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Original Article

Quality Assessment of Persian Educational Websites for Pregnant Mothers: A Descriptive Study

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ABSTRACT

Background: Raising awareness among pregnant mothers and their participation in self-care can reduce the complications and risks of pregnancy. One of the ways to acquire information for pregnant women is through the Internet and websites**.** The purpose of this study was to determine the quality of Persian educational websites for pregnant mothers.

Methods: This was a descriptive survey study. The study population consisted of Persian educational websites for pregnant mothers. Sampling method was Available websites. The first 5 pages of two common search Engines, Google & yahoo, were searched using the keywords "pregnancy" & "education website". A total of 20 out of 86 websites matched the criteria and were included in the study. The data collection tool was the standard Checklist WebMedQual assessment tool created by Provost in 2006. The validity and reliability of this tool was verified in its original version and then in the localized version based on the frameworks of the template websites in previous studies. The websites were directly observed and evaluated by 9 trained experts in January 2017. The agreement coefficient between the two checklists was completed in groups based on Kappa 0.78 coefficient. The websites were evaluated based on information content indexes, resource validity, design, availability, usability, links, user support and information confidentiality, with the scores ranging from 0 to 85, and the ideal score was considered 60. SPSS 16 was used for data analysis and using one-sample t-test the results were presented as mean score and optimal score.

Results: The findings showed a significant difference between the average availability and utilization index of the websites under study (P<0.001), and the mean score (6.2±0.61) was higher than the average score (4.5). Persian websites were less favored in the criteria of content, validity, design, links and support, and their ratings were lower than the average rating of the study. Also, none of the reviewed websites received the total score.

Conclusion: Persian websites for pregnancy education are not high in quality. Therefore, pregnant mothers need to seek guidance from specialist doctors and midwives. Website administrators are also advised to consider website evaluation criteria and improve their websites.

Keywords: Pregnancy education, Website, WebMedQual Scale

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Introduction

People around the world are using the Internet to obtain their required information. As a result, acquiring medical and health information on this global network is on the rise. Gaining access to up-to-date information in the shortest possible time is considered the most prominent feature of the cyberspace. The Internet has been able to change the of information seeking behavior of users and their attitudes towards information needs, especially in the healthcare field (1).

Websites are the most accessible sources of information, and today, the availability of mobile and internet enables people to surf the Web in search of vast amounts of data in different areas. The ease of access to websites allows the users to obtain their required information. Of all the information available on websites, health related information is very critical. One of the health areas in which many people are looking for information is pregnancy field (2).

In recent years, the Internet has become a very popular health information source for pregnant women(3, 4). There is evidence that pregnant women may be seeking information in specific cases during pregnancy and in response to specific situations (5). Pregnant mothers' awareness and participation in self-care can reduce complications and risks during pregnancy, reduce maternal and newborn mortality, and ultimately improve maternal and neonatal health. As a result, many pregnant women use the Internet as a source of information and tools to help them clear their doubts and guide pregnancy decisions (4, 5). Seeking health-related information before meeting with health professionals is commonplace after consultation (6).

Pregnant women on the Internet search various topics related to pregnancy including childbirth, fetal development, and nutrition during pregnancy. Prime-Gravid pregnant women, employees and educated women are more likely to search online for pregnancy information. Most women find content on the Internet useful and reliable, and few pregnant mothers discuss the information they receive with health professionals (7). Pregnant mothers' awareness and participation in self-care can reduce complications and risks during pregnancy, reduce maternal and newborn mortality, and ultimately improve maternal and neonatal health (8).

A high percentage of pregnant women search for pregnancy information on the Internet (3, 9). A systematic review and meta-analysis in 2014 studied the use of the terms pregnancy and Internet over a ten-year period (in English) and found that most women do not discuss information provided on the Internet with health care providers. Therefore, health providers may not be aware of potentially incorrect information or misconceptions about pregnancy reported on the Internet (10). Although Internet search is widely used, one problem with this media is its inability to judge the quality and accuracy of information obtained, and many people searching online for health advice or information, may believe what they find (11). Careful review of the website contents requires standards and reliable methods of evaluation. Given the importance of evaluating the quality of online learning for patients, several studies have been conducted to assess the quality of health-related websites with different tools and models (12-14).

In recent years, many studies have been conducted on the evaluation of different websites based on different indicators and different approaches. Studies towards the use of quality measures with greater ease of use are warranted. One of the major weaknesses of existing tools and indicators for assessing the quality of health websites is the incompatibility of effective elements for quality assessment or the incompetence of a particular group of people, such as physicians and medical professionals. One of the tools for the quality assessment of websites is the WebMedQual health scale (15). This scale is suitable for various user groups, including specialized Internet users, web designers, patients, webmasters and experts. Since no research has so far been carried out to evaluate the Persian websites

for the education of pregnant women, this study aimed to evaluate these websites using WebMedQual tool in order to be referenced & help pregnant women retrieve information in these media. Furthermore it helps web designers and website administrators to update websites with useful, credible, and effective information, and instill confidence in users.

Methods

The present study was a descriptive survey. The study population was 86 Persian-language websites in the area of pregnancy education. The sampling method was Available. Websites that were specialized in providing educational materials related to pregnancy were considered. It was a direct observation study. Keywords were entered into search engines and all the relevant websites in the first five pages were included for assessment. 20 websites were registered based on the following inclusion criteria: health education websites, academic websites, official websites of midwifery consultants and gynecologists, Persian language education and advertising sites that cover educational topics related to pregnancy and pregnancy websites with [.com], and [.ir] domain names.

Exclusion criteria included: blogs, Wikipedia, websites that were inactive for more than 6 months, and websites with no educational content. The process of identifying websites according to the research criteria is shown in Figure 1.

Using NCSS Software (PASS) a total of 64 samples were selected. The study was conducted in January 2017, and the Google& Yahoo search engines were used to search for the keywords "pregnancy", "delivery" and "educational website" in their first 5 pages. According to the primary keyword evaluation,

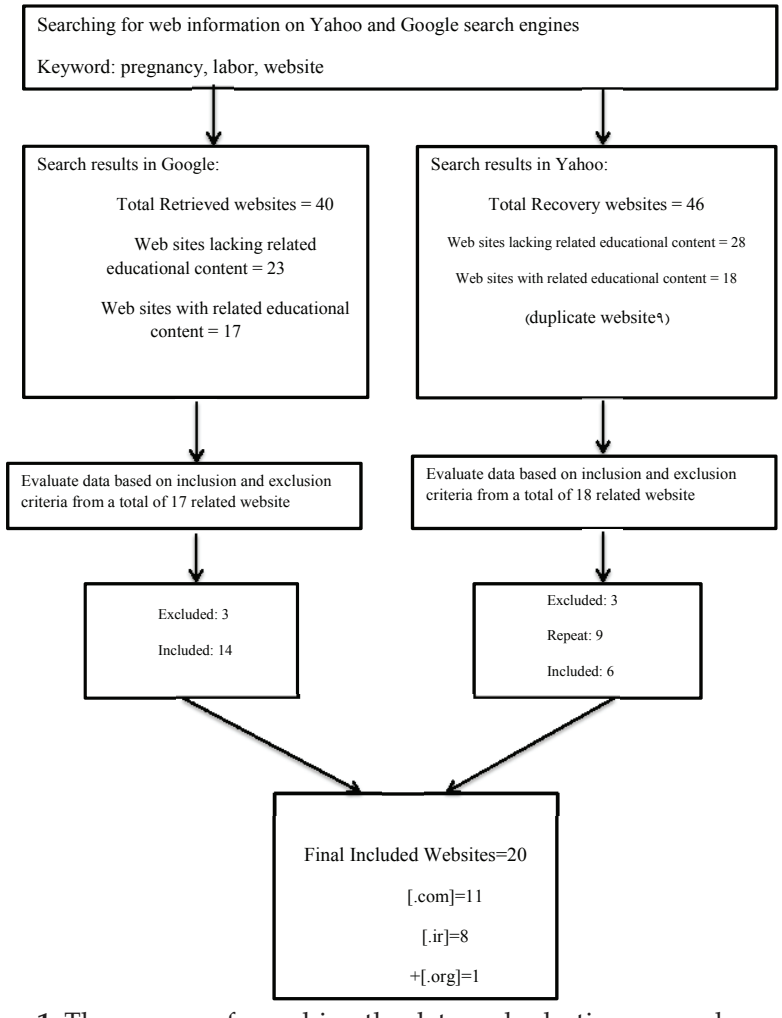

Figure 1: The process of searching the data and selecting research samples

Table 1: List of Pregnancy Educational Websites evaluated using WebMedQual scale

Type	Search engine	Adress	Title	ROW
Non-governmental	Google	https://madarsho.com	Pregnancy and Childbirth Guide	1
Individual	Google	www.iranbirth.com	Maternal Health Center	2
Individual	Google	https://www.ninisite.com	Pregnancy and Childhood Guidelines	3
Non-governmental	Google	www.himama.ir	Pregnancy Guide Training Children	4
Non-governmental	Google	www.ninikadeh.ir	Pregnancy and Childbirth Guide	5
Individual	Google	drshirinheshmat.com	Dr. Shirin Heshmat's site	6
Non-governmental	Google	barooneh.com	Maternity and Pregnancy	7
Non-governmental	Google	www.araameshcenter.com	Midwifery Counseling Center	8
Non-governmental	Google	www.atiehhospital.ir	Atieh Hospital	9
Non-governmental	Google	https://mamasite.ir	Midwifery Call Center Mother	10
Non-governmental	Google	niniban.com	pregnancy and child help	11
Individual	Google	mom.ir	fertility center and infertility treatment	12
Non-governmental	Google	https://ninitime.com	NINI time site	13
Non-governmental	Google	www.ooma.org	Encyclopedia of Women's Health	14
Non-governmental	Yahoo	onlinesalamat.com	Maternity and Midwifery Women	15
Individual	Yahoo	www.drs-azari.ir	Dr. Sedigheh Azari – Gynecologist	16
Individual	Yahoo	www.rezaeemed.com	Dr Fariba Rezaei 's Gynecologist	17
Non-governmental	Yahoo	www.pezeshkonline.ir	Online Physician Network	18
Non-governmental	Yahoo	www.naigo.ir	Iranian Association of Gynecologists and Midwives	19
Non-governmental	Yahoo	www.nabzema.com	nabzema	20

most of the related Persian websites were found. The content of the websites in the 6th & 7th pages of both search engines were irrelevant or repetitive, and in view of data saturation and duplicate content, the search was stopped. Therefore, duplicate sites that did not meet the entry criteria were removed and ultimately 20 websites were reviewed (Table 1).

A total of 86 websites (with sample crash counts) were identified, 40 of which were listed in Google search engine and 46 in Yahoo search engine retrieval and matching (Table 2).

The data collection tool was localized version of the standard WebMedQual scale (12). The checklist questions were based on a two point scale (Yes/No). The scale has 8 components including: The data content with 4 components (including quality, accuracy, domain and depth of information) And 19 questions with a maximum of 19 points, credit resources with two components (solicits and authorities) and 17 questions with a maximum

Table 2: List of websites found using pregnancy keywords

Non Related	Related	Engine Search	Site address	Row	Non Re-lated	Re-lated	Engine Search	Site address	Row
		Yahoo	onlinesalamat.com	44			Google	https://madarsho.com	1
		Yahoo	www.drem-dadi.com	45	Adver		Google	sitezanan.com	2
Repet		Yahoo	www.ara-ameshcenter.com	46			Google	www.iran-birth.com	3
		Yahoo	www.drs-azari.ir	47			Google	https://www.ninisite.com	4
		Yahoo	www.rezaeemed.com	48			Google	onliner.ir	5
		Yahoo	drshahnaza-mini.com	49			Google	www.nikan-hospital.com	6
Repet		Yahoo	www.ara-ameshcenter.com	50			Google	treata.com	7
	Repet	Yahoo	www.nikan-hospital	51			Google	www.hi-mama.ir	8
		Yahoo	baby.3eke.ir	52			Google	https://www.webyad.com	9
		Yahoo	rmci.blogfa.com	53			Google	www.ninika-deh.ir	10
		Yahoo	bita110.mihan-blog.com	54			Google	bardary.blogfa.com	11
		Yahoo	www.pezesh-konline.ir	55			Google	www.khatamhos-pital.org/	12
		Yahoo	www.parse-gard.com	56			Google	drshirinhesh-mat.com	13
		Yahoo	www.naigo.ir	87			Google	bahonar.ab-zums.ac.ir	14
		Yahoo	azitasaffarza-deh.com	58			Google	www.bmi-hospital.com	15
		Yahoo	doctorzanan.blogfa.com	59			Google	https://www.aparat.com	16
		Yahoo	doctorzanan.blogfa.com	60			Google	http://royan-mama.com	17
		Yahoo	magifa.com	61			Google	zmhospital.ir/	18
		Yahoo	taheripanah.com	62			Google	health.beh-dasht.gov.ir	19
		Yahoo	doctorsaberi.ir	63			Google	barooneh.com	20
		Yahoo	www.bebinak.com	64			Google	www.ara-ameshcenter.com	21
		Yahoo	www.drebra-himy.com	65			Google	www.atiehhospital.ir	22

	Rep	Yahoo	www.bebinak.com	66		Google	hoskosar.qums.ac.ir/	23
	Rep	Yahoo	baby.3eke.ir	67		Google	askariehospital.com	24
		Yahoo	www.royan-mama.com	68		Google	www.migesplus.com	25
	Rep	Yahoo	www.atiehhospital.ir	69		Google	bomi.mui.ac.ir	26
Rep		Yahoo	www.ninisite.com	70		Google	www.pars-naz.com	27
		Yahoo	med.mui.ac.ir	71		Google	https://mama-site.ir	28
		Yahoo	www.beytoote.com	72		Google	www.kowsarhospital.com	29
	Rep	Yahoo	taheripanah.com	73		Google	bent-hospital.com	30
		Yahoo	iranianacademy.com	74		Google	niniban.com	31
	Rep	Yahoo	www.nikan-hospital.com	75		Google	www.tamin.ir	32
Rep		Yahoo	iraniannurse.com	76		Google	www.madari.ir	33
		Yahoo	www.royaninstitute.org	77		Google	mom.ir	34
		Yahoo	www.tanzime-khanevadeh.com	78		Google	www.iranair.com	35
		Yahoo	www.sinahosp.ir	79		Google	barnamerizi.net	36
		Yahoo	www.payam-sara.com	80		Google	darman.yums.ac.ir	37
		Yahoo	perinatalrc.sums.ac.ir	81		Google	iraniannurse.com	38
		Yahoo	www.iau-mahabad.ac.ir	82		Google	jech.umsha.ac.ir	39
		Yahoo	javanrood.kums.ac.ir	83		Google	https://ninitime.com	40
		Yahoo	www.madar-hospital.com	84		Yahoo	drjahromizadeh.com	41
		Yahoo	khc.kums.ac.ir	85	Rep	Yahoo	www.ninikadeh.ir	42
		Yahoo	qommidwifery.com	86		Yahoo	bestparsian.ir	43

of 17 points, design (high-resolution features of the page, website appearance and ease of use) one component and 19 questions including 19 points, Availability and usability (regular and continuous availability of content and ease of operation) with one component and 9 questions with a maximum of 9 points, links (quality of internal and external links to obtain more information for users) with one component and 4 questions with a maximum of 4 points, User support (technical support for the site and support for users i.e. answering the questions, providing services and links to products) with 2 components and 11 questions with maximum of 11 points, confidentiality (security and information related to user identity) with one component and 6 questions with maximum of 6 points.

The validity and reliability of this tool was verified for its original version and then for the localized version, based on the frameworks of the template websites in previous studies. The validity and reliability of this tool was confirmed by Quadrant-Richardson method (0.89) applied in previous studies (12). For each of the applications considered, the number of sites is localized and varied according to the location of the websites in previous studies. The total number of questions on the scale according to the localized version for the present study was 85 and the maximum score for the websites was 85. In this study e-commerce questions were removed from the original version due to the nature of most health education sites and previous studies. Also, the checklist rating scale is dichotomous (yes or no). The criteria in this study were evaluated in 7 domains: content, credibility, design, accessibility and availability, user interface, and confidentiality. Then, 2 checklists were prepared to perform a careful evaluation of the websites and determine their ratings. Each checklist was assigned to a team of midwifery, librarians and computer experts, and each team conducted a review on a site-by-site basis. The agreement coefficient between the two checklists was completed by groups based on Kappa 0.78 coefficient. Upon completing two checklists and calculating the total score of a website, the average score of the two checklists was used for analysis. Statistical analysis was performed using SPSS 16 software and the data were analyzed by one-sample t-test. Website owners' consent was obtained by email & the results will be kept confidential upon the owners' request.

Results

In this study, 20 websites in the field of pregnancy education were evaluated. The results of the comparison of the research variables in the reviewed websites are shown in Table 3. As can be seen in the table, there was a significant difference between the mean score of the information content index of Persian pregnancy websites based on Qualitative Web Models Score. The mean score of website content (7.35) was significantly lower than average. The expected p-value was 0.019, and therefore the reviewed websites were weak and less than average in terms of content. Also, the mean score of the validity index of Persian websites for pregnancy education was lower than average (8.5), but not statistically significant (P=0.07). The mean score of website design index (9.95) was higher than average (9.5) but not statistically significant (P=0.604).

In addition, the results showed a significant difference between the average availability and utilization index of the websites under study (P<0.001), and the mean score (6.2) was higher than the average score (4.5). Accordingly, the availability index of the websites reviewed was desirable. The average index of links on the sites under review by WebMedQual Scale (2.1) was slightly higher than the average score (2) but did not show a significant level (P=0.629). The results showed that there was a significant difference between the scores of this index based on the average score (P<0.001). The findings

Table 3: Total Score and Intermediate T-Test Quality Indicators for Pregnancy Education Websites Based on WebMedQual Scale

Significance level	Degrees of freedom	Value t	Average obtained in the study	Average points earned	Perfect score	Index name
0.019	19	2.558	7.35	9.5	19	Content
0.071	19	1.916	7.25	8.5	17	Credibility
0.604	19	0.527	9.95	9.5	19	Designing
<0.001	19	12.35	6.2	4.5	9	Access ability
0.629	19	0.49	2.1	2	4	Links
<0.001	19	8.189	2.5	5.5	11	Support
<0.001	19	11.105	0.95	3	6	Confidentiality

Table 4: Rankings of Pregnancy Educational Websites on the WebMedQual Scale

Total score (58)	Confidentiality(6)	Support (11)	Links (4)	Access ability(9)	Designing(91)	Credibility(71)	Content (91)	Criteria/ row
madarsho(45)	ninisite(4)	dr heshmat(5)	niago(4)	iranbirth (7)	madarsho (71)	Mom(31)	oma(61)	1
oma(35)	himama* (1)	ninisite(5)	madarsho(3)	baroone (7)	Mom (51)	oma(21)	madarsho(41)	2
mamasite (94)	ninikade (1)	madarsho (4)	iranbirth (3)	Mom (7)	mamasite (41)	niniban (11)	Mom (31)	3
mom(74)	dr heshmat(1)	iranbirth (4)	dr heshmat(3)	onlinesalamat (7)	ninisite (31)	madarsho (01)	mamasite(11)	4
ninisite (64)	baroone (1)	atie(4)	baroone (3)	dr azari(7)	dr heshmat(31)	onlinesalamat (9)	niniban (11)	5
dr heshmat(24)	aramesh (1)	mamasite (4)	atie(3)	pezeshkonline(7)	oma(21)	pezeshkonline(9)	ninisite (9)	6
atie(04)	atie(1)	oma(4)	pezeshkonline (3)	oma(6)	himama (21)	ninisite (8)	dr heshmat(7)	7
niniban (73)	mamasite (1)	mom(3)	oma(2)	aramesh (6)	atie (21)	atie (8)	nabzema (7)	8
iranbirth (63)	niniban(1)	onlinesalamat(3)	mom(2)	atie(6)	dr azari (21)	dr heshmat (7)	baroone (6)	9
dr azari (63)	oma(1)	pezeshkonline(3)	aramesh (2)	ninisite(6)	ninitime (11)	aramesh (7)	aramesh (6)	01
onlinesalamat (53)	ninitime (1)	himama (2)	niniban (2)	himama* (6)	iranbirth (11)	dr azari(7)	atie (6)	11
pezeshkonline (33)	onlinesalamat(1)	niniban(2)	onlinesalamat (2)	ninikade (6)	baroone (8)	dr rezaee (7)	himama (6)	21
nabzema (23)	dr azari(1)	ninitime (2)	dr azari (2)	dr heshmat(6)	aramesh (8)	nabzema (7)	ninitime (6)	31
***mom* (13)	pezeshkonline(1)	niago(2)	nabzema (2)	nabzema (6)	nabzema (8)	mom (7)	dr azari (6)	41
aramesh (13)	nabzema (1)	dr azari(1)	ninisite (1)	niago(6)	onlinesalamat (8)	iranbirth (6)	onlinesalamat (5)	51
ninitime (13)	iranbirth (1)	nabzema (1)	himama* (1)	ninitime (6)	dr rezaee (7)	ninitime (4)	pezeshkonline (4)	61
baroone (82)	mom(0)	aramesh (1)	ninikade (1)	niniban(6)	pezeshkonline (6)	niago (4)	niago(4)	71
dr rezaee (32)	niago(0)	dr rezaee (0)	mamasite(1)	madarsho (6)	ninikade (5)	himama* (3)	iranbirth (4)	81
niago(32)	dr rezaee (0)	ninikade (0)	ninitime (1)	mom(5)	niniban (4)	ninikade (3)	ninikade (3)	91
ninikade (91)	madarsho (0)	baroone (0)	dr rezaee (1)	dr rezaee (5)	niago (3)	baroone (3)	dr rezaee (3)	02

also indicate that there is a significant difference between the average privacy index of Persian pregnancy websites based on WebMedQual Scale (0.95) and the average score was found to be 3 (P<0.001). Of the six indicators of information content, resource validity, accessibility, links, user support, and confidentiality, the only indicators with an adequate score was "accessibility". The results also indicated that, based on the website rankings according to the WebMedQual Scale (Table 4), the websites of "Madarsho" and "Oma" scored the highest (54 & 53 respectively), and the "Ninikade" scored the lowest "19" out of ideal score of 85. However, since the acceptable score was 60 or higher (or 70% of the total score), none of the websites surveyed in this study achieved an acceptable score. The rankings of the websites reviewed in this study are presented in Table 4.

Discussion

The average ratings of Persian websites on pregnancy education were measured by the six indexes of information content, validity, design, links, support and privacy. As the findings of this study show, based on the WebMedQual scale, the ratings were lower than average, and only accessibility index was higher than average. Previous research, conducted in various fields and with various evaluation tools of websites, has acknowledged the weaknesses of Persian language websites in many cases. Although the tools and therefore the evaluation criteria of these studies are different from the present research, it would be useful to consider their results and compare them with the results of this study. Pinedo et al. (2) searched for the keyword "Pregnancy" and identified 125 relevant Spanish websites and then, using a LIDA questionnaire, they showed that a small percentage of websites (30%) were trustworthy, which was consistent with the research validity index. This was in line with the results of the evaluation of the accessibility index of the present study. A study by Shahrzadi et al. (12) used WebMedQual tool in the field of depression and anxiety. Given that a number of websites under study were private, it was only in terms of optimal design that the results of the present study were inconsistent. They had not paid much attention to the visual attractions and ease of use of the website, but the other features studied had shown inadequate quality, content, links, support and privacy that were not consistent with the results of the present study. It was in line with the criteria for reviewing the information content of the present study.

Xiaowocheng's study (2017) examined the quality of health information content of Chinese and English websites, indicating that the quality of the information content was poor (16).

In Narwani's Study (17) readability and quality of education materials on 54 websites were reviewed. The study met the criteria for evaluating the information content in the present study, and the content of the study was assessed by its evaluation tool, which was not included in the evaluation tool of the current research. Kuchdurmuz's review (18) reported that information quality was inadequate and unreliable. He pointed out that the information was not based on the date of publication of the methodology, which was consistent with the criterion of resource validity.

Also Haghshenas et al. (19) carried out a web site survey using the WQET Evaluation Toolkit. They included content, links, and moderately good content criteria that did not match the results of our research, which might reflect the specificity and type of activity of the websites. Unfortunately, according to the survey, government and university websites are growing less concerned about the content and effectiveness of websites and other criteria for evaluating websites on the topic of pregnancy education. Although the Nasajpour's study (20) compares Type 1 and Type 3 medical sciences universities based on the evaluation model, the study by Aminpour (21) on the websites of Type 1 medical universities of Iran has a weak international presence at the university level.

As also indicated, the lack of inclusion criteria in the study of medical education websites in the field of pregnancy can also be confirmed in this study. Samadbeik's (22) study with "Bomba quality scores in the availability and usability guidelines for Persian health website" showed that, based on his evaluation tools, the quality of Persian websites was also better in terms of accessibility and usability, which was consistent with the results of our study.

Overall, based on the current research findings and reviews of the quality of information provided by medical websites and affiliate websites, it can be concluded that, to date, web designers and production managers have ignored various quality factors. Poor credit ratings or publishing of content that is not accurate and quality-controlled, leads to poor information and ill-informed users. This is why the quality of website content is challenging in many ways and users cannot rely on the online information to fulfil their needs, especially in the area of health information.

Conclusion

Considering the wide range of information related to different areas of health sciences and more specific topics such as weight loss pregnancy, and the growing public desire to use this information, it is necessary to evaluate the information in this area. Specialists in the area of information assessment, especially medical information librarians, are the major authorities in this field. They are responsible for evaluating information in different shapes and forms, and the ranking of websites in different domains. In particular, health officials need to validate the quality of healthcare information before it is provided to non-specialist groups. The aim of this study was to evaluate the Persian websites on pregnancy (based on WebMedQual Scale). It was found that the average scores of Persian pregnancy websites were, according to all indexes, poor and below average. Therefore, when using the Internet, users should not trust the contents of the website without regard to the quality indicators of the website. They should adhere to the basic principles of quality, especially with respect to content validity. They must check the authors' names, expertise, contact information and source citations, and pay particular attention to the main content. Therefore, health professionals, midwives and antenatal care providers should be aware of this issue and provide more evidence-based information to pregnant women at the time they require it. Careful attention should be paid to the information quality indicators of websites, especially updating of the content, accurate and detailed introduction of authors, making a distinction between scientific and commercial content, and the possibility of reciprocal interoperability between specialists. Finally, it is suggested that Persian designers and mothers in the field of maternal health in general and pregnant women in particular meet the quality criteria of healthcare websites, and focus on the importance of information and validity, especially with regard to author's name and specialty. Timely content updates, careful consideration of advertisements and links to other websites and observing the principles of confidentiality are especially important and thus improve the quality of websites. In addition, researchers in various health sciences can use the WebMedQual tool to evaluate websites and provide them with an opportunity to improve.

Study Limitations

The study was conducted on Iranian Persian websites; the number of educational websites devoted exclusively to prenatal education was very low, with many websites addressing this issue along with advertising information on other medical issues. There were also a few websites that met all of the criteria for web evaluation in this study. There were no studies on pregnancy websites outside the country at the time of the study, and there was no exclusive study on this subject in the country. Some websites did not take responsibility for their content and there was no possibility of correspondence with them through email. Other related sites that

were launched after the study period were not included in the study. The survey was conducted in January 2016, and since then some websites might have gone out of service or might have already improved the quality of their material.

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Ethical Declarations

Ethics approval and consent to participate

In this study, the following ethical issues were considered: After obtaining permission from the college officials, the training program began in January 2017 At the beginning of the training program after the researchers had introduced themselves, they explained the objectives of the study and the need to implement them to the observation of website to this study and the written consent was obtained from email participating in the study. The participants were also assured that all information collected will remain confidential.

This study was approved by the Ethics Committee of IR.SUMS.REC.1397.592.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author on request.

Authors' Contributions

M.B M.M and Z.K Devised the study concept and designed the study. M.M and Z.K Supervised the intervention. M.B Data collection and analysis. M.M Supervised the intervention. M.B and M.M Drafted the manuscript. M.M, M.B and Z.K Critically revised the manuscript.

Conflict of interests

The author declares that they have no conflict of interests.

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