searching. Similarly, thematic analysis also indicated a perception that information provision is lacking for workplaces. Given that the menopause is associated with women leaving the workforce [5], it is imperative workplaces are well-informed and prepared to support employees and as such high-quality online resources for both employees and employers are required.

Finally, the current study demonstrates the importance of social connection in menopause. Free text data asked for online resources to provide directories of support groups. Participants also stated the utility of support groups in online spaces such as social media to share information and experiences. This is similar to previous qualitative research in post-menopausal women which found that support groups, including online support groups, enable knowledge sharing and reduces feelings of isolation [31]. Internet-based social networks have also been demonstrated to be beneficial for connecting with others who have a similar experience, particularly for individuals whose experience may be considered

“atypical” [8]. Similarly, participants also requested narrative accounts of the menopause, stating that these types of passive peer support would achieve similar benefits.

Limitations

The participants in the study were disproportionately white (95%), compared to the recorded national average of 81.7% in the 2021 census [32]. Additionally, much of the sample reported receiving tertiary education and had endorsed a highest educational achievement of at least an advanced certificate or equivalent. Therefore, care must be taken when extrapolating these findings to the wider population to account for these differences and future research in a more diverse sample is required. Additionally, there is a risk of selection bias due to the online recruitment method. Individuals who are familiar with using the internet, including knowledge of how to find health information, were more likely to see the study advertisements and participate. Therefore, the findings may not reflect the use of the internet as an informational source for the menopause in the wider population.

While the survey used in this study was reviewed and approved by a health care professional and provided a broad overview of online search behavior and informational needs related to menopause, some key aspects may have been overlooked, as it was not reviewed by a wider group of relevant stakeholders. Furthermore, since the free-text question followed the questions with pre-specified answer options, the responses may have been influenced by them.

Conclusions

This study reflects previous work that also found that self-directed searches online for information about the menopause are frequent, being the first or only source of information for some women. Online searches are conducted principally to find information related to menopause symptoms and treatments. The information available online is widely trusted and generally perceived as accurate. However, qualitative data indicates that information is perceived as generic and there are several risk factors associated with distrust in information including a lack of informational source transparency and perceived deceptive advertising practices. Therefore, there is a need for more detailed, transparent information on the subject; especially for those with atypical presentations, such as those going through a medically or surgically induced menopause who report a lack of resources. There are also apparent differences in the online search needs and behaviors between different menopausal groups. Future resource development should consider the role of individual characteristics and preferences, including the specific stage of the menopause.

The participants in this study have highlighted some specific problems with the currently available online information about the menopause and provided suggestions of what they would like to see changed. In particular, participants requested a more comprehensive and detailed list of all menopause symptoms and clearer guidance available on treatment options, including non-formal symptom management options. Internet users also appear to seek practical advice related to self-management of symptoms and on how to effectively communicate with health care professionals and employers. Additionally, the study revealed the ability of the

internet to provide social support, both passively and actively, with this being cited as beneficial for reducing uncertainty about the menopausal experience.

Data Availability Statement

The data sets generated during and/or analyzed during this study are available from the corresponding author on reasonable request.

Authors contributions

FMcC, EF, NM-K, and SB conceived the study focus and materials. The recruitment was conducted by EF. Quantitative analysis was performed by EF. The thematic analysis was performed by FMcC/LQ as the first reviewers and EF/NM-K as the second reviewers. FMcC and EF prepared the manuscript with revisions from LQ, NM-K and SB. All authors contributed to the article and approved the submitted version.

Funding

This study was funded by the Stanley Medical Research Institute (grant 07R-1888).

Conflicts of Interest

Funding of the current study was provided by the Stanley Medical Research Institute (grant 07R-1888). SB is co-founder and chief medical officer of Psyomics Ltd. SB holds shares in Psynova Neurotech Ltd and Psyomics Ltd. EF is a paid consultant for Psyomics Ltd.

Multimedia Appendices

Multimedia Appendix 1: Survey questions

Multimedia Appendix 2: Data tables (Multimedia appendix Table S1-S13)

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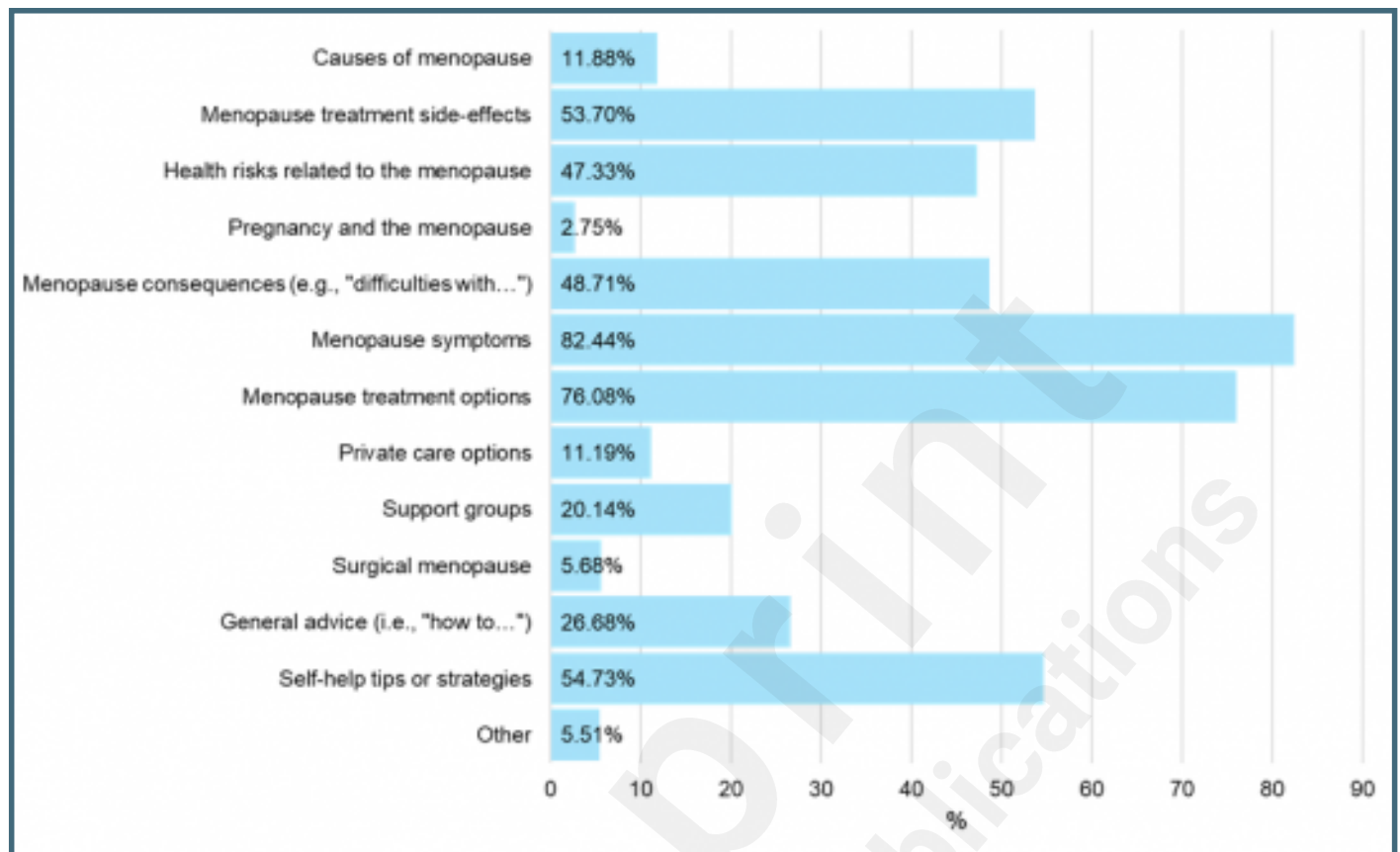
Abbreviations

GP: General Practitioner
HCP: Health care professional
HRT: Hormone Replacement Therapy
NHS: National Health Service
PCOS: Polycystic ovary syndrome
UK: United Kingdom

Supplementary Files

Figures

Frequency of topics around the menopause searched for (n=581).



Multimedia Appendixes

Survey questions.

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Data tables (Multimedia appendix Table S1-S13).

URL: <http://asset.jmir.pub/assets/e5880220c7a6f6fac650a1308e78fc1a.docx>



TOC/Feature image for homepages

TOC placeholder image.

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