

Online Pregnancy-Related Information: Reliability and Worries Among Expectant Women In Qatar

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Abstract

Background: Although the internet can be a source of reassurance and clarification for expectant women, it could cause concerns or feelings of worry when reading about pregnancy-related information. The current research sought to assess the feelings of worry and perceived reliability towards online pregnancy-related information and the associated factors among expectant women attending antenatal clinics at primary healthcare centers in Qatar.

Methods: A cross-sectional study design was employed. The participants were recruited through a systematic random sampling technique. A self-administered questionnaire was used to collect data from the participants. Descriptive and analytic statistics were used when appropriate.

Results: A total of 327 expecting women completed the questionnaire. Most participants were aged between 26-34 years (74.1%), held a college/university degree (76.4%), and multigravidas (73.1%). About one-third of the women (31.2%) reported feeling worried due to something they read online. The participants coped with these feelings by consulting their antenatal care provider at the next appointment (51.0%) or by talking with relatives and friends (47.0%). Furthermore, most women (79.2%) considered online pregnancy-related information to be reliable or highly reliable. Holding a college/university degree, primigravidae, and having no children were factors significantly associated with a high perception of reliability of online health information.

Conclusion: Although online pregnancy information caused feelings of worry for some pregnant women, most women perceived such information to be reliable. Thus, antenatal care providers should be equipped to guide pregnant women on how to access high-quality web-based information.

Introduction

Pregnancy is a critical phase in any woman's life. In addition to the associated physical changes, expecting women experience a wide spectrum of lifestyle modifications and uncertainty throughout these nine months. To maintain some level of certainty, many of them pursue information about the progression of their current pregnancy and health of their fetus. In addition, expectant women can receive this information from a variety of resources such as their health care providers, friends, family, books, childbirth classes, and the web (1).

Typically, antenatal clinical consultations are a major source of pregnancy-related information for expectant women. Nevertheless, these women are high information seekers and their demand cannot be fulfilled by the prolonged duration of time between one antenatal care visit and the other. Thus, they resort to the World Wide Web because of its convenience, ease of accessibility, and direct availability (2). However, the wide scope and enormous quantity of online information can be tiresome to navigate and formidable among this cohort of women (3).

Being exposed to several resources increases the possibility of receiving contradictory information. This is compounded by the fact that women surfing the web for pregnancy-related info might lack the core skills for proper navigation, handling, and interpretation of these electronic health (eHealth) resources (4). Despite its potential to transform the model of health care for patients and providers, there remains doubt about the quality and reliability of information on websites and mobile applications (5).

However, several studies revealed that the majority of pregnant women consider the internet to be a highly reliable source of information. An earlier study among Turkish pregnant women found that almost half (45%) had used the internet for health information. Upon rating the reliability of this information, the mean score was 7.13/10 (6). Another survey of Italian pregnant women found that the majority (86%) had used the internet for pregnancy-related information. Among the pregnant internet users, nearly two-thirds (64.1%) reported being highly confident about the reliability of the online info (7). Furthermore, an earlier research study among pregnant Swedish women revealed that the majority (84%) had used the internet for health information. Among them, almost two-thirds perceived the online information to be of high reliability (8).

Although the internet can be a source of reassurance and clarification for expectant women, it could also cause concerns or feelings of worry when reading about pregnancy-related information. Similarly, a recent study conducted in Sweden found that almost two-thirds reported feeling worried after retrieving pregnancy-related information on the internet (3). Also, another Italian study among women calling a hotline for teratology information revealed that nearly one-third (30.2%) were alarmed by the online information they found. A larger percentage of participants (40.5%) were confused about the pregnancy-related info they sought (9).

In Qatar, the antenatal care (ANC) service of uncomplicated pregnancies is mainly provided through publicly funded primary care settings. The service is free of charge and includes clinical assessment, screening, management, and health promotion activities. Pregnant women receive care by primary care physicians and midwives through 7–12 clinical visits. At the last clinical appointment, usually by the 34th week of gestation, expecting women are referred to the nearest maternity hospital (10). Evidence is scarce on how pregnant women perceive the reliability of online pregnancy-related information, whether such info causes feelings of worry, and how women cope with these feelings. Thus, this research sought to assess the feelings of worry and perceived reliability towards online pregnancy information and the associated factors among expectant women attending ANC clinics at primary health care (PHC) centers in Qatar.

Methods

Study design and setting

The current study employed an analytical cross-sectional design. It was conducted at ANC clinics of PHC centers in Qatar during 4 months in 2019. These centers are considered the preferred first line of contact

between the community and health care services (10). At the time of the study, there were 25 PHC centers (all accredited by Accreditation Canada International) distributed across three geographical regions (North, West, and Central) according to their respective population densities. Two health centers were randomly chosen from each region and thus six health centers were included in the study.

Study population and sampling

The study population includes expectant women, aged ≥ 18 years, during any trimester, speaking English or Arabic, and visiting the ANC clinic at one of the selected health centers during the study period. The participants were recruited through a systematic random sampling technique (every other woman). The sampling frame was constructed from the daily patient list of the ANC clinics in each chosen health center until the required sample size was reached.

Sample size

The calculated sample size was 323 respondents given a 5% absolute precision, 95% confidence, and a hypothesis that 70% of pregnant women considered pregnancy-related information on the internet to be reliable (11).

Data collection

The data was collected through an anonymized and self-administered questionnaire. The data collectors (trained nurses and midwives) approached potential participants in the waiting areas of the ANC clinics. The researcher gave a comprehensive orientation about the nature and purpose of the study and invited them to participate with an emphasis that their participation was totally voluntary. Declining participation or withdrawing from the study had no effect on their quality of care. If willing to enroll, participants were requested to sign an informed consent and given a questionnaire in their preferred language (English or Arabic).

Questionnaire

A structured questionnaire was constructed after a comprehensive review of the literature. It is comprised of four main sections. The first section included questions on the socio-demographic characteristics (e.g., age, level of education, and occupation). The second section consisted of questions regarding the characteristics of the current pregnancy (e.g., parity, living children, gestational age, gender of the baby, health issues during current pregnancy). The third section contained questions on the participants' feeling of worry towards online pregnancy-related information. The fourth section was composed of questions regarding the perceived reliability of online health information (e.g., extent of reliability of online health information, factors used in judging the reliability of online pregnancy-related information). The questionnaire was translated and back-translated (English-Arabic) by two independent translators. Any aberrancy was addressed accordingly. Then, the survey was piloted among fifteen pregnant women to assess its comprehensiveness and clarity. No modifications were necessary after the pilot phase.

Statistical analysis

The collected data was analyzed using the Statistical Package for the Social Sciences-SPSS version 23 (IBM Corp). Where appropriate, the descriptive statistics for continuous and categorical variables were calculated. Pearson's χ^2 -test and Fisher's exact test were used to assess the association between the outcomes and the independent variables. The level of statistical significance was set at 0.05.

Results

Demographic characteristics of respondents

A total of 327 expecting women completed the questionnaire (response rate: 86%) with time constraint being the main reason for non-participation. Their characteristics are shown in Table 1. Most participants aged between 26–34 years (74.1%) and holding a college/university degree (76.4%). Also, almost half of the pregnant women were in the second trimester (52.8%) and 69.4% had children at home. More than half of pregnant women (56.9%) did not discuss any information they found online with their healthcare provider.

Feelings of worry caused by online health information

When asked about any feeling of worry due to online pregnancy-related information (Table 2), About one-third (31.2%) of pregnant women reported feeling worried after reading online pregnancy-related information. Among those ($n = 100$), the two most frequent sources of anxiety were social media accounts (47%) and websites (38%). To cope with these feelings of worry, nearly half of the participants sought advice from their healthcare providers at the ANC clinic (51%) or through family and friends (47%).

Perceived reliability towards online pregnancy-related information

Regarding the participants' perceived reliability of online health information, 70.9% and 8.3% of the participants considered it to be reliable and highly reliable, respectively. The remaining participants considered it to be unreliable (9.2%) or highly unreliable (6.7%) (Fig. 1).

To further examine participant's perceptions of the reliability of the online health information, they were asked to select three factors from a list of 8 factors that defined how they judged the reliability of these online sources. The two most frequently reported items were the recommendation of a healthcare professional (48.1%) and that of a family member or friend (32.7%) (Fig. 2).

The relationship between the participants' characteristics and the perceived reliability of online pregnancy-related information

When the relationship between perceived reliability of online health information and the expecting mothers' characteristics was examined using the chi-square test, a statistically significant association

was noted between the participants' perceived reliability and their level of education ($p = 0.036$), gravidity ($p = 0.006$), and having any children ($p = 0.02$). It was found that pregnant women with a college/university degree, who were primigravidae, and had no children perceived the internet to be a reliable source of health information on pregnancy (Table 3).

Regarding the method of attaining online health information (Table 4), users of information websites were significantly more likely to perceive them as reliable sources compared to users of other online platforms.

Discussion

The current study investigated the feelings of worry and perceived reliability of online health information among expectant women and the associated factors in Qatar. It was found that a large portion of pregnant women denied being worried when accessing the internet for pregnancy information (68.8%) and considered this information to be reliable or highly reliable (79.2%). Accessing the internet during pregnancy has become a source of relief and worry simultaneously. It offers expecting women the opportunity to share fears and worries with their peers; however, it can trigger or amplify anxiety due to the vast amount of generic information with little or no clarification being offered (9).

Given that most of the population in Qatar, especially women (78.7%), use the internet for health information (11), it was vital to assess their feelings of worry towards this issue. In our study, a large portion (68.8%) of pregnant women denied being worried after the use of the internet for health information. On the other hand, a study among Swedish pregnant women revealed that many participants (65.6%) reported feelings of worry after reading online pregnancy-related information (3). This difference can be explained by the higher educational level (76.4% vs 54.9% college level) among our sample. Nevertheless, cyberchondria is a phenomenon that can be defined as 'the unfounded escalation of concerns about common symptomatology, based on the review of search results and literature on the web' (12).

Among expecting women, pregnancy can be a stressful phase of their life and might represent their first major contact with the healthcare system. It involves several clinical visits, laboratory investigations, and radiological exams (13). As a result, many women would like to seek reassurance through online resources. However, online search algorithms were not developed to accommodate an individual's threshold for fear, worry, and anxiety (12). Also, the search results might not be prioritized to reflect each receiver's level of comprehension, clinical judgement, and health literacy. Although a large portion of participants in this study denied feeling worried when accessing online health information, health care professionals have a vital role of signposting expecting women to valid online resources that promote reassurance during pregnancy (14).

Furthermore, social media accounts (47%) and websites (38%) were the two most common triggers of worry among our participants. Similarly, websites (43.7%) and social media (25.7%) were among the most frequently identified sources of worry when browsing online health information among pregnant

women in Sweden (3). This can be attributable to the fact that internet users, including pregnant women, might not be inclined to share as much positive experiences as negative ones through virtual platforms. Subsequently, the negative aspect of pregnancy, including common symptoms and pathological ones, will be inflated. To manage these feelings of worry, almost half of the participants in the present study sought advice from their healthcare providers (51%) or family and friends (47%). Similarly, an earlier survey of Turkish pregnant women found that nearly half (51%) had shared online health information with their healthcare providers (6). On the other hand, an earlier systematic review on internet use among pregnant women revealed that the majority refrained from discussing any information they retrieved online with their health care providers (15). Thus, there is a need to empower antenatal care providers with the adequate skills and tools to foresee and prevent such situations or identify them early through clinical guidelines and workshops.

Regarding the perceived reliability of online health information, our results (79.2%) conform with an earlier Chinese study in which most pregnant women (90.9%) found such information to be of medium-high reliability (16). Also, a cross-sectional study among Italian pregnant women discovered that the majority (96.4%) had moderate-high confidence in online health information (17). In addition, the two most frequently reported factors for judging the reliability of online health resources by our study participants were the recommendation of a healthcare professional (48.1%) and that of a family member or friend (32.7%). In contrast, Turkish pregnant women attributed their perceived reliability of online health information to it being given by an expert (29.3%) and its frequency of usage (18.5%) (6). Moreover, Chinese pregnant women judged the reliability of online health resources through cross-checking with other sources (67%), presence of references (42.1%), and being validated by experts (34%) (16). To assess the reliability of web-related health information, there are seven general criteria, known as Mitretek criteria, and include Credibility, Content, Disclosure, Links, Design, Interactivity, and Caveats (18). Currently, several guidelines and online tools have been developed to assist internet users in assessing the reliability of any information online. Nevertheless, these instruments have several drawbacks such as placing a burden on internet users and providers, lack maintenance and update, and require funding (19). Thus, public health officials must pursue a locally adapted tool for the community in Qatar through input from pregnant women and health care professionals.

Regarding the perceived reliability of online health information among our participants, the level of education (college/university), gravidity (primi), and having no children were significantly associated with this phenomenon. As a result, it could be inferred that a higher level of education is associated with better critical thinking and reasoning skills. This might mislead educated pregnant women to consider themselves as experts on judging the reliability of online health information (15). Furthermore, primigravid women are more likely to perceive online health information as reliable because they are usually younger and have less fear of any age-related pregnancy or postpartum complications and congenital defects (20). In addition, pregnant women with no children were less likely to have gained a comprehensive spectrum of experiences from conception till birth and parenthood. Thus, they rely on the internet to learn about what to anticipate during the current pregnancy and might consider themselves to be capable of independently judging the reliability of online health resources. These findings reinforce the

importance of equipping perinatal healthcare professionals with the knowledge and skills to provide tailored counselling for pregnant women in Qatar based on their characteristics, health literacy level, and information technology savviness.

The present study was not without limitations. First, it was conducted among expectant mothers visiting the ANC clinics in publicly funded primary care settings. Hence, the results might not be generalizable to other pregnant women seeking ANC services in the private health sector. Secondly, the cross-sectional design of our study was not enough to establish a causal relationship between perceived reliability and the participants' characteristics. Thirdly, this study relied on self-report, which may be subject to recall and social desirability biases. However, this study possesses many strengths. It was the first cross-sectional study to evaluate the feelings of worry and perceived reliability towards online pregnancy-related information among pregnant women in Qatar. The study achieved a high response rate (86%) and a probability sampling technique was used to recruit participants from PHC centres, which despite not being a population-based study, it offers a good representation of the different ethnic, cultural and social backgrounds in Qatar.

Conclusion

Although online pregnancy information caused feelings of worry for some pregnant women in this study, most women perceived such information to be reliable. Holding a college/university degree, primigravidae, and having no children were factors significantly associated with a high perception of reliability of online pregnancy-related information. Several areas for future action by public health officials have been uncovered. There is a solid need for evaluation of the reliability and accuracy of the most frequently used online sources on pregnancy-related issues. In addition, antenatal care providers should be equipped to guide pregnant women on how to access high-quality web-based information. Also, they should assume the responsibility of discussing such information with their patients during antenatal visits.

Declarations

Ethics approval and consent to participate

This study was approved by the ethical committee of the Primary Health Care Corporation under protocol ID (PHCC/RC/18/11/002). Written informed consents was obtained from all participants. All methods were performed in accordance with the relevant guidelines and regulations (Declaration of Helsinki).

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Author contribution

AAD: Conceptualization, Methodology, Formal analysis, Writing- Reviewing and Editing, and Project administration. **MC:** Methodology, Writing - Original Draft. **NS:** Supervision, Writing- Reviewing and Editing.

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Tables

Table 1: Background characteristics of the study participants (N=327).

Variable	n (%)
Age (year)	
18-25	48 (14.8)
26-34	240 (74.1)
35 or more	36 (11.1)
Level of education	
Primary education	17 (5.2)
Secondary education	60 (18.4)
College/ University degree	249 (76.4)
Employment status	
Not working	197 (60.2)
Working	130 (39.8)
Parity	
Primigravida	88 (26.9)
Multigravida	239 (73.1)
Living children	
No children	100 (30.6)
Has children	227 (69.4)
Trimester	
First	18 (5.6)
Second	171 (52.8)
Third	135 (41.7)
Gender of the fetus.	
Male	121 (37.0)
Female	83 (25.4)
I don't know	123 (37.6)
Any health problems during current pregnancy.	
No	76 (23.2)
Yes	251 (76.8)
Discuss online information with my healthcare provider	
No	182 (56.9)
Yes	138 (43.1)

Table 2: Feelings of worry caused by pregnancy-related information and coping methods among the participants (N=327).

Variable	Agree n (%)	Disagree n (%)
Online pregnancy-related information makes me feel worried	100 (31.2)	221 (68.8)
Health information from the following online source(s) make me worried ^a (n=100)		
Social media	47 (47.0)	53 (53.0)
Internet websites	38 (38.0)	62 (62.0)
Forums	17 (17.0)	83 (83.0)
Mobile applications	10 (10.0)	90 (90.0)
I do the following to cope with feelings of worry (n=100)		
Ask healthcare professional when visiting the ANC clinic	51 (51.0)	49 (49.0)
Ask family members or friends for support	47 (47.0)	53 (53.0)
Ask healthcare professional when visiting the general clinic	27 (27.0)	73 (73.0)
I do nothing	8 (8.0)	92 (92.0)

^amultiple responses were allowed.

Table 3: The relationship between the participants' characteristics and the perceived reliability of online pregnancy-related information (N=311)

Variable	Reliable n (%)	Unreliable n (%)	p-value
Age (year)			0.684
18-25	36 (81.8)	8 (18.2)	
26-34	195 (84.4)	36 (15.6)	
35 or more	26 (78.8)	7 (21.2)	
Level of education			0.036*
Up to secondary	56 (75.7)	18 (24.3)	
college/university	203 (86.0)	33 (14.0)	
Employment status			0.060
Not working	148 (80.0)	37 (20.0)	
Working	111 (88.1)	15 (11.9)	
Gravida			0.006*
Primigravida	78 (92.9)	6 (7.1)	
Multigravida	181 (79.7)	46 (20.3)	
Living children			0.020*
No children	87 (90.6)	9 (9.4)	
Has children	171 (79.9)	43 (20.1)	
Trimester			0.294
First	15 (83.3)	3 (16.7)	
Second	128 (80.0)	32 (20.0)	
Third	113 (86.9)	17 (13.1)	
Health problem during current pregnancy			0.076
No	51 (76.1)	16 (23.9)	
Yes	208 (85.2)	36 (14.8)	
Sharing online information with a healthcare provider			0.243
No	143 (81.3)	33 (18.8)	
Yes	113 (86.3)	18 (13.7)	

* Statistically significant result (p<0.05)

Table 4: The relationship between the method of accessing and the perceived reliability of online pregnancy information pregnancy (N=311).

Variable	Reliable n (%)	Unreliable n (%)	p-value
Information website			0.026*
No	75 (76.5)	23 (23.5)	
Yes	182 (86.7)	28 (13.3)	
Online forum			0.061^
No	232 (82.3)	50 (46.5)	
Yes	26 (96.3)	1 (3.7)	
Social media			0.503
No	154 (82.4)	33 (17.6)	
Yes	104 (85.2)	18 (14.8)	
Mobile application			0.777
No	131 (82.9)	27 (17.1)	
Yes	127 (84.1)	24 (15.9)	

*Statistically significant result ($p < 0.05$); ^Fisher's exact test

Figures

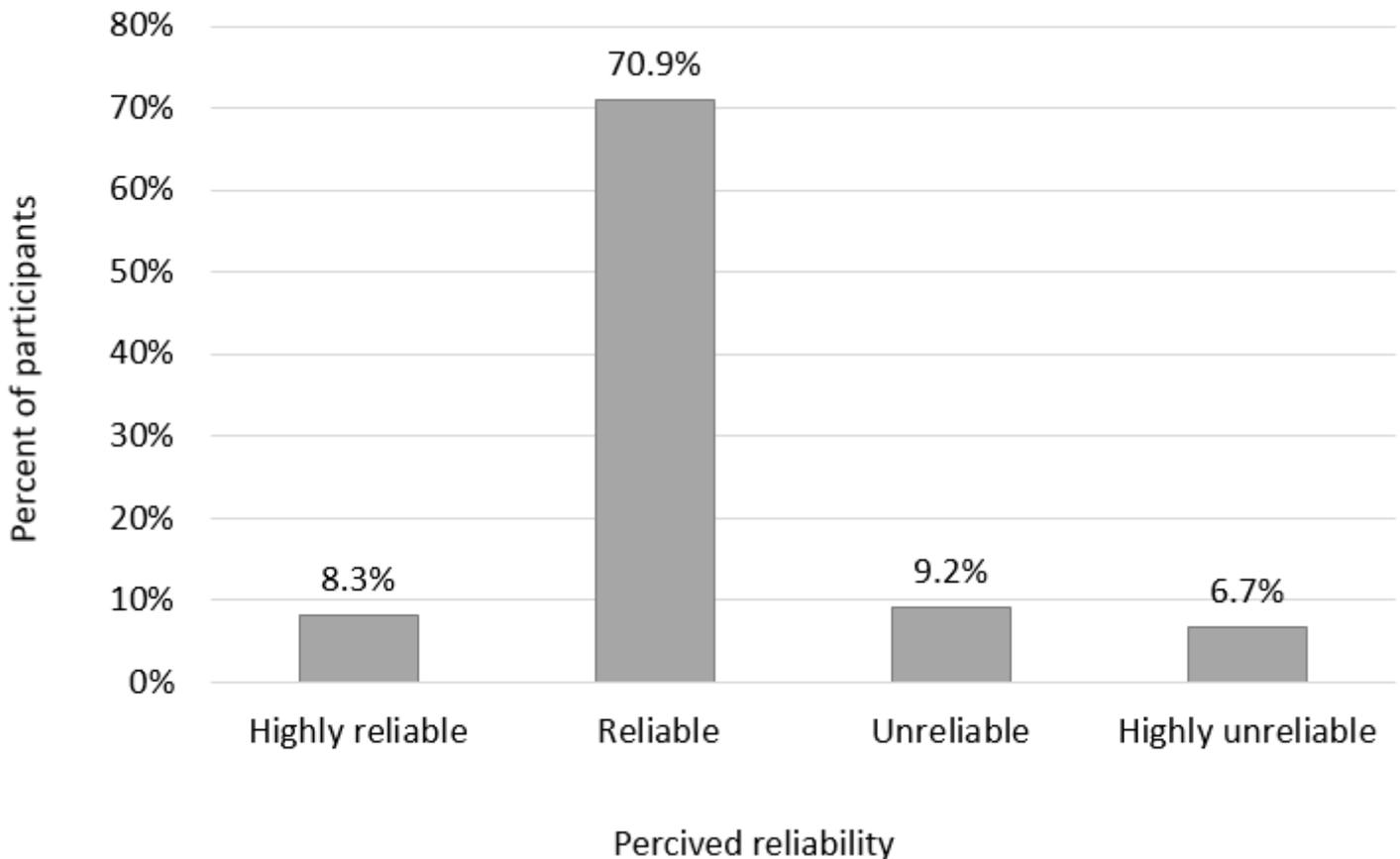


Figure 1

Participants' perception of the reliability of online pregnancy-related information (N=327).

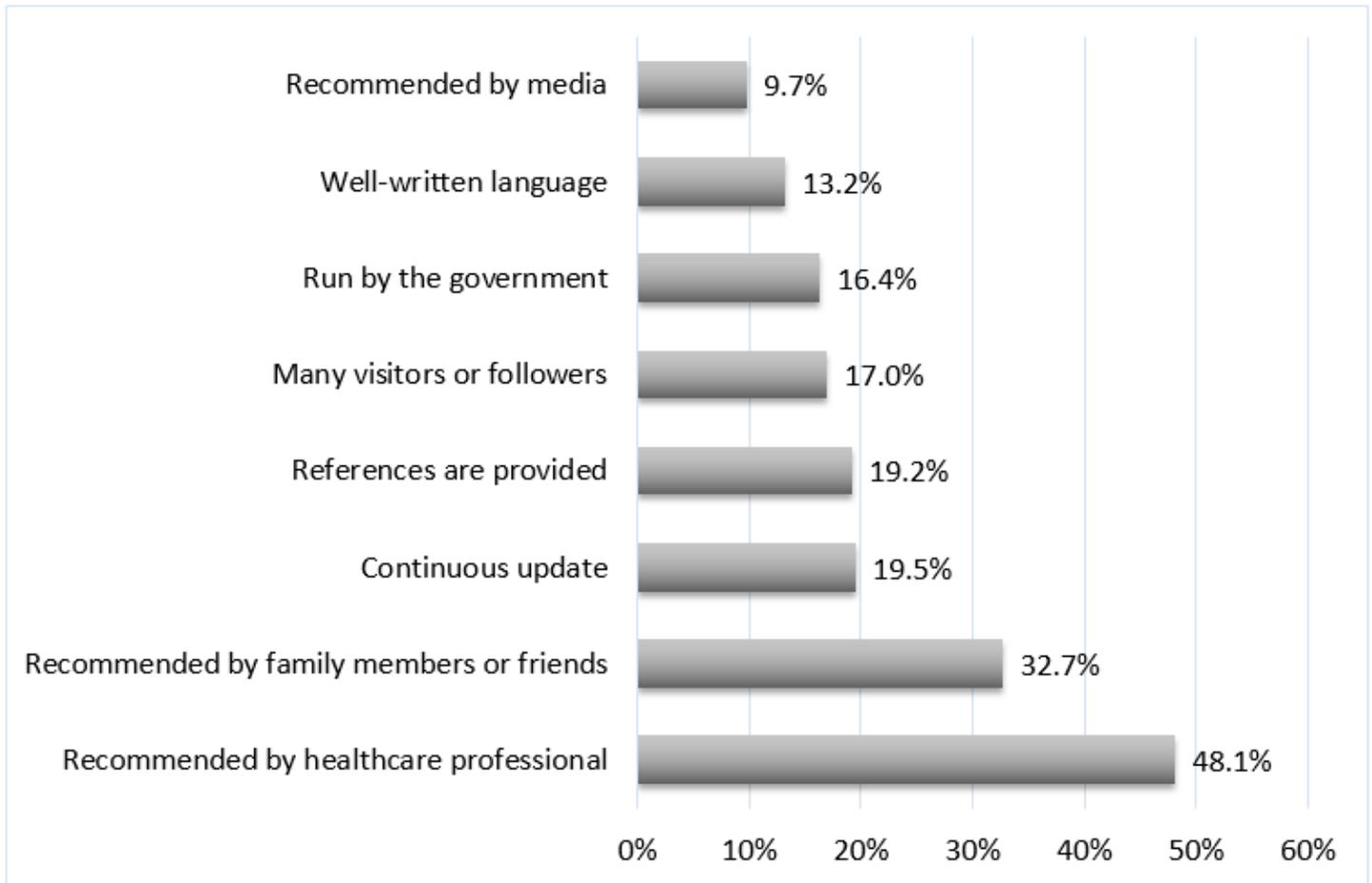


Figure 2

Factors to judge reliability of online sources (N=327).