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Experts' views on the implementation of the prenatal screening decision aid in Iran: A qualitative study

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ABSTRACT

Background & Aim: Patient decision aids are detailed and personalized health education materials that assist patients in decision making. According to expert viewpoints, this study aimed to determine important factors in implementing the prenatal screening decision aid in Iran.
Methods & Materials: In this qualitative study, 24 experts, including seven obstetricians, four information scientists, five managers or policymakers, and eight midwives, were selected using purposive and snowball sampling approaches. Semi-structured interviews were conducted to collect the data between January 2020 and June 2020 in Tehran, Iran. A prenatal screening decision aid was presented to the participants, and we asked them to raise their concerns and thoughts regarding the factors influencing the implementation of patient decision aids. We used MAXQDA 10 and applied conventional content analysis for data analysis.
Results: Two organizational and personal factors themes were identified to implement Iran's prenatal screening decision aids.
Conclusion: We identified the viewpoints of experts regarding major factors in patient decision aids implementation for prenatal screening. Before implementing prenatal screening decision aids in Iran, it would be helpful to consider these organizational and personal factors. Prenatal screening decision aids can provide better information for pregnant women and strengthen their decision-making ability.

Introduction

Patients' participation in decision-making is an important component of clinical governance and could be promoted by providing comprehensive and qualified information (1,2). Patients' participation in health procedures and practices; increases patients' satisfaction, reduces their anxiety, promotes a better understanding of individual needs, and leads to better communication with specialists (3). Patient decision aids (PtDAs) can offer reliable information to patients and help them participate in decision-making. PtDAs improve patients' health literacy, help them make informed decisions, enhance the physician-patient relationship, and facilitate physicians' work (4,5).

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Pregnant women are a special group of health information recipients that need to make informed decisions about health-related issues of the fetus and themselves. Screening tests help them better understand the health status of the fetus and possible birth defects. If specific genetic conditions such as Down syndrome are diagnosed in the screening tests, pregnant women and their families should decide about this situation. This decision is difficult and can endanger the life of the fetus. Therefore, this is essential to access reliable information and the ability to make appropriate decisions in these situations.

PtDAs can provide pregnant women with reliable information and help them in the process of decision-making. According to Ottawa Hospital Research Institute (6), exploring factors influencing the implementation of decision aids to identify barriers and facilitators affecting professionals' use of decision aids and identifying professionals' attitudes and intentions to employ decision aids can improve the exploitation of decision aid. But using PtDAs is not common in Iran, and factors influencing its' implementation have not been identified. Therefore, for in-depth investigation, we used the qualitative method in this study.

This paper reports important factors in the implementation of PtDAs in Iran according to expert viewpoints. The identification of these factors, along with the results of the first phase of this study which was about pregnant women's viewpoints on important factors influencing their use of PtDAs and decision making in prenatal screening (7), leads us to the development of a framework for the implementation of decision aids for prenatal screening in Iran.

Methods

Participants

This study was part of a qualitative study conducted through an in-depth interview in Tehran, Iran, between January 2020 and June 2020. The research setting in this study was the health professionals' workplaces, including public and private hospitals, clinics, faculties, research centers, and midwifery service centers. At the beginning of each interview, the interviewer explained the purpose of the study and ensured the expert's willingness to participate in the interview. We continued interviewing until we reached data saturation, and no new information was obtained. A total of 24 interviews were conducted with seven obstetricians, four information scientists, five managers or policymakers, and eight midwives.

Purposive sampling was performed to select the participants and continued with snowball sampling. At each group, experts were identified according to inclusion criteria and asked to introduce other experts. The inclusion criteria for obstetricians consisted of practicing obstetrics as a medical specialty with at least three years of work experience as obstetrics. The inclusion criteria for information scientists included having a Ph.D. in medical librarianship and information sciences and publications in health literacy or information diffusion and having at least three years of work experience in this field. The inclusion criteria for managers and policymakers were having at least three years of experience in these fields and being the manager or policymaker of maternal health centers or hospitals at the national or regional level. The inclusion criteria for midwives included having at least a BSc degree in midwifery and at least three years of work experience in pregnant women's education and counseling.

Data collection

Semi-structured interviews were conducted to collect the data. The designed prenatal screening decision aid was presented to the participants, and interviews were conducted. The interview guide was designed based on the project's goal and the literature review, and the interviews were conducted about factors that would influence the implementation of PtDAs. All the interview sessions were conducted face to

face. The interviews were also recorded by a voice recorder with the interviewee's permission and then transcribed verbatim. The experts conducted the interviews in a convenient place, and notes were taken during the interviews. The duration of each interview varied from 30 to 90 minutes.

To facilitate data collection during the interviews, some guiding questions were employed. The sample interview guiding questions are as follows:

1. What are the factors influencing the implementation of prenatal screening PtDAs?
2. What individuals and organizations are involved in implementing prenatal screening PtDAs?
3. How can we extend the use of prenatal screening PtDAs?
4. What are the inhibitors and facilitators in implementing prenatal screening PtDAs?
5. When would you use this decision aid in your practice?
6. How would you use this decision aid?

Data analysis and reporting

Consolidated Criteria for Reporting Qualitative Research were used to report results in this research. COREQ is a 32-item checklist for presenting details about the research team, study method and context, results, analysis, and interpretations. (8) One of the authors (RZ) conducted 24 interviews transcribed verbatim, imported into MAXQDA 10, and coded. Data analysis was performed via conventional content analysis provided by Graneheim and Lundman (9) and simultaneously with data collection. The analysis steps were as follows: the texts of the interviews were read several times to gain an in-depth understanding. After that, the data were organized in Semantic units, and the initial codes were extracted according to the study's objectives. Next, the initial codes were classified as sub-categories and categories through continuous comparison of the data. Finally, the relationships were discovered by comparing the categories and sub-categories, and categories were linked to each other by themes.

Rigor

Four criteria proposed by Guba and Lincoln (10) were taken into account to enhance the accuracy and validity of the data. These criteria include credibility, confirmability, dependability, and transferability. The credibility of the research was enhanced by collecting credible information, having sufficient interaction with the participants, and confirming the information obtained from the interviews. A summary of the interviewer's interpretation of the interviewee's statements was provided to the participant after conducting each interview to avoid any misunderstanding (Member checking). We repeatedly reviewed the data, and we did our best to enhance conformability by seeking the approval of faculty members and experts and considering their views and opinions. To improve dependability, the codes were reviewed and modified through external checks. Furthermore, to enhance the transferability of the study, a detailed description of the research process was provided so that the study could be evaluated and applied to other fields.

Ethical consideration

The Ethics Committee approved this study of the Iran University of Medical Sciences (IR.IUMS.REC NO. 1397-1200). Informed consent was obtained before the onset of the interviews, and the participants were reminded of their freedom to withdraw from the interview during recording.

Results

A total of 24 experts, including seven obstetricians, four information scientists, five managers or policymakers, and eight midwives, were interviewed. Most interviewees (37.5%) were aged 46-50 years. Moreover, 75% had a Ph.D. or were medical specialists. Table 1 presents the attributes of the research sample.

Table 1. Demographic characteristics of the participants (n=24)

Characteristics	Items	N (%)
Age	31-35	4(16.67)
	36-40	7(29.16)
	41-45	4(16.67)
	46-50	9(37.5)
Specialty	Obstetrician	7(29.16)
	Midwife	8(33.33)
	Manager or policymaker	5(20.84)
	Information Scientist	4(16.67)
Academic degree	BA[a]/BS[b]	2(8.33)
	MA[c]/MS[d]	4(16.67)
	Ph.D./ Medical specialty	18(75.00)

a. BA: Bachelor of Arts; b. BS: Bachelor of Science; c. MA: Master of Arts; d. MS: Master of Science; e. Ph.D.: Doctor of Philosophy

Overall, two themes of organizational factors and personal factors were identified as important factors in implementing the prenatal screening decision aid in Iran. The themes, categories, and sub-categories are presented in table 2.

Table 2. Themes, categories, and sub-categories of prenatal screening decision aid implementation

No.	Themes	Categories	Sub-categories	Number of codes	Number of individuals
1	**Organizational Factors**	Policy-making and planning	Planning for implementation	10	7
			Integrating the PtDA into workflows	9	4
			Co-implementation	14	11
			Attracting the support of relevant organizations	8	6
			Exploiting the capacity of private hospitals and healthcare centers	7	7
			Motivation for use	12	11
		Notification and advertisement	Notification and advertisement at the right time	9	9
			Notification and advertisement at the right place	20	18
			Using different means for notification and advertisement	6	6
			Social marketing	4	3
		Supervising the implementation	Continuous evaluation	6	4
			Receiving feedback and promotion	4	3
2	**Personal Factors**	Attitudes, knowledge, and skills of pregnant women	Health literacy promotion	8	6
			PtDA exploitation training course	7	4
			Teaching informed and cooperative decision-making	7	5
			Emotion and stress management	9	9
			Trust in the healthcare team	7	4
		Attitudes, knowledge, and support of healthcare team	Acceptance of the decision aid	6	5
			Allocating enough time	15	14
			Counseling pregnant women when presenting the decision aid	3	3

1. Organizational factors

The interviews with experts demonstrated organizational factors that influence the implementation of the prenatal screening decision aid. These organizational factors include three categories of "policy-making and planning", "notification and

advertisement", and "supervising the implementation".

1-1. Policy-making and planning

The use of a program prior to implementation makes the healthcare team and other individuals involved in the implementation process aware of their roles and responsibilities, acting according to a well-specified model and plan. Moreover, to implement the decision aid precisely, the program should enter the workflow of doctors and other healthcare team members contributing to its implementation. The experts also emphasized the importance of organizational support. Some also believed that private hospitals and healthcare centers would be more interested in accepting and implementing this decision aid. Also, the use of gifts and free service provision increases pregnant women's motivation and willingness to use the decision aid. Some quotes from the interviewees are presented below.

"It'd be good if the Ministry would give a plan to the hospitals and centers that wish to implement this project so that they'd know what to do. Otherwise, it may be used for a couple of days and then discarded; or some people who like it may introduce and use it, while others may not." (M 17)

"The first step towards the successful implementation of this project is receiving the consent and support of the Ministry of Health and Medical Education. After that, we should focus on healthcare centers and hospitals."

"There are prominent figures in every hospital. If you can ensure their agreement, everyone working under them will accept the tool." (M 1)

1-2. Notification and advertisement

Introducing and presenting the decision aid at the right time and place will lead to its more effective employment. The notification also can be made about the decision aid by using different means such as the television, social networks, Internet, and posters. Furthermore, through social marketing, the behavior of interest, i.e., informed and cooperative decision-making, can be institutionalized. Some excerpts from the interviews follow:

"The next problem is when the mothers should receive this information. The best time may be the first trimester." (M 14)

"Notification and advertisement for this system and software should be made at healthcare centers, doctors' offices, private and state-run hospitals, and any place a pregnant woman might visit." (M 19)

1-3. Supervising the implementation

According to the experts, continuous evaluation improves the quality of the decision aid and resolves its deficiencies. By receiving feedback from users, its deficiencies and problems can be identified and resolved. Some quotes from the interviewees are presented below.

"It'd help if you could ask the opinion of the doctor, midwife, or the pregnant woman about the system. You can do this in a pilot study, or include "feedback" as a fixed part of your tool." (M 1)

2. Personal factors

The analysis of the interviews demonstrated "personal factors" that influence the implementation of the decision aid. Two categories of "Attitudes, knowledge, and skills of pregnant women" and "Attitudes, knowledge, and support of healthcare team" belonged to this theme.

2-1. Attitudes, knowledge, and skills of pregnant women

Some experts highlighted the importance of health literacy skills awareness for using the decision aid. Also, the PtDA exploitation training course improves the use of PtDA. The requirement for using the decision aid is the patient's awareness of their rights concerning informed decision-making about their conditions and the patients' awareness of the importance of performing cooperative decision-making and its method. Some

experts noted the necessity of teaching stress management and control to pregnant women. Trust in the healthcare team also increases pregnant women's trust in this tool and use it. Some quotes from the interviewees are presented below.

"I believe the higher the women's health literacy, the more they'll be interested in using the decision aid." A person with poor literacy who doesn't know how to solve her problem may use Google and trust any result that shows up. But an informed person doesn't trust everything and knows where and how to get information." (M 11)

"If a pregnant woman trusts the healthcare team, she will be influenced by them and can be encouraged to use the decision aid." (M 18)

2-2. *Attitudes, knowledge, and support of healthcare team*

"Acceptance of the decision aid", "Allocating enough time" and "counselling pregnant women when presenting the decision aid" were the sub-categories for this category. Doctors' and midwives' acceptance of the decision aid is a major factor contributing to its successful implementation. If these people spend sufficient time answering pregnant women's questions, the decision aid will be implemented more successfully. Some quotes from the interviewees are presented below.

"After receiving the test results and using these tools, they still need counselling and notification. Awareness raising is very important in promoting the patients' comprehension and consciousness." (M 8)

"Doctors and midwives may have poor cooperation for any reason; they may have little time or think it's not necessary. They might say, 'We're already doing the same thing.' Because of crowded offices and doctors' workload, their level of cooperation with this project is unknown." (M 8)

Discussion

In the present study, experts' viewpoints on the implementation of PtDAs in prenatal screening were identified. In terms of the organizational factors, different factors were identified. Co-implementation was one solution mentioned in other studies as well. Joseph-Williams et al. stated that a co-produced approach in the development and implementation of PtDA increases a sense of ownership, legitimizes content, and ensures PtDA delivery (11). In the studies by Lin (12), Munro (13), Berry (14), this has been mentioned that if all members of the clinical team and administrative staff are introduced to the PtDAs, they will further support its use and distribution processes. According to our interviews, engaging different staff in PtDAs implementation helps in obtaining better use of PtDAs. Experts believe that if the involvement of the healthcare team increases, the implementation of PtDAs will be more successful. Several studies found that the engagement of the healthcare team and clinical staff increases the use of PtDAs (15-17). These results are consistent with the findings of our study.

According to interviews, gaining organizational support is another solution that can facilitate the implementation of prenatal screening PtDA. The most important organization in Iran for the implementation of prenatal screening PtDA is the Ministry of Health and Medical Education, and obtaining its consent and support is vital. Obtaining organizational support was also implied in Joseph-Williams et al. (11) study, which also noted that attention to shared decision making in organizations helps embed PtDAs in healthcare contexts more successfully. In terms of motivation for using decision aids, the interviewees believed that encouraging clinicians and pregnant women leads to more extensive use of PtDAs. This finding is consistent with those of Joseph-Williams et al. (18) and Koon (19). Finally, exploiting the capacity of private hospitals and health care centers is an important finding of this research, which was not clearly stated in previous studies.

Attention to the time and location of PtDAs presentation is another major factor

in the implementation of PtDAs. Suitable time and location vary for different pregnant women, but the best time is before pregnancy or in the first trimester, according to the interviews. This tool should also be available wherever a pregnant woman is present. This finding is consistent with the findings of Syrowatka et al. (20), stating that patients could use the decision aid at home, working at their own pace, which would allow them to select the order, level of detail and type of information presented. Determining the effect of employing different platforms such as TV, social media, the Internet, and posters for advertisement was another finding of this article mentioned in Shorten et al. (21) and Abbasgholizadeh Rahimi et al. (22) too. Social marketing has also been recognized as a sub-category in our study that aids the implementation of PtDAs, also discussed by Stevens et al. (23)

In terms of the personal factors, health literacy promotion, PtDA exploitation training course, teaching informed and cooperative decision-making, emotion and stress management, and trust in the healthcare team were identified as sub-categories of Attitudes, knowledge, and skills of pregnant women in this study. This finding is consistent with the findings of Shorten et al. (21), mentioning "Create a guide for using PtDAs" and the findings of Lépine et al. (24), stating "teaching the use of PtDAs". Due to a lack of knowledge about shared decision-making and lack of training, one cannot understand why PtDAs should be used (25,26). These findings are consistent with this study that mentioned teaching informed and cooperative decision-making and PtDA exploitation training course improve the use of PtDA.

Attitudes, knowledge, and support of the healthcare team are also important in an exemplary implementation of PtDA. Acceptance of PtDA by experts can influence its successful implementation. This issue has also been addressed by Lépine et al. (24). In the present study, experts stated that shortage of time was a major inhibitor in PtDAs implementation. The experts said that many healthcare teams were interested in using prenatal PtDAs but did not have enough time to do so. This finding is consistent with the findings of Yu (27) and Portocarrero et al. (28), who also mentioned lack of time as a barrier. Allowing enough time to train health professionals has also been mentioned by Jones et al. (29). Counselling pregnant women when presenting the decision aid is another solution for better PtDAs implementation, reported by experts in this study. This can be done in person or through phone calls or online question and response systems. Making a phone call for tracking and question and response systems have been used and mentioned in the study of Belkora et al. (30). According to Wilson (31), interactive activities can reinforce the comprehension and personalization of PtDAs. Furthermore, Pieterse et al. (32) held that interactive PtDA could help identify the attributes of the tools, leading to a preference shift.

Study limitations

The number of experts who were familiar with PtDA was limited, and this drawback led to experiencing a difficult and time-consuming sampling. In addition, the study sample was selected from experts living in Tehran, and interviewing experts from other cities was not possible. Thus, we missed the opinions of experts from other cities. Also, when conducting part of the interviews, Iran was involved in Covid-19, and face-to-face interviews were a challenge.

Conclusion

We identified the viewpoints of experts regarding major factors in PtDAs implementation for prenatal screening in Iran. Organizational factors and personal factors were identified for implementing the prenatal screening decision aids. In the future, we plan to develop a framework for designing and implementing decision aids for prenatal screening in Iran, which will

help pregnant women make better prenatal screening decisions through PtDA.

Application findings and recommendation

The current study's findings are applicable to policymakers, hospital managers, and those who want to implement prenatal screening PtDA. Moreover, obstetricians and midwives can use these findings for the better implementation of PtDA. Also, information scientists can play their role by considering requirements like health literacy promotion and social marketing to successfully implement PtDA.

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Conflict of interest

The authors have no conflict of interest.

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