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Online pregnancy information seeking, its self-reported influence on decisions, and eHealth literacy among pregnant women in Türkiye: a cross-sectional study

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Abstract

Background

Many pregnant women look for health information online. Less is known about which antenatal decisions this changes, and whether eHealth literacy is related to the sources women use and to decision change. We examined online information seeking, its self-reported effect on decisions, and eHealth literacy among pregnant women in Türkiye.

Methods

This cross-sectional study included 222 pregnant women attending a university hospital in Trabzon between November 2022 and January 2023. Face-to-face interviews covered online information seeking, decision change for each pregnancy topic searched and the eHealth Literacy Scale (eHEALS; range 8–40). Data were analysed with logistic and linear regression.

Results

In all, 178 women (80.2%; 95% CI 74.4–84.9) searched online for pregnancy information. Most used search engines (85.4%), and 9.9% used official institutional websites. Of women searching pregnancy topics, 82.9% said that online information had changed at least one decision. Changes were most common for signs of pregnancy, screening and antenatal tests. Overall, 15.3% of users reported finding incorrect information. Online searching was more likely with university education (adjusted odds ratio [aOR] 2.71; 95% CI 1.06–6.93) and planned pregnancy (aOR 2.22; 1.05–4.71), and less likely with smoking before pregnancy (aOR 0.33; 0.13–0.82). The mean eHEALS score was 26.8 ± 5.5, and 32.5% felt confident using online information for health decisions. Higher eHEALS scores were associated with university education (coefficient B 2.95; 0.71–5.19) and online searching (B 2.96; 1.06–4.86). Users of professional and of user-generated sources had higher eHEALS scores, but after adjustment professional source use was associated with university education (aOR 7.30; 2.52–21.12), not clearly with eHEALS. Decision change did not differ by eHEALS score (27.6 vs 27.8; p = 0.929). In an exploratory analysis, eHEALS was associated with mobile application use (aOR per 5 points 1.72; 1.17–2.53).

Conclusions

In this hospital sample, most women searched online, and most searchers said online information changed at least one decision, especially on screening and tests, with no difference by eHealth literacy. Professional source use was linked to education, and app use possibly to perceived skills. Antenatal care could address online misinformation and guide women, especially less-educated women, to reliable sources.

Background

Pregnancy is a time of high information need. Women make many decisions about screening, nutrition, medicines, vaccination and birth, and these decisions affect their own health and that of their baby [1, 2]. Seeking health information helps women cope with this transition [3], and the internet is now one of the main sources [4–6]. An earlier Turkish study and an Iranian study found that about half of pregnant women searched online, whereas two European studies reported more than 90% [7–10]. Recent surveys from different countries also show high use, mainly through search engines, mobile applications and social media [11–13].

How women use online information is as important as how often they search. Reviews and surveys show that online information can affect decisions about mode of birth, medicines, physical activity and vaccination [14, 15]. Recent Turkish studies have developed scales to measure internet-based decision-making in pregnancy [16–18]. These scales measure a general tendency. They do not show which antenatal decisions women change after reading online. This gap is important because online content can be wrong or alarming [19–21]. In Türkiye, a widely publicised media debate about the oral glucose tolerance test showed how online claims can affect attitudes towards routine screening [22].

Whether women benefit from online information may depend on their skills. eHealth literacy is the ability to seek, find, understand and appraise health information from electronic sources and to use it to address a health problem [23]. It is related to, but different from, general health literacy [24, 25]. The eight-item eHealth Literacy Scale (eHEALS) is the most widely used measure [26, 27]. In pregnant women, higher eHEALS scores have been linked to healthy lifestyle behaviours, use of antenatal services, vaccination, childbirth readiness and shared decision-making [28–31]. Turkish studies have reported average scores between about 21 and 31 [28, 29, 32–34]. A recent meta-analysis found a modest association between eHealth literacy and online information seeking, which was clearest for professional sources [35]. It is unclear whether pregnant women with higher perceived eHealth literacy use better sources or are less likely to act on what they read, independently of education. We found no study that examined topic-specific decision change, the sources used and eHealth literacy together in the same pregnant women.

In 2022, 85.0% of people aged 16–74 years in Türkiye, and 80.9% of women, used the internet [36]. The aims of this study were to: (i) estimate the prevalence of online pregnancy information seeking and describe its reasons, sources and topics; (ii) describe how often women reported that online information changed their pregnancy-related decisions; (iii) measure eHealth literacy and the internal consistency of the eHEALS in pregnant women; and (iv) identify factors associated with online information seeking and eHealth literacy, and examine whether eHealth literacy is associated with the sources used and with decision change independently of education.

Methods

Study design and setting

This was a hospital-based cross-sectional study. It is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline [37]. The study was carried out at the Obstetrics and Gynecology Outpatient Clinic of Karadeniz Technical University Faculty of Medicine between 15 November 2022 and 1 January 2023. This tertiary university hospital is in Trabzon, in the Eastern Black Sea region of Türkiye. Pregnant women aged 18 years or older who attended the clinic during the study period and could speak and understand Turkish were invited to take part, irrespective of gestational age. No formal sample size calculation was performed. The analysis included 222 women. The researchers collected data in face-to-face interviews with a structured questionnaire. Participation was anonymous, and the same questionnaire was used for all women. The authors developed the questionnaire on the basis of the literature [4, 5, 7, 38]. An English version of the questionnaire is provided in Supplementary material. Only the items related to the aims of this study were analysed. The first section covered sociodemographic characteristics: age, education, paid employment, monthly household income and household type. The second section covered health and obstetric characteristics: chronic disease before pregnancy, disease diagnosed during pregnancy, smoking and alcohol use before and during pregnancy, and gestational age. It also covered vaccines recommended by the physician, gravidity, living children, previous pregnancy loss, multiple pregnancy, consanguineous marriage, assisted reproduction, planned pregnancy, antenatal class attendance and regular antenatal follow-up.

The third section covered internet use for pregnancy-related information. Women were asked whether they had searched the internet for pregnancy-related health information (yes/no). Users were asked their reasons for searching and the online sources they used (more than one answer allowed). They were also asked which topics they had searched. Topics were grouped as pregnancy (22 topics), childbirth (16), newborn/infant (9) and postpartum mother (5). For each pregnancy topic, the options were “did not search”, “searched and it changed my decision” and “searched and it did not change my decision”. For the other groups, only searching was recorded. Topics left unanswered were treated as not searched. Users were asked whether they had found online information that they later learned was incorrect when compared with evidence-based information or their physician’s advice. Non-users were asked their main reason for not searching. All women answered two five-point items: whether the internet is useful for health decisions and whether access to online health resources is important.

eHealth Literacy Scale

The eHEALS measures perceived knowledge and skills in finding, evaluating and using electronic health information [26]. Its Turkish version has been validated [39]. The scale has eight items scored from 1 (strongly disagree) to 5 (strongly agree). Total scores range from 8 to 40, and higher scores indicate higher perceived eHealth literacy. There is no accepted cut-off [40], so scores were analysed as a continuous variable. For description, we also report the proportions of women scoring ≤ 24 (a mean item score at or below the neutral point) and ≥ 32 (a mean item score of 4 or more).

Variables and definitions

Gestational age was grouped as first (≤ 13 weeks), second (14–27 weeks) and third trimester (≥ 28 weeks). Education was grouped as primary school or less (including no formal schooling), high school and university. Household income was split at the sample median (12,000 Turkish lira [TRY]). Household type was nuclear, extended (relatives living permanently in the household) or other (relatives staying temporarily to help during pregnancy). Declined vaccination meant not receiving the vaccines recommended by the physician in the current pregnancy. Women with at least one living child were classed as having living children. One woman did not answer the yes/no search question but reported reasons for searching, so she was classified as a user.

Reasons and sources were coded from the original responses. Their percentages are given among the users who answered each question (175 for reasons and 171 for sources). Sources were grouped as professional or institutional (health professionals' posts on digital platforms, health professionals' personal websites, health facility websites, official institutional websites and academic publications) or user-generated (social media and forums/blogs). We also counted the number of sources each woman used. Decision change was defined as reporting that online information had changed a decision on at least one pregnancy topic.

Statistical analysis

Categorical variables are given as numbers and percentages. Continuous variables are given as mean ± standard deviation (SD) or median (interquartile range [IQR]). eHEALS scores were not normally distributed (Shapiro-Wilk $p < 0.001$). Therefore, groups were compared with the Mann-Whitney U and Kruskal-Wallis tests, and pairwise comparisons were made with Dunn's test and adjusted with the Bonferroni method. Categorical variables were compared with Pearson's chi-square test. Trends across ordered categories were tested with the linear-by-linear association test. The prevalence of online information seeking is given with a Wilson 95% CI.

Only 44 women did not search online. To avoid overfitting, the logistic regression model for online information seeking had six parameters (about seven outcome events per parameter). It included age (per 5 years), education, living children, planned pregnancy and smoking before pregnancy. Candidate variables were those with $p < 0.20$ in bivariate analyses. Of these, five were selected on the basis of prior knowledge and the need to limit the number of parameters; disease diagnosed in pregnancy and vaccination status were not included. Crude and adjusted odds ratios (OR, aOR) with 95% CIs are reported. Model fit was assessed with the likelihood-ratio test, the Hosmer-Lemeshow test, Nagelkerke R^2 and the area under the receiver operating characteristic curve (AUC). A second model added the eHEALS score (per 5 points).

Factors associated with the eHEALS score were examined with multiple linear regression. The model included age, education, employment, income, household type, living children, planned pregnancy, third trimester and online information seeking, chosen on the basis of prior studies. A sensitivity model

excluded online information seeking. Declined vaccination (n = 12) and multiple pregnancy (n = 11) were not included because the groups were small. Unstandardised coefficients (B) with 95% CIs are reported. Multicollinearity was checked with variance inflation factors (VIF).

Among users who answered the source question, eHEALS scores were compared between women who did and did not use each source (Mann-Whitney U test). Spearman's ρ was used for correlations of eHEALS with the number of sources, the number of topics and the two perception items. Logistic regression adjusted for education and age was used to examine whether eHEALS was associated with the use of professional or institutional sources, user-generated sources and mobile applications. The model for mobile applications was added after the source-by-source comparisons and is exploratory. Reports of incorrect information were compared between users and non-users of user-generated sources with the chi-square test. eHEALS scores were also compared between women who did and did not report decision change. This association was then examined with logistic regression, with decision change as the outcome, adjusted for education and age.

Internal consistency of the eHEALS was assessed with Cronbach's α, corrected item-total correlations and α if item deleted.

Topics were compared across trimesters with chi-square tests. When several related tests were performed (topics by trimester and eHEALS by source), p values were adjusted with the Benjamini-Hochberg false discovery rate method (q). Analyses used complete cases. Missing data were ≤ 3% for sociodemographic and obstetric variables, 6.3% for the eHEALS and 6.8–7.2% for the two perception items. Of the 178 users, 3, 7 and 8 did not answer the reasons, sources and incorrect-information questions, respectively. A two-sided $p < 0.05$ was considered significant, and secondary analyses were considered exploratory. Analyses were performed with IBM SPSS Statistics for Windows, version 23. Wilson CIs and Benjamini-Hochberg q values were calculated in Microsoft Excel.

Use of artificial intelligence tools

An artificial intelligence assistant was used to support data checking, drafting and language editing.

Ethical considerations

The study was approved by the Karadeniz Technical University Faculty of Medicine Scientific Research Ethics Committee. Permission was obtained from the Chief Physician's Office of Farabi Hospital. The study followed the Declaration of Helsinki. Women were told about the aims of the study and that participation was voluntary and anonymous. Verbal informed consent was obtained before the interview.

Results

Participant characteristics

The mean age of the 222 women was 30.7 ± 5.6 years (range 18–49), and the mean gestational age was 21.4 ± 10.1 weeks. In total, 57 women (25.7%) were in the first, 92 (41.4%) in the second and 73 (32.9%) in the third trimester. Ninety-three (41.9%) had a university degree, 68 (30.6%) were in paid employment and 193 (86.9%) lived in a nuclear family. The median monthly household income was 12,000 TRY (IQR 8,800 – 20,000). Most pregnancies were planned (74.3%). Of the women, 108 (48.6%) had no living children and 27 (12.2%) had conceived through assisted reproduction. Twenty-eight (12.6%) had smoked before pregnancy, but only five (2.3%) still smoked during pregnancy. Nine (4.1%) had used alcohol before pregnancy, and none during pregnancy. Although 96.3% had regular antenatal follow-up, only 10 (4.5%) had attended an antenatal class (Table 1).

Table 1
Characteristics of participants, prevalence of online pregnancy-related information seeking and eHEALS scores (N = 222)

Characteristic	Category	All, n (%)	Online seeking, n (row %)	p	eHEALS, mean ± SD	p
Age group (years)	18–24	26 (11.7)	24 (92.3)	0.090 (trend 0.014)	27.3 ± 5.4	0.021
	25–29	67 (30.2)	56 (83.6)		27.6 ± 5.7	
	30–34	76 (34.2)	61 (80.3)		27.2 ± 5.4	
	≥ 35	53 (23.9)	37 (69.8)		24.9 ± 5.3	
Education	Primary or less	49 (22.1)	33 (67.3)	0.019 (trend 0.006)	23.5 ± 5.3	< 0.001
	High school	80 (36.0)	64 (80.0)		27.1 ± 5.2	
	University	93 (41.9)	81 (87.1)		28.3 ± 5.3	
Employed in paid work	Yes	68 (30.6)	54 (79.4)	0.849	27.8 ± 6.0	0.020
	No	154 (69.4)	124 (80.5)		26.4 ± 5.3	
Monthly household income (TRY)	≥ 12,000	117 (52.7)	96 (82.1)	0.460	28.0 ± 5.5	< 0.001
	< 12,000	105 (47.3)	82 (78.1)		25.4 ± 5.2	
Household type	Nuclear	193 (86.9)	156 (80.8)	0.337□	27.2 ± 5.5	0.006

Online seeking = used the internet to search for pregnancy-related health information; percentages are row percentages. eHEALS scores available for 208 women; p values for eHEALS from Mann-Whitney U or Kruskal-Wallis tests. p values for online seeking from Pearson chi-square test unless marked: □Fisher's exact test; □exact p value of the Pearson chi-square test; trend = linear-by-linear association test. Regular antenatal visits: 5 missing. Pairwise comparisons for eHEALS (Kruskal-Wallis, Bonferroni-adjusted) — Age group (years): 18–24 vs 25–29: p = 1.000; 18–24 vs 30–34: p = 1.000; 18–24 vs ≥ 35: p = 0.765; 25–29 vs 30–34: p = 1.000; 25–29 vs ≥ 35: p = 0.018; 30–34 vs ≥ 35: p = 0.085. Education: High school vs Primary or less: p = 0.002; High school vs University: p = 0.214; Primary or less vs University: p < 0.001. Household type: Extended vs Nuclear: p = 0.097; Extended vs Other: p = 0.790; Nuclear vs Other: p = 0.036. Recommended vaccination in pregnancy: Declined vs Not yet recommended: p = 0.011; Declined vs Received: p = 0.052; Not yet recommended vs Received: p = 0.658.

Characteristic	Category	All, n (%)	Online seeking, n (row %)	p	eHEALS, mean ± SD	p
	Extended	22 (9.9)	18 (81.8)		24.9 ± 5.3	
	Other	7 (3.2)	4 (57.1)		22.3 ± 5.1	
Pre-pregnancy chronic disease	Yes	60 (27.0)	45 (75.0)	0.239	26.3 ± 5.4	0.182
	No	162 (73.0)	133 (82.1)		27.0 ± 5.6	
Disease diagnosed in current pregnancy	Yes	50 (22.5)	44 (88.0)	0.115	27.2 ± 4.7	0.748
	No	172 (77.5)	134 (77.9)		26.7 ± 5.8	
Smoking before pregnancy	Yes	28 (12.6)	18 (64.3)	0.024	27.8 ± 5.4	0.887
	No	194 (87.4)	160 (82.5)		26.7 ± 5.6	
Alcohol use before pregnancy	Yes	9 (4.1)	7 (77.8)	1.000	25.8 ± 8.0	0.934
	No	213 (95.9)	171 (80.3)		26.9 ± 5.4	
Trimester	First	57 (25.7)	47 (82.5)	0.822 (trend 0.533)	26.4 ± 5.8	0.248
	Second	92 (41.4)	74 (80.4)		27.5 ± 5.6	
	Third	73 (32.9)	57 (78.1)		26.3 ± 5.2	

Online seeking = used the internet to search for pregnancy-related health information; percentages are row percentages. eHEALS scores available for 208 women; p values for eHEALS from Mann-Whitney U or Kruskal-Wallis tests. p values for online seeking from Pearson chi-square test unless marked: Fisher's exact test; exact p value of the Pearson chi-square test; trend = linear-by-linear association test. Regular antenatal visits: 5 missing. Pairwise comparisons for eHEALS (Kruskal-Wallis, Bonferroni-adjusted) — Age group (years): 18–24 vs 25–29: p = 1.000; 18–24 vs 30–34: p = 1.000; 18–24 vs ≥ 35: p = 0.765; 25–29 vs 30–34: p = 1.000; 25–29 vs ≥ 35: p = 0.018; 30–34 vs ≥ 35: p = 0.085. Education: High school vs Primary or less: p = 0.002; High school vs University: p = 0.214; Primary or less vs University: p < 0.001. Household type: Extended vs Nuclear: p = 0.097; Extended vs Other: p = 0.790; Nuclear vs Other: p = 0.036. Recommended vaccination in pregnancy: Declined vs Not yet recommended: p = 0.011; Declined vs Received: p = 0.052; Not yet recommended vs Received: p = 0.658.

Characteristic	Category	All, n (%)	Online seeking, n (row %)	p	eHEALS, mean ± SD	p
Recommended vaccination in pregnancy	Received	95 (42.8)	78 (82.1)	0.146□	26.6 ± 5.2	0.011
	Declined	12 (5.4)	7 (58.3)		22.0 ± 4.8	
	Not yet recommended	115 (51.8)	93 (80.9)		27.3 ± 5.7	
Primigravida	Yes	80 (36.0)	67 (83.8)	0.317	27.4 ± 5.6	0.149
	No	142 (64.0)	111 (78.2)		26.5 ± 5.5	
Has living children (parous)	Yes	114 (51.4)	85 (74.6)	0.031	26.2 ± 5.7	0.092
	No	108 (48.6)	93 (86.1)		27.5 ± 5.3	
History of pregnancy loss	Yes	71 (32.0)	58 (81.7)	0.699	26.3 ± 5.0	0.340
	No	151 (68.0)	120 (79.5)		27.0 ± 5.7	
Multiple pregnancy (current or previous)	Yes	11 (5.0)	8 (72.7)	0.459□	22.8 ± 5.7	0.027
	No	211 (95.0)	170 (80.6)		27.0 ± 5.5	
Consanguineous marriage	Yes	36 (16.2)	27 (75.0)	0.394	26.7 ± 5.0	0.894
	No	186 (83.8)	151 (81.2)		26.8 ± 5.6	

Online seeking = used the internet to search for pregnancy-related health information; percentages are row percentages. eHEALS scores available for 208 women; p values for eHEALS from Mann-Whitney U or Kruskal-Wallis tests. p values for online seeking from Pearson chi-square test unless marked: □Fisher's exact test; □exact p value of the Pearson chi-square test; trend = linear-by-linear association test. Regular antenatal visits: 5 missing. Pairwise comparisons for eHEALS (Kruskal-Wallis, Bonferroni-adjusted) — Age group (years): 18–24 vs 25–29: p = 1.000; 18–24 vs 30–34: p = 1.000; 18–24 vs ≥ 35: p = 0.765; 25–29 vs 30–34: p = 1.000; 25–29 vs ≥ 35: p = 0.018; 30–34 vs ≥ 35: p = 0.085. Education: High school vs Primary or less: p = 0.002; High school vs University: p = 0.214; Primary or less vs University: p < 0.001. Household type: Extended vs Nuclear: p = 0.097; Extended vs Other: p = 0.790; Nuclear vs Other: p = 0.036. Recommended vaccination in pregnancy: Declined vs Not yet recommended: p = 0.011; Declined vs Received: p = 0.052; Not yet recommended vs Received: p = 0.658.

Characteristic	Category	All, n (%)	Online seeking, n (row %)	p	eHEALS, mean ± SD	p
Assisted reproduction for current pregnancy	Yes	27 (12.2)	22 (81.5)	0.856	25.9 ± 5.5	0.324
	No	195 (87.8)	156 (80.0)		26.9 ± 5.5	
Planned pregnancy	Yes	165 (74.3)	139 (84.2)	0.010	27.4 ± 5.3	0.035
	No	57 (25.7)	39 (68.4)		25.2 ± 5.8	
Attended antenatal class	Yes	10 (4.5)	7 (70.0)	0.419	26.9 ± 5.6	0.812
	No	212 (95.5)	171 (80.7)		26.8 ± 5.5	
Regular antenatal visits	Yes	209 (96.3)	168 (80.4)	0.206	26.8 ± 5.6	0.242
	No	8 (3.7)	5 (62.5)		25.1 ± 4.2	

Online seeking = used the internet to search for pregnancy-related health information; percentages are row percentages. eHEALS scores available for 208 women; p values for eHEALS from Mann-Whitney U or Kruskal-Wallis tests. p values for online seeking from Pearson chi-square test unless marked: Fisher's exact test; exact p value of the Pearson chi-square test; trend = linear-by-linear association test. Regular antenatal visits: 5 missing. Pairwise comparisons for eHEALS (Kruskal-Wallis, Bonferroni-adjusted) — Age group (years): 18–24 vs 25–29: p = 1.000; 18–24 vs 30–34: p = 1.000; 18–24 vs ≥ 35: p = 0.765; 25–29 vs 30–34: p = 1.000; 25–29 vs ≥ 35: p = 0.018; 30–34 vs ≥ 35: p = 0.085. Education: High school vs Primary or less: p = 0.002; High school vs University: p = 0.214; Primary or less vs University: p < 0.001. Household type: Extended vs Nuclear: p = 0.097; Extended vs Other: p = 0.790; Nuclear vs Other: p = 0.036. Recommended vaccination in pregnancy: Declined vs Not yet recommended: p = 0.011; Declined vs Received: p = 0.052; Not yet recommended vs Received: p = 0.658.

Prevalence and correlates of online information seeking

In total, 178 women (80.2%; 95% CI 74.4–84.9) had searched the internet for pregnancy-related health information. Searching decreased with age, from 92.3% at 18–24 years to 69.8% at ≥ 35 years (p for trend = 0.014). It increased with education (primary or less 67.3%, high school 80.0%, university 87.1%; p for trend = 0.006). It was more common among women with no living children (86.1% vs 74.6%; p = 0.031) and women with planned pregnancies (84.2% vs 68.4%; p = 0.010). It was less common among women who had smoked before pregnancy (64.3% vs 82.5%; p = 0.024) (Table 1). The 44 non-users most often gave no particular reason (40.9%). Others cited distrust of online information (22.7%), unfamiliarity with the internet (20.5%) or worry caused by online information (11.4%). Only one woman (2.3%) reported problems accessing the internet (Table 2).

Table 2
Reasons for and sources of online pregnancy-related information seeking, reasons for not searching, perceptions of online health information and experiences of internet users

Variable	n (%)
Reasons for searching (internet users who answered, n = 175)	
To obtain information	156 (89.1)
Easy access	96 (54.9)
To verify information received	61 (34.9)
To find support	39 (22.3)
Embarrassed to discuss pregnancy issues	13 (7.4)
Could not ask my doctor	13 (7.4)
To share experiences	12 (6.9)
Anonymity	8 (4.6)
To join online social groups	3 (1.7)
Online sources used (internet users who answered, n = 171)	
Search engines	146 (85.4)
Social media	71 (41.5)
Health professionals' posts on digital platforms	68 (39.8)
Mobile applications	66 (38.6)
Forums/blogs	25 (14.6)
Health professionals' personal websites	24 (14.0)
Official institutional websites (e.g. Ministry of Health, e-Nabız)	17 (9.9)
Health facility websites (hospitals, clinics)	16 (9.4)
Academic publications	14 (8.2)
Newspapers (online)	2 (1.2)
Number of sources used, median (IQR)	2 (1–3)
At least one professional or institutional source	85 (49.7)

More than one option could be selected; options were coded from the original response records. Percentages are of the 175 (reasons) and 171 (sources) of 178 users who answered the item. Health professionals' posts on digital platforms, health professionals' personal websites, health facility websites, official institutional websites or academic publications. Five-point items; agree = 4–5, undecided = 3, disagree = 1–2; percentages among respondents.

Variable	n (%)
Reasons for searching (internet users who answered, n = 175)	
At least one user-generated source (social media, forums/blogs)	78 (45.6)
User-generated sources without any professional or institutional source	29 (17.0)
Perceptions of online health information (all women)	
Internet useful for health decisions (n = 206): agree / undecided / disagree	110 (53.4) / 40 (19.4) / 56 (27.2)
Access to online health resources important (n = 207): agree / undecided / disagree	156 (75.4) / 23 (11.1) / 28 (13.5)
Reasons for not searching online (non-users, n = 44)	
No particular reason	18 (40.9)
Distrust of online information	10 (22.7)
Not familiar with the internet	9 (20.5)
Online information causes worry	5 (11.4)
No time / not familiar with the internet	1 (2.3)
Problems accessing the internet	1 (2.3)
Experiences among internet users	
Online information changed at least one pregnancy-related decision (users who searched ≥ 1 pregnancy topic, n = 170)	141 (82.9)
Obtained online information later recognised as incorrect (n = 170)	26 (15.3)

More than one option could be selected; options were coded from the original response records. Percentages are of the 175 (reasons) and 171 (sources) of 178 users who answered the item. Health professionals' posts on digital platforms, health professionals' personal websites, health facility websites, official institutional websites or academic publications. Five-point items; agree = 4–5, undecided = 3, disagree = 1–2; percentages among respondents.

In the multivariable model (Table 3), online searching was associated with university education (aOR 2.71; 95% CI 1.06–6.93) and planned pregnancy (aOR 2.22; 1.05–4.71). It was inversely associated with smoking before pregnancy (aOR 0.33; 0.13–0.82). The crude associations with age and living children became weaker after adjustment and were no longer significant. In a descriptive comparison, smokers and non-smokers had similar proportions of university graduates (42.9% vs 41.8%) and similar eHEALS scores (27.8 ± 5.4 vs 26.7 ± 5.6). In the second model (n = 208), each 5-point increase in eHEALS score was associated with higher odds of online searching (aOR 1.69; 95% CI 1.20–2.39). After eHEALS was added, the associations with education and planned pregnancy were weaker, and none of the three earlier factors remained significant (smoking: aOR 0.35; 95% CI 0.12–1.03).

Table 3
Factors associated with online pregnancy-related information seeking: crude and multivariable logistic regression (N = 222; 178 users)

Variable	Crude OR (95% CI)	p	Adjusted OR (95% CI)	p
Age (per 5 years)	0.72 (0.54–0.97)	0.033	0.79 (0.57–1.10)	0.163
Education: high school (ref: primary or less)	0.98 (0.49–1.95)	0.960	1.87 (0.78–4.48)	0.162
Education: university (ref: primary or less)	2.23 (1.08–4.60)	0.031	2.71 (1.06–6.93)	0.037
Has living children (ref: none)	0.47 (0.24–0.94)	0.033	0.89 (0.39–2.04)	0.784
Planned pregnancy (ref: unplanned)	2.47 (1.23–4.96)	0.011	2.22 (1.05–4.71)	0.037
Smoking before pregnancy (ref: no)	0.38 (0.16–0.90)	0.028	0.33 (0.13–0.82)	0.017

OR, odds ratio; CI, confidence interval. Adjusted ORs are mutually adjusted for all variables in the table (binary logistic regression, enter method). Model fit: omnibus likelihood-ratio $\chi^2 = 20.5$, df = 6, p = 0.002; Hosmer-Lemeshow test p > 0.05; Nagelkerke $R^2 = 0.14$; AUC = 0.71; 44 non-users (7.3 events per parameter). In a secondary model additionally adjusted for eHEALS (n = 208), the aOR per 5-point eHEALS increase was 1.69 (95% CI 1.20–2.39; AUC 0.74).

Reasons, sources and topics

The most common reasons for searching were to obtain information (89.1%), easy access (54.9%) and to verify information already received (34.9%). In addition, 22.3% searched to find support. Embarrassment about discussing pregnancy issues and not being able to ask their physician were each reported by 7.4% (Table 2). Search engines were the most common source (85.4%), followed by social media (41.5%), health professionals' posts on digital platforms (39.8%) and mobile applications (38.6%). Few users visited official institutional websites such as the Ministry of Health website and e-Nabız, the national personal health record system (9.9%), health facility websites (9.4%) or academic publications (8.2%). Users reported a median of 2 sources (IQR 1–3), and 36 (21.1%) used only search engines. Half of the users (49.7%) consulted at least one professional or institutional source, and 17.0% used user-generated sources but no professional or institutional source.

Almost all users (95.5%) had searched at least one pregnancy topic. Childbirth, newborn/infant and postpartum mother topics had been searched by 62.9%, 46.6% and 37.1%, respectively. Users searched a median of 10 topics (IQR 4–20). The most searched topics were danger signs in pregnancy (59.0% of users), prenatal screening tests (49.4%), making appointments (46.6%), stages of fetal development (46.1%) and information about physicians (44.4%) (Fig. 1). No topic differed significantly by trimester after correction for multiple testing (Additional file 2: Table S1).

Self-reported influence on decisions

Of the 170 women who searched at least one pregnancy topic, 141 (82.9%) reported that online information had changed at least one decision. Across all topic searches, 856 of 1,294 (66.2%) led to a reported change. Changes were most common for signs of pregnancy and antenatal tests (76.7% each), prenatal screening tests (76.1%), the oral glucose tolerance test (74.6%) and nutrition (73.4%). They were least common for oral care (41.9%), pregnancy education (42.1%) and exercise (54.3%) (Fig. 1; Additional file 2: Table S1).

Decision change did not differ by education ($p = 0.289$), living children ($p = 0.171$) or trimester ($p = 0.974$). eHEALS scores were similar in women who did and did not report a change (27.6 ± 5.3 vs 27.8 ± 4.1; $p = 0.929$). This remained so after adjustment for education and age (aOR per 5 points 0.95; 95% CI 0.62–1.44). Decision change did not differ by source type either. It was reported by 77.6% of users and 87.7% of non-users of professional or institutional sources ($p = 0.090$), and by 80.8% and 84.1% of users and non-users of user-generated sources ($p = 0.574$). Of the 170 women, 109 (64.1%) reported a change for every topic they searched.

Of the 170 users who answered, 26 (15.3%) reported finding online information that they later learned was incorrect. eHEALS scores did not differ by this experience (28.0 ± 3.7 vs 27.6 ± 5.5; $p = 0.903$). Among the 166 users who answered both this and the source question, reports of incorrect information did not differ between users and non-users of user-generated sources (13.3% vs 16.5%; $p = 0.572$). Overall, 53.4% of women agreed that the internet is useful for health decisions and 75.4% that access to online health resources is important (Table 2). Both views were more common among users than non-users (61.2% vs 16.7% and 81.9% vs 44.4%; both $p < 0.001$). Both were correlated with eHEALS scores ($\rho = 0.30$ and 0.35; both $p < 0.001$).

eHealth literacy

The eHEALS was completed by 208 women (93.7%). Eight of the 14 women with missing data were non-users. The mean score was 26.8 ± 5.5 (95% CI 26.1–27.6), and the median was 28 (IQR 24–31). Fifty-eight women (27.9%) scored ≤ 24 and 37 (17.8%) scored ≥ 32. Agreement was highest for knowing how to find helpful resources (69.4%) and knowing how to use online information to help oneself (68.8%). It was lowest for knowing how to use the internet to answer health questions (48.8%) and feeling confident using online information for health decisions (32.5%; 41.1% disagreed) (Table 4; Fig. 2). Users scored higher than non-users (27.5 ± 5.2 vs 23.5 ± 5.8; $p < 0.001$).

Table 4
Distribution of eHEALS item responses and item-level reliability (n = 208–209)

Item	n	Mean ± SD	Disagree, %[a]	Undecided, %	Agree, %[b]	CITC	α if deleted
1. I know what health resources are available on the Internet	209	3.53 ± 0.86	16.7	17.2	66.0	0.75	0.868
2. I know where to find helpful health resources on the Internet	209	3.37 ± 0.99	28.2	9.6	62.2	0.77	0.865
3. I know how to find helpful health resources on the Internet	209	3.55 ± 0.84	16.7	13.9	69.4	0.74	0.870
4. I know how to use the Internet to answer my questions about health	209	3.11 ± 1.03	40.2	11.0	48.8	0.54	0.889
5. I know how to use the health information I find on the Internet to help me	208	3.52 ± 0.87	18.8	12.5	68.8	0.79	0.864
6. I have the skills I need to evaluate the health resources I find on the Internet	209	3.50 ± 0.82	16.3	19.6	64.1	0.68	0.875
7. I can tell high quality health resources from low quality health resources on the Internet	209	3.40 ± 0.88	20.6	20.6	58.9	0.68	0.874
8. I feel confident in using information from the Internet to make health decisions	209	2.85 ± 1.04	41.1	26.3	32.5	0.44	0.900

[a]Strongly disagree or disagree. [b]Agree or strongly agree. CITC, corrected item-total correlation. Cronbach's α (total scale) = 0.890. Total eHEALS score: mean 26.8 ± 5.5; median 28 (IQR 24–31).

Cronbach's α was 0.890. Corrected item-total correlations ranged from 0.44 to 0.79. The lowest values were for confidence in using online information for decisions (item 8, 0.44) and knowing how to use the internet to answer health questions (item 4, 0.54). Removing any single item did not materially increase α (highest 0.900, for item 8) (Table 4).

Correlates of eHealth literacy

In bivariate analyses, eHEALS scores were higher in younger women and in women with more education, paid employment, higher income, a nuclear family or a planned pregnancy. Scores were lower in women who had declined recommended vaccination (22.0 ± 4.8; n = 9 with eHEALS data). They were also lower in women with a current or previous multiple pregnancy (22.8 ± 5.7; n = 9) (Table 1). In the multivariable model (Table 5; $R^2 = 0.198$), higher scores were associated with university education (B 2.95; 95% CI 0.71–5.19) and online information seeking (B 2.96; 1.06–4.86). The associations with high-school education (B 2.04; p = 0.056) and higher income (B 1.56; p = 0.054) were borderline. When online information seeking was removed from the model, both high-school (B 2.45; p = 0.024) and university education (B 3.45; p = 0.003) were significant. All VIFs were < 2.6.

Table 5
Factors associated with eHEALS score: multivariable linear regression (n = 208)

Variable	B	95% CI	p	VIF
Age (per 5 years)	−0.53	−1.23 to 0.17	0.134	1.31
Education: high school (ref: primary or less)	2.04	−0.05 to 4.14	0.056	2.08
Education: university (ref: primary or less)	2.95	0.71 to 5.19	0.010	2.54
Employed (ref: not employed)	−0.09	−1.83 to 1.66	0.923	1.36
Household income ≥ 12,000 TRY (ref: <12,000)	1.56	−0.02 to 3.15	0.054	1.30
Nuclear family household (ref: extended/other)	1.30	−0.84 to 3.43	0.233	1.13
Has living children (ref: none)	0.57	−1.08 to 2.22	0.495	1.41
Planned pregnancy (ref: unplanned)	1.15	−0.52 to 2.82	0.176	1.10
Third trimester (ref: first/second)	−0.30	−1.84 to 1.23	0.699	1.06
Online pregnancy information seeking (ref: no)	2.96	1.06 to 4.86	0.002	1.07

B, unstandardised regression coefficient (difference in eHEALS points); VIF, variance inflation factor. $R^2 = 0.198$; adjusted $R^2 = 0.158$; F = 4.87, p < 0.001. Declined vaccination and multiple pregnancy were not modelled because of small numbers. In a sensitivity model excluding online information seeking, $R^2 = 0.160$.

eHealth literacy and the sources used

Among users with eHEALS data (n = 172), the number of topics searched was correlated with eHEALS (ρ = 0.30; p < 0.001). Among those who also answered the source question (n = 167), the number of sources used was correlated with eHEALS as well (ρ = 0.34; p < 0.001). Users of professional or institutional sources had higher scores than women who did not use them (28.6 ± 5.4 vs 26.6 ± 4.9; p = 0.003). Users of user-generated sources also had higher scores (28.4 ± 5.5 vs 26.9 ± 4.9; p = 0.031). For individual sources, only the higher score among mobile application users (29.3 vs 26.5; p < 0.001; q =

0.006) remained significant after correction for multiple testing. The differences for academic publications (30.3 vs 27.4; p = 0.021) and official institutional websites (30.3 vs 27.3; p = 0.024) did not (both q = 0.073) (Fig. 3; Additional file 2: Table S2).

The use of professional or institutional sources rose sharply with education (21.4%, 35.9% and 70.9%; p < 0.001). After adjustment for education and age, eHEALS was not associated with the use of professional or institutional sources (aOR per 5 points 1.20; 95% CI 0.86–1.68) or user-generated sources (aOR 1.23; 0.89–1.69). University education remained associated with the use of professional or institutional sources (aOR 7.30; 2.52–21.12). Mobile applications showed a different pattern. Their use was 28.6%, 31.2% and 48.1% across the three education groups (p = 0.059). In an exploratory model with the same adjustment, eHEALS was associated with mobile application use (aOR per 5 points 1.72; 95% CI 1.17–2.53), whereas university education was not (aOR 1.35; 0.49–3.71).

Discussion

In this hospital-based study in north-eastern Türkiye, four in five pregnant women searched online for pregnancy information. More than four in five of those who searched pregnancy topics said that online information had changed at least one decision, most often about signs of pregnancy, screening and antenatal tests. The mean eHEALS score was 26.8 out of 40, and confidence in using online information for decisions was low. eHealth literacy was not related to decision change. After education was taken into account, it was also not related to the use of professional sources, but it was related to the use of mobile applications. Education, planned pregnancy and not smoking were the main factors associated with online searching.

Compared with earlier work, this study has three new elements. First, it gives topic-level estimates of how often women report that online information changed specific antenatal decisions, whereas earlier studies mostly used general scales. Second, by examining sources, eHealth literacy and education together, it suggests that the education gap in the use of professional sources is not accounted for by perceived eHealth literacy. Third, in an exploratory analysis, mobile application use was associated with eHealth literacy but not with education, which suggests that apps may mainly reach women with greater digital skills.

The prevalence of online searching (80.2%) is similar to recent findings from Lebanon (73.5%) and Somalia (78.2%) [11, 12]. It is lower than the ≥ 90% reported from Sweden, the Netherlands and a Turkish study of childbirth information [9, 10, 41]. It is much higher than the 45% reported in İzmir in 2009 [7], which fits the rapid growth of internet access in Türkiye [36]. In unadjusted analyses, non-users were older, less educated and more often had living children. Most gave no particular reason, or reported distrust of online information or being unfamiliar with the internet. Only one woman reported a problem with access. Non-use therefore seemed to reflect preference and digital skills rather than lack of access, and online information alone is unlikely to reach these women.

Most women who searched reported that online information had changed at least one decision. Earlier studies showed that internet use informs pregnant women's decisions [14, 15], and Turkish studies measured internet-based decision-making with general scales [16–18]. Our topic-level data show that the decisions most often changed concerned signs of pregnancy, screening tests, antenatal tests and the oral glucose tolerance test. Screening, antenatal tests and the oral glucose tolerance test are evidence-based parts of routine antenatal care, and a public debate has previously affected acceptance of the oral glucose tolerance test in Türkiye [22]. Decision change was not related to eHealth literacy, education, trimester or source type. This suggests that women with lower self-rated skills were as likely as others to report a decision change. However, the question did not ask about the direction of change, and nearly two thirds of women reported a change for every topic they searched. Some women may therefore have given the same answer for every topic. Validated, topic-specific measures of decision change are needed.

About 15% of users (15.3%) reported finding online information that they later learned was incorrect. This is probably an underestimate, because women can only report errors they noticed. Because the decisions most often changed concerned screening and tests, even occasional errors may matter. Reports of incorrect information were similar among users and non-users of user-generated sources, although this comparison was small. Online content, especially on social media, can be inaccurate, alarming or misleading [19, 21]. Health professionals can reduce this risk by discussing online information openly, explaining how to check a source and recommending specific trusted websites and applications.

Women mainly went online to obtain information, and one third did so to check information they had already received. For many women, therefore, the internet seems to complement professional advice rather than replace it [9, 42]. However, 7.4% searched because they felt embarrassed to discuss pregnancy issues and 7.4% because they could not ask their physician. Several of the most searched topics (danger signs, screening tests and fetal development) match those in previous reviews [4, 5, 13] and are core parts of antenatal counselling. Unlike some earlier studies [43], we found no clear differences in topics by trimester, possibly because of limited statistical power.

Search engines and social media were the main sources, and fewer than one in ten users (9.9%) visited official institutional websites. By contrast, 74% of pregnant women in a Norwegian survey used quality-assured public health websites [44]. Women with higher eHEALS scores used more sources, which agrees with studies linking eHealth literacy to more active information seeking [35, 45]. A meta-analysis found this link to be strongest for professional sources [35]. In our data, however, the unadjusted differences were similar for professional and user-generated sources, and neither remained significant after adjustment for education and age. University-educated women had about seven-fold higher odds of using professional or institutional sources than women with primary education or less, regardless of their self-rated skills. These results suggest that perceived eHealth literacy, as measured by the eHEALS, is not clearly associated with the use of professional sources once education is taken into account.

Factors related to education, such as knowing about institutional resources and being familiar with medical language, may matter more.

Mobile applications showed a different pattern. Their use was associated with eHEALS after adjustment for education and age, but not with education. Using a pregnancy app may require more digital skill than typing a question into a search engine, or app use may itself build these skills. Pregnancy apps may therefore reach women with higher digital skills but leave others behind. The quality of app content and women's awareness of it are also concerns [20]. Apps developed or endorsed by health authorities could combine the reach of this channel with reliable content.

The mean eHEALS score (26.8) was within the range reported for Turkish pregnant women. It was lower than in a family health centre sample (29.4) and a hospital sample (30.5) [29, 32] and higher than in other hospital samples (median 21 and means of 24.7–25.3) [28, 33, 34]. These differences may partly reflect differences in education [46, 47]. There was a clear gap between perceived skills and confidence. About two thirds of women said they knew how to find and use online resources, but only one third felt confident using online information for decisions. Together with the high rate of decision change, this suggests that some women may act on online information while feeling unsure about it. Health professionals can help women interpret what they read [1, 31]. eHEALS scores and online searching were associated in both of our models (aOR 1.69 per 5 points; B 2.96). Searching may build skills, and women with more skills may search more; the cross-sectional design cannot separate these directions. The few women who had declined recommended vaccination had lower scores. This agrees with Turkish studies linking health literacy and internet-based decision-making to vaccine hesitancy [16, 28, 48], but the group was too small for firm conclusions.

Women with planned pregnancies were more likely to search online, which may reflect more active preparation for pregnancy. Women who had smoked before pregnancy had about one third the odds of searching online, independently of education, although this association was no longer significant after further adjustment for eHEALS (aOR 0.35; 95% CI 0.12–1.03). Their education level and eHEALS scores were similar to those of non-smokers, so the reason is unclear. Smoking may reflect lower interest in pregnancy-related health information. This would agree with the link between eHealth literacy and healthy lifestyle behaviours in pregnancy [29]. The subgroup was small (n = 28), and only five women still smoked during pregnancy, so this finding needs confirmation. Nevertheless, smokers may be harder to reach online and may need to be approached directly during antenatal visits.

The eHEALS showed good internal consistency in pregnant women. The item on confidence in using online information for decisions had the lowest agreement and the lowest item-total correlation, a weakness also reported in other populations [27, 40]. Because this item is the one most closely related to decisions, studies in pregnant women should report item-level results as well as the total score. The eHEALS also measures perceived, not actual, skills [49]. This may partly explain why eHEALS scores were not related to decision change or, after adjustment, to the use of professional sources.

Implications for practice and research

Because perceived eHealth literacy was not associated with decision change, women's self-rated skills may not be a reliable guide to who needs support. Our findings suggest several practical steps. First, antenatal staff could ask at each visit what women have read online, especially before decisions about screening and tests, and correct misunderstandings. Second, staff could give women a short list of trusted websites and applications, such as official Ministry of Health resources, at the first antenatal visit. Third, official and hospital websites were rarely used. Health authorities could make these sources easier to find through search engines and social media, where most women look first. Fourth, pregnancy applications developed or endorsed by health authorities and based on clinical guidelines could reach women who already use apps. Fifth, less-educated women were less likely to search online and to use professional sources, and women who smoked before pregnancy may also be less likely to search online. For these women, face-to-face counselling and simple printed or video materials may work better than online information alone. Only 4.5% of women had attended an antenatal class, so online or blended antenatal education [50] could also extend structured education.

Future studies should use validated measures of the direction and appropriateness of decision change and performance-based measures of eHealth literacy. Longitudinal designs that follow women through pregnancy would show how information seeking and skills change over time. Objective data, such as records of website or application use, would reduce reliance on self-report. Studies should also cover newer sources such as generative artificial intelligence [18] and should include primary care and private settings.

Strengths and limitations

Interviews allowed women with limited literacy to take part, and all trimesters were included. Information-seeking behaviour, self-reported decision change and eHealth literacy were measured in the same women. The analysis also examined education and eHealth literacy together in the choice of sources.

The study also has limitations. First, it was carried out in a single tertiary hospital. Women followed up only in primary care or private settings were not included, and the sample was relatively well educated, so the results may not apply to all pregnant women. Second, the cross-sectional design does not allow causal conclusions. For example, searching online may increase perceived eHealth literacy, and not only the other way round. Third, all data were self-reported, so recall and social desirability bias are possible. Participation was anonymous and a standard questionnaire was used to limit these biases, but objective measures of online behaviour were not available.

Fourth, as in earlier studies [11], no standard instrument was available to measure online pregnancy information seeking and its effect on decisions. The questions other than the eHEALS were therefore developed for this study. The decision-change question measured perceived influence, not actual behaviour, and did not record the direction of change. Future questionnaires could ask whether a

decision moved towards or away from clinical advice and whether it was discussed with a health professional. They could also ask about decision change for childbirth, newborn and postpartum topics, and include a “did not search” option for these topics so that unmarked topics can be distinguished from missing answers. Similarly, the question on incorrect information only captured errors that women noticed themselves.

Fifth, the eHEALS measures perceived, not actual, skills [49] and does not specifically cover social media or newer conversational tools, so performance-based or updated measures would complement it. Sixth, the source categories were broad. Search engines, the most common source, can lead to both professional and user-generated content. Asking which websites or applications were used would allow the quality of sources to be assessed. Finally, data were collected between November 2022 and January 2023, before generative artificial intelligence chatbots came into wide use. The online information environment has changed considerably since then.

Conclusions

Four in five pregnant women attending a university hospital in Türkiye searched online for pregnancy information. Most of those who searched pregnancy topics said that online information had changed at least one decision, most often about signs of pregnancy, screening and tests. This did not differ by eHealth literacy, although the question was not validated and did not record the direction of change. About 15% of women who searched online reported finding incorrect information, which is probably an underestimate. Only one third of women felt confident using online information for health decisions, and fewer than one in ten users visited official institutional websites. University education was associated with online searching, higher eHEALS scores and the use of professional sources. After adjustment for education and age, eHEALS was not clearly associated with professional source use; in an exploratory analysis, it was associated with mobile application use. Antenatal care could discuss online information openly, especially before screening and testing decisions. It could guide women to reliable websites and applications and pay special attention to less-educated women and, possibly, women who smoked before pregnancy. Health authorities could make official sources easier to find and endorse reliable pregnancy applications.

Abbreviations

aOR
Adjusted odds ratio
AUC
Area under the receiver operating characteristic curve
B
Unstandardised regression coefficient
CI
Confidence interval

CITC
Corrected item-total correlation
df
Degrees of freedom
eHEALS
eHealth Literacy Scale
IQR
Interquartile range
OR
Odds ratio
SD
Standard deviation
STROBE
Strengthening the Reporting of Observational Studies in Epidemiology
TRY
Turkish lira
VIF
Variance inflation factor

Declarations

Ethics approval and consent to participate

The study was approved by the Karadeniz Technical University Faculty of Medicine Scientific Research Ethics Committee (protocol no 2022/237).

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Supplementary material.

Study questionnaire (English version).

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Author Contribution

CAG, AKA, ST, MT and NEB conceived and designed the study. CAG, AKA, ST, BZU, SB, BS and ZE collected the data. CAG and AKA performed the statistical analysis. CAG, AKA and ST drafted the manuscript. All authors interpreted the data, critically revised the manuscript, and read and approved the final manuscript.

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Data Availability

The dataset analysed during the current study is not publicly available to protect participant confidentiality, but de-identified data are available from the corresponding author on reasonable request.

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Figures

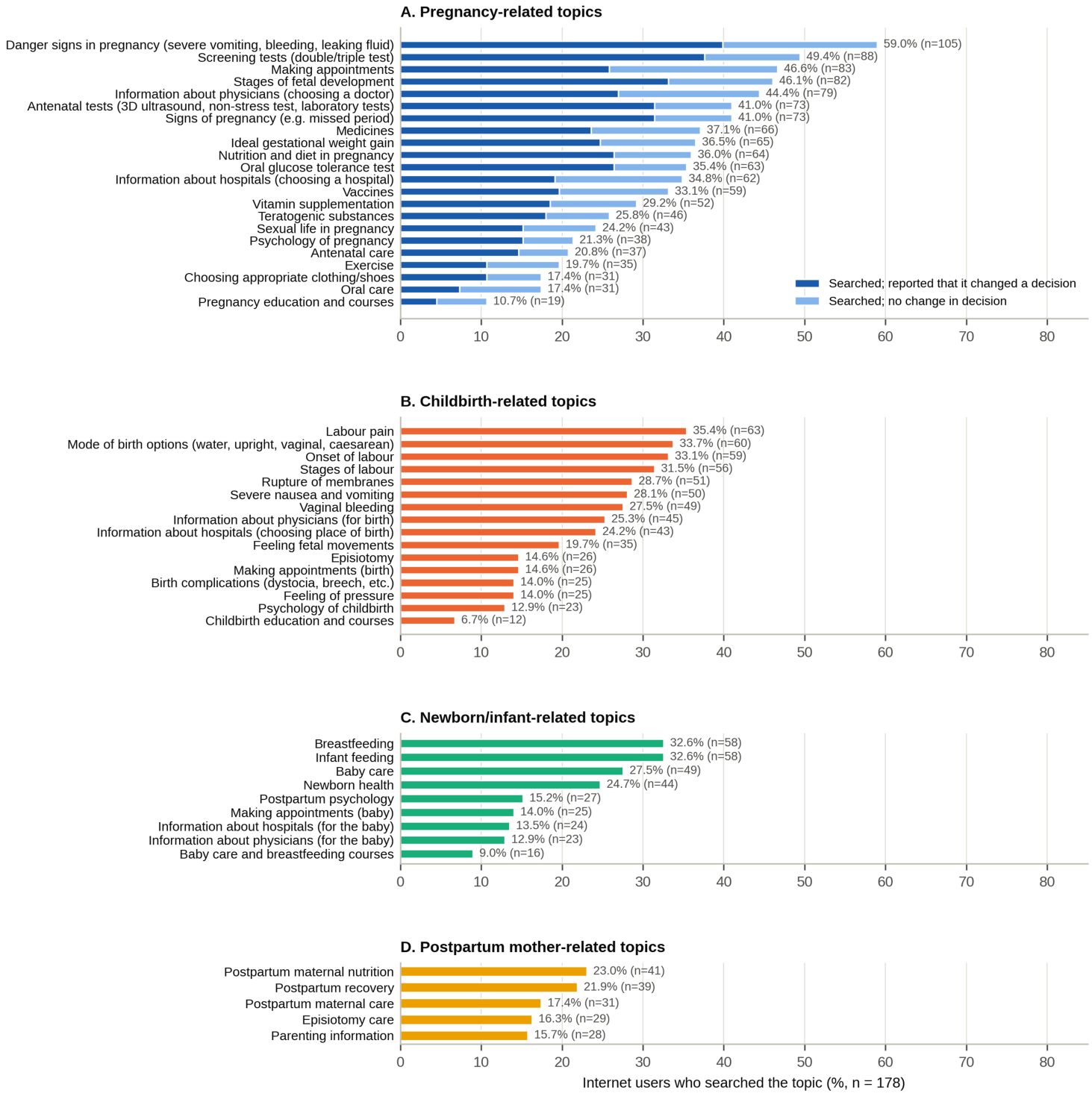

Figure 1

Pregnancy-related topics searched on the internet and self-reported influence on decisions.

Percentages are of all women who searched online for pregnancy-related information (n = 178). A: pregnancy topics; dark segments show women who reported that the information changed their decision and light segments those who reported no change. B: childbirth topics. C: newborn/infant topics. D:

postpartum mother topics (decision change was not asked for B-D). Women could select more than one topic.

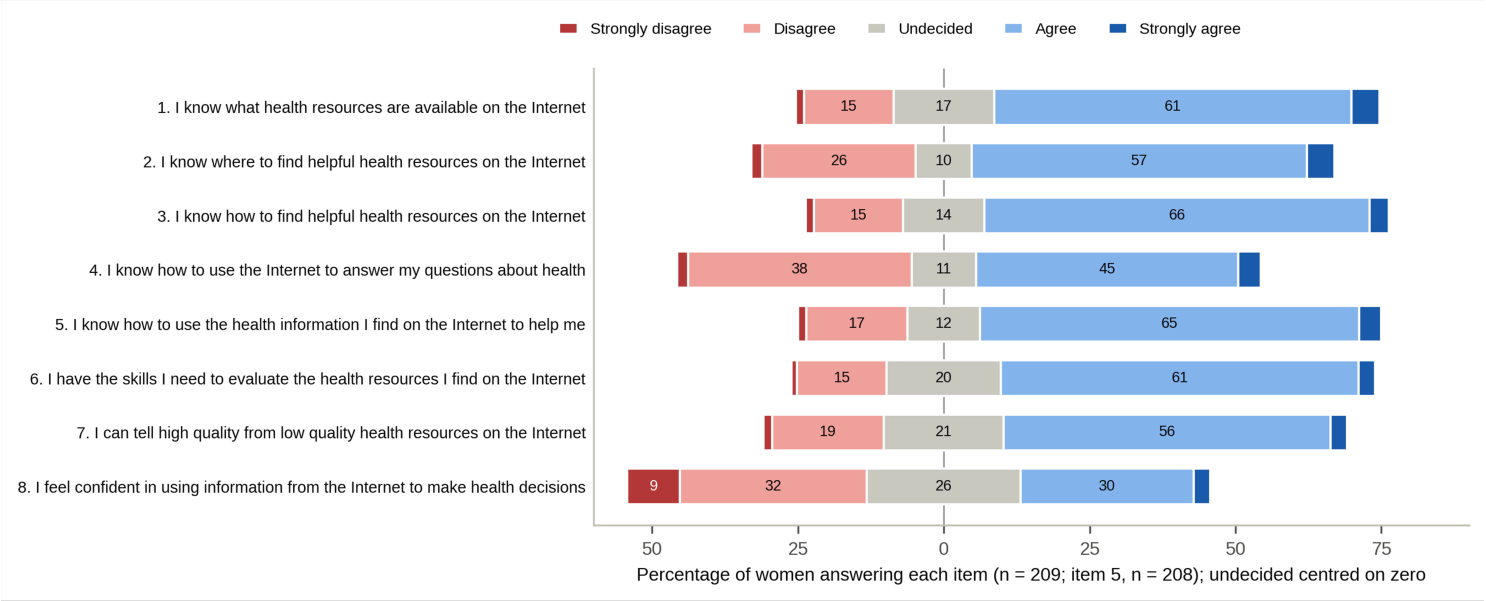

Figure 2

Responses to the eHealth Literacy Scale (eHEALS) items.

Diverging stacked bars show the percentage of women selecting each response (n = 209 for each item, except n = 208 for item 5), centred on the middle of the “undecided” category. Values <6% are not labelled.

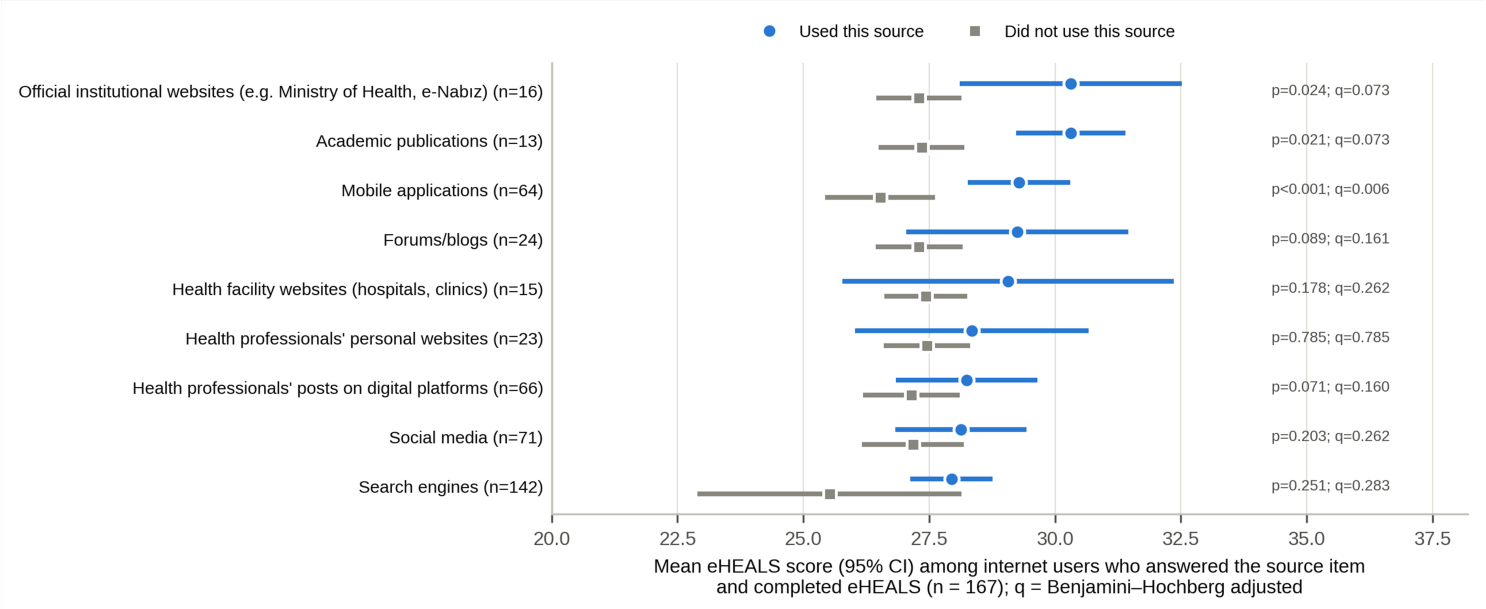

Figure 3

eHealth literacy by online information source among internet users.

Mean eHEALS score with 95% confidence interval among users who answered the source question and completed the eHEALS (n = 167), by whether they did (circles) or did not (squares) use each source. p values are from Mann-Whitney U tests; q values are Benjamini-Hochberg adjusted. Online newspapers (n = 2) are not shown.

Supplementary Files

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