Analysis of Reproductive Health Information and Services Websites: A Qualitative Content Analysis

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ARTICLE INFO	ABSTRACT
Article type: Original article **Article History:** Received: 24-Dec-2023 Accepted: 22-Apr-2024 **Key words:** Reproductive Health Website Information Services Childbearing Content Analysis	**Background & aim:** Providing the information needs of couples in an easy and low-cost manner has a fundamental and significant role in the health of the family, and promoting childbearing. This research study was conducted to analyze reproductive health information and services websites. **Methods**: All relevant websites were searched in Google, Yahoo and Bing search engines with the keywords "pregnancy", "childbirth", "childbearing", website" between August 2022 and February 2023. Through the search 85 websites were identified, and finally 40 were analyzed in terms of content and design. The content of websites were analyzed with conventional inductive content analysis approach, using Maxqda software. **Results:** By analyzing the websites, 486 codes were extracted. All the codes were merged into three main categories including structural patterns, content patterns and service patterns. In the category of structural patterns, greater familiarity with the website accounted for 5.5%, In the category of content patterns, contents related to the pregnancy and childbirth (33.1%), factors influencing fertility (10.6%), family issues (10.2%) and women's health (8.02%) were the most popular content on the web. In the category of service pattern, fertility and ovulation calendars accounted for the highest number of codes (6.7%) **Conclusion:** The themes identified on the websites covered a wide range of aspects related to fertility. The use of the mentioned themes can be a suitable model in the construction of a website in the field of pregnancy and childbirth, but there is a need to produce more content regarding the promotion of childbearing.

Introduction

Globalization and expansion of technologies in the world has led to global access to imaginable information or services, while in 2004 about 4.5% of all searches in the Internet were related to health information and in 2009 about 61% of users searched for health-related information (1). The importance of this issue has been felt in recent years with the introduction of electronic health records and increase in access and use of the Internet by the public. The development of medical information banks such as Medline Plus and MedHelp and the formation of patient forums and consultation with peer groups among patients all emphasize the undeniable role of Internet and information technology in providing healthcare services (2).

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Among the health information, pregnancy and childbirth care due to high costs and limited service providers are the most important information that have attracted the attention of users, especially women (1). Pregnancy and childbirth are of the natural stages in women's lives, for which women and men need support from different sources. They receive information about pregnancy and childbirth from health professionals, family and friends, and media (3). Websites are usually the first sources which women refer for pregnancy information as the best source of information for making decisions and sharing their experiences about pregnancy (4).

In recent years, different societies have faced the challenge of fertility reduction, so that the average annual population growth rate in developing countries has been announced about 1.2%, while the annual population growth rate in most developed countries is reported 0.6% (5).

Deciding for childbearing is an important issue in people's reproductive life that is supported at the global level. In fact, the conscious choice of pregnancy is very important for pregnant mothers (6). The process of delaying childbearing is an international phenomenon in both developing and developed countries (7). One of the reasons for this problem is women's lack of knowledge regarding the necessary information about childbearing and the consequences of delaying it, and efforts should be made to solve this need for information (8). Providing correct information about deciding for childbearing can greatly help cou[les to increase their knowledge in the field of childbearing and their interest in this issue (9).

All kinds of information sources about childbearing are used by couples. However, they usually look for official information sources through Internet and mobile due to the speed and ease of access to information (10). Almost 94% of women use Internet to supplement the information provided by health professionals, and in 83% of cases, this information affected their pregnancy-related decisions (11). Obtaining such information can lead to an increase in self-care ability, level of awareness and better pregnancy outcomes (12). In the meantime, although websites related to health and medicine are now considered as the most visited portals in the world and providing services in the field of health (2), but people should be directed to reliable, scientific and evidence-based websites in order to achieve the correct information (13.)

Identifying and meeting the information needs of couples—particularly women and pregnant women—is fundamental to the health of families and society. Furthermore, providing accessible, low-cost services can encourage childbearing. Therefore, analyzing existing reproductive health websites is a necessary step toward designing an effective model childbearing. Accordingly, this research was designed and implemented to analyze websites which provide reproductive health information and services in order to design a website to promote childbearing.

Materials and Methods

This study was qualitatively performed using the conventional inductive content analysis approach. Content analysis is considered a research method for subjective interpretation of the content in the texts through the process of systematic classification and determination of topics. Conventional content analysis is usually useful when there are limited theories or information about the studying phenomenon. Conventional content analysis was employed for reviewing the websites because there was no well-established theoretical framework in this field, and this approach allows categories and themes to emerge directly from the data."

The reviewed websites included all English and Persian websites providing Reproductive Health information and services. Official websites, for example university websites, were not examined because only a part of the site dealt with the issue of reproductive health. Since the constantly changing nature of the internet and consequently websites, the content of websites and the extraction of components and data collection were studied fromAugust to February 2023. For this purpose, simple and unlimited search (without medical and computer knowledge) was conducted with the keywords of "Reproductive health, childbearing, health services, health information, website" in

the search engines of Google, Yahoo and Bing and the results of the first two pages were collected in a Microsoft Excel worksheet (generally, those who are looking for online information do not look beyond the first and second page). After searching in the search engines, the information of 176 websites were recorded. The criteria for entering the websites into the study was to provide services and active content related to fertility and childbearing, and the criteria for excluding the website was to be repetitive and unrelated to the aforementioned content and services. Also the websites which was not updated and active were excluded. Following the removal of duplicate and irrelevant items, 85 websites concerning reproductive health and childbearing were identified. Among them, 40 websites were subjected to detailed analysis, and the process was continued until data saturation was achievedd.

The websites were analyzed using the method of qualitative content analysis (vonventional Content Analaysis). The analysis process was carried out simultaneously and continuously with the data collection and based on the content analysis of Sieh and Shannon (2005).

The process of data reduction was carried out in two levels: primary reduction (elimination of duplicate and similar items) and secondary reduction (main abstraction and categorization based on coding of the keywords of the analyzed text). In other words, the provision of any information and services on the websites was recorded as a conceptual code, and in the next stage, these codes were merged and assigned to the categories and sub-categories. The selection of websites continued until data saturation.

Lincoln and Guba's criteria were used to evaluate and increase the validity and reliability of data, which is equivalent to the scientific robustness of the findings in qualitative research. Based on this method, one criteria of reliability and validity was considered for evaluation. To ensure the validity and acceptability of data, the research team, especially the main researcher, tried to constantly engage with the data (14). In addition, the present study was conducted with guidance and supervision of the experts in

qualitative research, which made the reliability and the verification of data possible. The obtained data were analyzed using Maxqda software with coding method and the analysis of websites continued until thematic saturation. Finally, 40 websites including seven Persian language and 36 English language websites) were completely analyzed in terms of content and structure (Table 1).

Table 1. List and address of the included websites in the analysis

No	Website	Country
1	http://www.himama.ir/	Iran
2	https://namnak.com/	Iran
3	https://mom.ir/mag	Iran
4	https://www.ladankashani.ir/	Iran
5	https://madarsho.com/	Iran
6	https://ooma.org/	Iran
7	https://niniplus.com/	Iran
8	https://www.yourfertility.org.au/	Australia
9	https://www.whattoexpect.com/	Australia
11	https://thewebsitedoula.com/	Australia
12	https://plussizebirth.com/	America
13	https://www.pregactive.com/	America
14	https://www.thebump.com/	Chinese
15	https://www.whattoexpect.com/	—
16	https://www.rookiemoms.com/	South America
17	https://www.birthrights.org.uk/	England
18	https://www.healthychildren.org/	America
19	https://www.healthychildren.org/	America
20	https://pregnantchicken.com/	Italian
21	https://www.tommys.org/	England
22	https://pregnancy.org/	Chinese
23	http://www.foreign.city.shinjuku.lg.jp	Japan
24	https://www.pregnancy.com/	—
25	https://www.pregnancyinfo.ca/	Canada
26	https://www.babymed.com/home	England
27	https://www.umwomenshealth.org/	America
28	https://tabunka.tokyo-tsunagari. or. jp	Japan
29	https://www.womenshealth.gov/	Chinese
31	https://www.acog.org/	—
32	https://overthemoonparenting.com/	Chinese
33	https://www.universityhealthsystem. com/	America

No	Website	Country
34	https://plussizebirth.com/psmmblog/	England
35	https://www.plannedparenthood.org/	America
36	https://www.parents.com/	England
37	https://birthingbetter.org/	Italian
38	https://www.motherrisingbirth.com/	Chinese
39	https://mommylabornurse.com/	America
40	https://modernfertility.com/	Scotland

Results

Three main categories of structural pattern, content pattern and service pattern were extracted through analysis of the qualitative data (Table 2).

The Structural patterns

In the main category of the structural patterns, a total of 75 codes were extracted, which were placed in five main subcategories, including: peripheral media available (4 codes), appearance features of the website (11 codes), strategy of search (4 codes), more familiarity with the website (25 codes) and interaction with website (21 codes); some of which are described.

Table 2. The overview of categories and subcategories emerged from data analysis

Subcategory	Category
available Peripheral media	
Appearance features	
Sterategy of search	The structural patterns
More familiarity with the website	
Interaction with website	
Family health information	
Reproductive health information for women and girls	
Pregnancy and childbirth information	
Factors affecting fertility	
Coronavirus and its relationship with pregnancy and childbirth	The content patterns
Pregnancy and childbirth rights	
Health information for children and adolescents	
Reproductive health information for men	
Fertility and ovulation calendar	
index Calculation of weight and body mass	
Virtual consultation and visit durin pregnancy	
Sheduling online appointment of fertility clinical centers	The service patterns
Online interpretation of ultrasound and pregnancy tests	

Peripheral media refers to the various channels—such as mobile phones, social networks, and applications—through which an audience can access website services. The appearance features of the website included the website logo and key sentences, as well as the website design, its language, and the website theme. The subcategory of search was whatever the audience needed for easy access to the content of the website, such as searching for the desired clinic (family planning, health-oriented, psychiatric), searching for the desired midwife or physician, and searching for information that was provided on the website.

MMost of the codes were categorized under "more familiarity", which referred to enhancing the audience's understanding of the website's goals and prospects. This subcategory encompassed online and offline programs and workshops, news, popular contents, the most recent articles, the website library, general information, the site map, useful links, and webinars.

TThe subcategory of interaction with the website referred to the ways in which the audience communicated with the individuals who established and managed the websites. This subcategory included codes such as contacting

us, cooperating with us, users' personal pages, registering on the website, free calling for receiving advice and services, emergency contact numbers, telemedicine visits, communication with the website's author, subscribing to the website newsletter, posting reviews, providing opinions and feedback, and engaging in conversations with other mothers. Among these, talking to mothers and sharing similar experiences were regarded as the most frequently visited parts of the websites. Overall, the subcategories described constituted a comprehensive model of the structure of a website designed for promoting childbearing.

In the subcategory of interaction with the website, which was actually the way the audience communicated with the people who set up and managed the websites, there were codes such as contacting us, cooperating with us, users' personal pages, registering on the website, free calls for receiving advice and services, emergency contact numbers, telemedicine visits, communication with the website's author, subscription to the website newsletter, reviews, providing views and opinions, talking to similar mothers, and so on. Among these, talking to similar mothers and sharing their experiences were considered the most frequently visited parts of the websites.

The content patterns

A total of 411 codes were extracted **under the content pattern of information** category, which were placed in 8 main subcategories, some of which were subdivided into subcategories, including: "Coronavirus and its relationship with pregnancy and childbirth", "Pregnancy and childbirth rights", Health information for children and adolescents", "Reproductive health information for men", "Family health information", "Reproductive health information for women and girls (sub-subcategories: sports and women's health, puberty, sexual health, menopause and women's diseases)", "Pregnancy and childbirth information (sub-subcategories: infertility, pre-pregnancy, pregnancy, postpartum)" and "Factors affecting fertility"

The "Coronavirus" subcategory included the items such as Covid-19 vaccines and pregnancy, dietary advice in pregnancy and coronavirus, pregnancy care and coronavirus, coronavirus

and lactation, and general information regarding coronavirus.

The subcategory of " Pregnancy and childbirth rights" included topics such as the right of mothers to have experience and expertise in pregnancy and childbirth, the right of mothers to independence, the right of mothers to dignity, the exercise and recovery of maternity and childbirth rights, the right to choose the place of childbirth, the right of spouse's presence during childbirth, the principles of human rights in prenatal care, the right to choose cesarean delivery, the right to see and study medical record, and the right to choose physician and midwife.

The subcategory of " Health information for children and adolescents " included content such as providing the content as humorous, evidence-based medical advice, encouraging people to learn more, not having too much advertising in the website, real short stories from scientific content and infant's growth monitoring charts, infant's bath, infant's sleep, infant's home visit, infant's weight loss, sale of infant's essentials (furniture, strollers, milk bottle, etc.), infant's jaundice and reflux, mental health of the child, obese children, skills to stop breastfeeding, parenting skills, risk of child's asphyxia, playing with child, feeding the child, vaccinations, safety tips of child's crawling, week by week developmental growth and safety and care of pre-school children, children upbringing, children growth, and easy education for children, self-esteem of primary school children, the special needs of primary school children, the health of children, handicrafts and activities of children, friends and interaction, the costs of universities, choosing a university, talking about sexual issues, dating and sports and fitness, etc.

The subcategory of "Reproductive health information for men" included information about sperm health, sexual health and fatherhood skills, etc.. The subcategory of "Women and girls health" was divided into puberty, menopause, gynecology diseases, sexual health, exercise, and women's health; each included its own code and content.

The subcategory of "Family health information" included topics such as the idea of family vacations, the idea of playing with

children at home and outdoors, teaching media literacy to children, the health of parents' workplace, emotional health, sleep health, parties and decorations, crafts and travel, etc.

The subcategory of "Reproductive health information for women and girls" was divided into the sub-subcategories of sports and women's health, puberty, sexual health, menopause and women's diseases.

The subcategory of "Pregnancy and childbirth information including sub-subcategories of infertility, pre-pregnancy, pregnancy, postpartum had the highest frequency among all codes related to pregnancy and pregnancy-related issues.

The subcategory of "Fertility-related factors" was divided into the sub-subcategories of "health and medicine, lifestyle, age, weight, tools and calculators, which included the related topics.

The service patterns

A total of 243 codes were extracted in the main category of service pattern, which were placed in 5 main subcategories.

The subcategories included "fertility and ovulation calendar", "calculation of weight and body mass", "virtual consultation and visit in pregnancy", "online appointment of fertility clinical centers" and "interpretation of ultrasound and pregnancy tests online".

In the subcategory of "Fertility and Ovulation Calender", services such as online calculation of ovulation time and length of monthly cycles were performed on the investigated sites. These services improve and help the fertility process of users.

In the subcategory of "calculation of weight and body mass", weight and body mass were calculated online for users and they were warned that if they are overweight or obese, they will face a decrease in fertility.

In the subcategory of "virtual consultation and visit in pregnancy", pregnant users can be consulted virtually and request a doctor's visit virtually during pregnancy to reduce their worries.

In the subcategory of "online appointment of fertility clinical centers", online appointments of fertility clinical centers for doctors in the specialties of gynecology and pediatrics can be done through the mentioned websites.

The subcategory of "interpretation of ultrasound and pregnancy tests online"; One of the concerns of pregnant mothers is the interpretation of ultrasound and tests during pregnancy. It is possible to get ultrasound and tests on the mentioned websites from online services.

The highest frequency (73 codes) was related to "Pregnancy and childbirth information (Table 3) which included pregnancy health and medical content, pregnancy symptoms, pregnancy common problems and its solutions, content about pregnant mother's mental health, screening tests and guidance for pregnant women and types of tests during pregnancy. In the next stage, the codes related to the subcategory of "Fertility-related factors" (51 codes) and in the next rank, the subcategory of "Family health information" (49 codes) had the highest frequency that included ideas for family vacation, sleep health, mental health, child injury management, medication use guide, playing with children (home and outdoors) and family finances, and etc (Table 3).

The subcategory of "Health information for children and adolescents" (45 codes) had the highest frequency in the identified subcategories (Table 3).

In general, both in structural and content analysis, the literature used was fluent, simple, and understandable, which was considered as one of the strengths of the websites.

Table 3. Percentage frequency distribution of subcategoris

The subcategory extracted through analysis of the investigated websites	Percentage frequency distribution
"Pregnancy and childbirth information	33.1%
Fertility-related factors	10.28%
Family health information	10.6%
Health information for children and adolescents	8.02%

Discussion

The findings of this study showed that out of a total of 486 codes identified from the analysis and review of 40 websites, three main categories of the content patterns, structural patterns and service patterns were identified. The results of the present study showed that in websites related to the mentioned subject, in the structural area, the option of "more familiarity of the audience" was more important (maximum frequency of code). Regarding content area, information and services related to pregnancy and childbirth and information about the factors affecting fertility and dealing with family and children had a special place and a higher frequency than other contents. In the category of service pattern, fertility and ovulation calendars accounted for the highest number of codes

About the main category of the structural patterns, a recent study by Kombs et al (2024) emphasized that the structural design of digital platforms plays a crucial role in meeting the information and support needs of pregnant women (21).

In relation to the content patterns, a recent study by Brittingham et al. (2024) assessed the quality and comprehensiveness of family planning content across digital self-care platforms, in which the importance of content comprehensiveness in the field of fertility and family planning was highlighted, emphasizing that while some topics are sufficiently addressed, other critical areas remain underrepresented(20).

It is notable that identified themes and topics were mostly related to the aspects of reproductive health information and services, but there were very few themes on topics such as promoting childbearing. The use of popular themes and identified subcategories can be a suitable and comprehensive model in the production of websites in the field of reproductive health, but there is a need to produce more content to encourage couples for childbearing.

A review of the websites showed that the developers of content related to reproductive health and childbearing used two types of information "pregnancy and its symptoms" and content related to "factors affecting fertility"

more than other information for their audiences. On the other hand, exchanging information and sharing various content between couples, especially women, was one of their favorite parts in the studied websites (by examining the audience's opinions). The results of the study by Gholami et al. (2016) also confirmed this issue. They believed that pregnant women exchange information with each other in all fields and the most exchange of information is in the field of medicine, pregnancy health and child's health (15). This indicates that the websites provide a good space for users and they can exchange information in all relevant fields (medicine, health and fertility). This was also confirmed in the study of Latarzik (2012). In their study, through visiting the forum, mothers had access to information about their pregnancy that their doctor did not provide it for them (16). According to our results, the managers of websites related to medicine and health, especially in the field of pregnancy and childbirth, were suggested to set up a forum in their websites and with the entry of reproductive health specialists in the forum space and their participation in the discussion of users provide the possibility of appropriate information assistance to create better interaction between people and experts.

One of the strengths in the analysis of websites was the use of simple literature in expressing the contents that was generally presented in the form of simple news sentences, which could be used by any user with different levels of education to understand the content. In fact, health information in the studied websites was expressed in simple language and the conclusion was quite clear, which can lead to convincing the audience and full understanding of the messages (17).

One of the limitations of this research is that due to the constantly changing nature of the Internet and websites and also having time limitation, it is possible to change any of the services and information mentioned in the pattern provided and adding and subtracting them with checking more of these websites at any other time.

Among the issues which few websites offered were the contents related to reproductive rights and puberty health of individuals, which need to

be more addressed in the compilation of content. The importance of this issue becomes clearer when the study of Abolghasempour (2007) states that women's awareness of their reproductive rights and equal enjoyment in the field of reproductive health can play an effective role in maintaining the health of themselves and their families (18).

Since the issues related to reproductive health and childbearing are of the most important issues in family health and, ultimately, community health have been recognized as important issues worldwide. In many European countries—such as Germany, France, England, New Zealand, Canada, Spain, Singapore, Russia, Turkey, and Norway— incentive policies for childbearing and population growth have been implemented. Given the aging trend of Iran's population, the existence of similar policies in the country was considered highly important. Therefore, it was suggested that the model obtained from the research results be used to design a website in this field by introducing the information and services proposed in this study. In fact, this research has facilitated the acquisition of core content principles related to reproductive health and childbearing. This pattern can be used for managing health information, especially in websites, and can be considered for managers of related websites to improve their website, as well as for professors in the field of medical media and informatics.

Also, due to the fact that the findings of articles in this field are relatively limited, it is suggested that more research be done to review websites in the field of reproductive health and childbearing.

Conclusion

As evidenced by the findings of this study, the analysis of related websites showed that the identified themes and topics almost covered most of the fertility dimensions, but there was little contents and themes in terms of topics including childbearing promotion. The use of high-viewed themes can provide an appropriate and comprehensive source to design a proper and applicable website in the field of reproductive health, but there is a need to produce more contents to encourage couples for childbearing.

Declarations

Conflicts of interest

Authors declared no conflicts of interest.

Ethical considerations

This study was conducted based on the analysis of publicly available website contents. No direct interaction with human subjects was involved, and no personal or identifiable data were collected. All information was derived from open-access sources, and intellectual property rights were respected by appropriately citing the websites analyzed.

Code of Ethics

The present study was conducted after obtaining ethical approval from the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran (IR.MUMS.NURSE.REC.1400.091).

Use of Artificial Intelligence (AI)

We have not used any AI tools or technologies to prepare this manuscript.

Authors' contribution

FGH and TKH and FZK and KD contributed to the conceptualization and design of the study. Data collection was conducted by FGH. The data analysis and interpretation were carried out by FGH and TKH. FGH drafted the initial manuscript. All authors critically reviewed, revised, and approved the final version of the manuscript for publication. All authors take responsibility for the integrity of the data and

the accuracy of the data analysis. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

References

1. Moosavi F GM. Examining the position and attitude towards the child In the young families of Qazvin. Women and Family Studies. 2014; 1(2): 111–134.

2. Adibi M, Arjmand E, Darvishzadeh Z. Assessment of Fertility and Its Influencing Factors Among Kurdish Clans in Andimeshk. Journal of Iranian Social Development Studies. 2011; 1(13): 81–98.

3. Samaii Nasab M, Torabi M. Indicators and population. Policy in Iran. 2010; 27(11): 145–188.

4. Torabi, F. Ghorbani, F. Koochani, F. Comparison of men's and women's attitudes toward childbearing time. Journal Mazandaran Univercity Medical Science. 2017; 27(154): 179–183.

5. Daniluk JC, Koert E. Fertility awareness online: the efficacy of a fertility education website in increasing knowledge and changing fertility beliefs. Human Reproduction. 2015; 30(2): 353–363.

6. Abha Maheshwari., Maureen Porter., Ashalata Shetty, Siladitya Bhattachary. Women's awareness and perceptions of delay in childbearing. American Society for Reproductive Medicine. 2008; 90: 1036–1042.

7. Williamson LE, Lawson KL, Downe PJ, Pierson RA. Informed reproductive decision-making: the impact of providing fertility information on fertility knowledge and intentions to delay childbearing. Journal of Obstetrics and Gynaecology Canada. 2014; 36(5): 400-405.

8. Ruth A. Sanders, Kenda Crozier. How do informal information sources influence women's decision-making for birth? A meta-synthesis of qualitative studies. BMC Pregnancy and Childbirth. 2018; 18(21).

9. Lagan BM, Sinclair M, George Kernohan W. Internet Use in Pregnancy Informs Women's Decision Making: A Web-Based Survey. Birth 2010; 37(2): 106–115.

10. Shieh, C., M.C Daniel, A., KE, I. Information seeking and its predictors in lowincom pregnant women. The Journal of Midwifery and Womens Health. 2009; 54(5): 364-372.

11. Farzandipour M, Meidani Z, Gilasi H. Evaluation Of Healthcare Services Of Medical Universities' Websites In Line With E-Government. Journal of School of Paramedical Sciences, Tehran University of Medical Sciences. 2015; 8(2): 143–153.

12. Hammarberg K, Zosel R, Comoy C, Robertson S, Holden C, Deeks M, Johnson L. Fertility-related knowledge and information-seeking behaviour among people of reproductive age: a qualitative study. Human Fertility. 2017; 20(2): 88-95.

13. Graneheim UH LB. Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. Nurse Education Today. 2004; 24(2): 105–112.

14. Athens L. Naturalistic inquiry in theory and practice. Journal of Contemporary Ethnography. 2010; 39(1): 87-125.

15. Gholami KH Mohammadi SH. Information Interaction of Pregnant Women in Ninisite. Human Information Interaction. 2016; 1(4): 305–318.

16. Talarczyk J, Hauke J, Poniewaz M, Serdynska. Internet as a source of information about infertility among infertile patients. Ginekologia Polska. 2012; 83(4): 250-254.

17. Ojagh Z RA. Content analysis of popular Iranian sites in the field of health From the perspective of persuasion methods in changing smoking behavior. Quarterly Journal of New Media Studies. 2019; 4(16): 264–297.

18. Abolghasempoor R, Yoosefi Z, Rahimi A. Knowledge and attitude of women towards reproductive rights in patients referred to health centers To Tehran, Shahid Beheshti and Iran Universities of Medical Sciences. Journal of the School of Health and the Institute of Health Research. 2007; 5(1): 39–46.

19. Taheri M, Pozhhan A, Mahmoodi M. A comparative study of the population policies of the Islamic Republic of Iran with a number of countries in the organization United Nations. Quarterly Journal of Political and International Research. 2021; 2(46): 56-80.

20. Brittingham S, Corroon M, Britton J, Koomson E, Brittain AW. What's inside matters: an assessment of the family planning content of digital self-care platforms. Reproductive Health. 2024; 21(1): 178.

21. Kemp E, Stevens G, Lister C, Cox S, Norris T, Quinlivan JA. Information work and digital support during the perinatal period: a mixed-methods study. BMC Pregnancy Childbirth. 2024; 24(1): 512.