

RESEARCH ARTICLE

Women's Satisfaction with the Provision of Prenatal Service by the Care Providers: A Cross-Section Analytical Study

Zahra Ganji¹, Masoumeh Simbar^{2,*}, Shahnaz Tork Zahrani¹, Nasrin Borumandnia³ and Zahra Kiani⁴

¹Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran; ²Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran; ³Urology and Nephrology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran; ⁴Midwifery and Reproductive Health Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Abstract: Background: Assessment of women's satisfaction with the quality of prenatal care (PNC) services leads to identifying the needs and planning the appropriate interventions for quality improvement. This study aimed to assess women's satisfaction with the provision of prenatal service by the midwife and non-midwifery PNC providers and the related factors.

Methods: This was an analytical cross-sectional study on 200 pregnant women for prenatal care services. The participants were recruited using a multi-stage sampling method. The tools for data collection were a demographic and fertility questionnaire and a questionnaire for the assessment of clients' satisfaction with the quality of prenatal care services. The questionnaires were completed by the participants in their last weeks of pregnancy and following six PNC visits. T-tests, ANOVA, Pearson's correlation, and multiple linear regression tests were conducted using SPSS-24 to analyze the data.

Results: The total score of satisfaction with the quality of PNC services was 68.99 ± 9.54 percent. There was no significant correlation between the women's satisfaction with demographic and fertility variables ($p > 0.05$). However, the T-test showed that women's satisfaction with the care provided by midwives is significantly higher than that provided by non-midwifery personnel. Multiple linear regression showed that providing PNC by the midwives substantially increases the total satisfaction score by 42.48 compared to the non-midwifery personnel.

Conclusion: Providing PNC by midwives increases satisfaction compared to non-midwife PNC providers. Therefore, the provision of care during pregnancy by midwives who are specifically trained for perinatal care services is emphasized to improve women's satisfaction and the quality of PNC services, which is necessary to reduce mortality and maternal and neonatal complications.

Keywords: Prenatal care, quality of care, satisfaction, midwife, health provider, maternal and neonatal complications.

1. INTRODUCTION

Reducing the global maternal mortality rate to less than 70 per 100,000 live births by 2030 through quality reproductive healthcare services is emphasized in Goal 3 of the Sustainable Development Goals (SDGs) [1]. In 2020, 287000 women died during and following pregnancy and childbirth. The vast majority occurred in low-resource settings, and most could have been prevented, such as excessive blood loss, infection, high blood pressure, unsafe abortion, and heart disease [2]. Providing appropriate care by skilled health personnel in sexual and reproductive health care before, during, and after childbirth can save the lives of

women and newborn babies [3]. Quality perinatal care is the best and most effective way to ensure maternal, fetal, and neonatal health [4].

Although maternal mortality is a sensitive indicator in assessing the impact of perinatal quality of services [5], an assessment of the quality of perinatal services is necessary to determine the need for improving perinatal care services [6, 7]. According to the Donabedian model, the quality of health care can be assessed by three components that are relevant for organizations: structure (*i.e.*, requirements of the organization), process (*i.e.*, actions to be taken), and outcome (*i.e.*, results). Structure is defined as the setting in which health care is provided (*e.g.*, facilities, equipment, numbers, and qualification of personnel); process, as what is done in giving and receiving care (*e.g.*, patient and doctor activities, doctor-patient communication and information); and outcome, as the consequence of the provided health care

*Address correspondence to this author at the Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran; E-mail: msimbar@gmail.com

(e.g., health status, satisfaction, and costs) Quality of health care is based on different aspects of these three categories and their relationships. Donabedian says, "A good structure increases the likelihood of good process, and good process increases the likelihood of good outcomes" [8].

Client satisfaction is a dimension of the quality of health services [9]. Satisfaction means the feeling that is created in a person when the need, expectation, or desire is met [10]. It is a main pillar of the quality of health services, including maternity services [11]. Maternal satisfaction can increase the number of mothers who follow the treatment procedure. Factors such as counseling and communication by trained personnel in a proper physical environment can improve clients' satisfaction [12, 13]. Therefore, clients' satisfaction is one of the main outcomes of quality-of-care procedures and structure.

Maternal satisfaction with perinatal services is one of the most important indicators of the quality of the services and is of special importance during pregnancy [14]. Client satisfaction with services is always one of the most important issues in medical sciences around the world, and pregnant mothers, one of the most important and basic target groups, have always been given special attention [13, 15]. Assessment of maternal satisfaction and its related factors is important because it reflects the quality of care during delivery and identifying the contributing factors is a proxy measure to improve the quality of care. Besides, maternal satisfaction influences the perinatal outcomes. High satisfaction with the quality of maternal care helps women in the planning of maternity care [16].

Several studies have examined mothers' satisfaction with the structure and process of health services. The results showed that easier access to service providers, respectful care, short waiting duration, and increased time for the provision of services by health providers are predictors of satisfaction with prenatal care [17]. A study in Canada showed less satisfaction from clients about the information received during the consultation and the organizational aspects of antenatal care [18].

A study in Iran on PNC women's satisfaction assessment showed less dissatisfaction with prenatal education and educational aids. The lowest level of satisfaction was related to the adequacy of the medical education and the distance between the health unit and home. Dissatisfaction was associated with waiting duration and keeping privacy during counseling [6]. Another study on PNC clients in Iran also showed the lowest level of satisfaction was related to the adequacy of medical education and the distance between the health unit and home [19]. Recent studies showed that PNC clients are expected to receive care from "competent prenatal care providers" who have professional skills and communication skills, and proper individual characteristics in the centers with appropriate personnel, facilities, and management systems [20, 21].

After planning and implementing the "Health Sector Evolution Plan" in Iran, the provision of primary health services was assigned to the "Health Care Team." This plan aimed to provide higher quality and coverage of primary health services in Iran. In this plan, the members of the

"Health Care Team" were introduced as the multi-task personnel who were responsible and able to provide all the tasks, including 4 groups of individuals, general, medical, and special services. The members of the "Health Care Team" are the center manager, a family health care provider, an occupational / or environmental health provider, a nurse, a midwife, and a general practitioner. The "Family Health Care Provider" is a person with an educational and professional background in the field of family health, public health, nursing, midwifery, or disease control who is trained for 147 hours to be prepared to provide care as a "Family Health Care Provider." [22, 23]. Healthcare programs, especially new perinatal care programs, need to be evaluated to identify challenges and take steps to improve the care procedures [24]. Client satisfaction assessment is an important strategy to find the needs for quality improvement in health services [25-27].

Since the members of the "Health Care Team" are the multi-task personnel and are responsible for providing all the tasks, sometimes PNC is provided by non-midwife members. At the same time, midwives are trained in university for 4-years and are specialized scientifically and practically to provide PNC services. Midwives are one of the core elements of the health workforce. They have demonstrated a role in the health of women and newborns [28]. It is documented that midwifery-led models of care can avert two-thirds of maternal and neonatal deaths and stillbirths [18]. Therefore, non-midwifery personnel of the "Health Care Team" may not have the PNC competencies as much as midwifery personnel. Given the importance of perinatal care and its impact on reducing maternal-fetal mortality and morbidity, and considering that there is no survey on women's satisfaction with the quality of perinatal care services in public PNC services in Iran, after the implementation of "Health section evolution Plan" and providing the perinatal services by the "Family Health Care Provider," this study aimed to assess women's satisfaction with the provision of prenatal service by the midwife and non-midwifery PNC providers and the related factors.

2. MATERIALS AND METHODS

2.1. Design of the Study

This was an analytical cross-sectional study in Aligoudarz-Iran.

2.2. The Participants

The study was performed on 200 pregnant mothers who were referred to the health centers of Aligoudarz-Iran to receive PNC services. They were literate pregnant women who visited the PNC services at least 6 times, had a record at the health center, and had no history of depression or other mental disorders.

2.3. Sampling

Total sample size $N = [(Z\alpha + Z\beta)/C]^2 + 3 = 194$, with α (two-tailed) = 0.05, $\beta = 0$. and $r = 0.20$ [21], and considering the standard normal deviate for $\alpha = Z\alpha = 1.96$, the standard normal deviate for $\beta = Z\beta = 0.84$ and $C = 0.5 * \ln[(1+r)/(1-$

r)] = 0.202. Considering a 2 percent dropout rate, the adjusted sample size was calculated 200.

The sampling was performed using a multi-stage sampling method. All seven health centers of Aligoudarz-Iran were selected for sampling. Then, using the quota sampling method, the total calculated sample was divided between the centers, depending on the proportion of clients in each center. At that time, sampling was performed at each center and was randomized by Excel random option based on their midwife and non-midwife PNC providers. This was an analytical cross-sectional study and we used a multi-stage sampling with a randomization in the last stage that is recommended because every member of the population has the same probability of being randomly selected into the sample [29].

2.4. Tools for Data Collection

Data was collected using two questionnaires: 1) a Demographic and fertility questionnaire and 2) a questionnaire to assess Maternal Satisfaction with the Quality of PNC Services.

2.4.1. Demographic and Fertility Questionnaire

This questionnaire had 12 items about women's age and job, spouse's age and job, duration of marriage, number of live births, number of abortions, household income status, and type of PNC provider.

2.4.2. Maternal Satisfaction with Quality of PNC Services Questionnaire

This questionnaire has 6 dimensions in two sections, including Satisfaction with (1) the Quality of the Structure of PNC Services (including Equipment and Physical Environment) and (2) the Quality of the Maternal Care Processes (History taking, clinical examinations, education and counseling, and communication of client with the provider). The number of items of the 6 dimensions of satisfaction with PNC services and their range of scores are as below:

- 1) The physical environment (14 questions; Ranges 14-70);
- 2) The equipment (10 questions; Ranges 10-30);
- 3) The history taking (12 questions; Ranges 12-60);
- 4) The clinical examinations (10 questions; Ranges 10-50);
- 5) The education and counseling (15 questions; Ranges 15-75);
- 6) The communication of the client with the PNC provider (15 Items, Ranges 15-45).

The items of all dimensions were scored from 1 to 5 for completely to completely satisfied, except the equipment and the communication, which were scored from 1 to 3 for dissatisfied to satisfied.

The scores of each dimension of maternal satisfaction were calculated and then converted to percent using the following formula: $[(X - \text{minimum Score}) / (\text{Maximum} - \text{minimum Score}) \times 100]$. The higher scores show more maternal satisfaction with the quality of PNC services. To calculate the total score, the scores of all dimensions based on 0-100 were summed up and divided into 6.

This questionnaire was a modified version of a valid and reliable questionnaire for assessing women's satisfaction with the PNC services of Simbar *et al.* [6]. The validity and reliability of this questionnaire were reviewed and confirmed after modification as below:

The content validity of the questionnaire was investigated by 14 faculty members of Midwifery and reproductive health at Shahid Beheshti University of Medical Sciences. The scale validity index (S-CVI) and ratio (S-CVR) were 0.99 and 0.93, respectively. The face validity of the questionnaire was also evaluated and approved by 5 eligible women. The internal consistency of the questionnaire was calculated using Cronbach's α coefficient 0.78, 0.78, 0.81, 0.77, 0.74, and 0.87 for 6 dimensions of the questionnaire, including satisfaction with providers' communication, physical environment, history taking, clinical examinations, equipment, education, and counseling, respectively, and the internal consistency of this questionnaire was 0.79. Test-retest reliability assessment on 30 clients of the questionnaire confirmed the stability of the questionnaire with a Spearman correlation coefficient of 0.95.

2.5. Ethics Approval and Consent to Participate

The study has been conducted according to the Declaration of Helsinki, and the subjects have read and signed the informed consent. The objectives of the study were explained to all participants. They were also explained about the confidentiality of their responses. A written consent was then obtained from all participants. The approval of the Ethics Committee of Shahid Beheshti University of Medical Sciences was received with the ethical code IR.SBMU.PHARMACY.REC.1399.310.

2.6. Data Analysis

Data were analyzed using the SPSS version 24. Descriptive statistics were used to describe the level of satisfaction for statistical analysis in this study, including the mean and standard deviation. Additionally, to compare the groups that received services from midwives and non-midwives, a t-test was employed for within-group comparisons, and ANOVA was used for between-group comparisons. Pearson's correlation coefficient was calculated to assess the correlation, and multiple linear regression was applied to measure regression.

3. RESULTS

Two hundred pregnant women aged 28.77 ± 5.8 (mean \pm SD) years participated in the study. 58% of women had an academic education, 71.5% were housewives, 50% were experiencing their first pregnancy and 49% were married for less than 5 years. Other demographic and pregnancy information is presented in Table 1.

The findings showed that the lowest level of maternal satisfaction was related to the communication between the service provider and the client (Table 2).

Fig. (1) shows the Mean scores of satisfaction of clients with the different dimensions of provided prenatal care services. The results showed that the lowest satisfaction with

Table 1. Demographic and fertility characteristics of the participants (n= 200).

Variable		Mean \pm SD
Age (Years)		28.77 \pm 5.8
Husband's age (Years)		32.22 \pm 5.14
-		N(%)
Education	Under diploma	15(7.5%)
	Diploma	69(34.5%)
	University	116(58%)
Husband's Education	Under diploma	8(4%)
	Diploma	82(41%)
	University	110(55%)
Occupation	Housewife	143(71.5%)
	Employed	57(28.5%)
Husband's Occupation	Unemployed	18(9%)
	Employed	182(91%)
Income	Up to one million	22(11%)
	Up to 2 million	43(21.5%)
	More than 2 million	135 (67.5%)
Number of pregnancies	1	100(50%)
	2	61(30.5%)
	3	36(18%)
	4 and more	3(1.5%)
History of marriage	Less than three years	98(49%)
	4-5 years	53(26.5%)
	More than 5 years	49(24.5%)
Number of abortion	No	182(91%)
	yes	18(9%)
Number of living child	No	140(70%)
	1	42(21%)
	2 or more	18(9%)
Prenatal care provider	Midwife	100(50%)
	Non-midwife	100(50%)

communication with the provider is related to providing care in a private environment, encouraging the client to ask questions, and providing respectful care (Fig. 1A). Also, the lowest scores with the history taking were about getting information about infectious diseases, domestic violence, and then tobacco, alcohol, and drug use (Fig. 1B). In addition, the lowest satisfaction of women with the clinical exams was connected to temperature and respiration rate measurement, as well as the general physical exam (Fig. 1C). Also, the results demonstrated the lowest scores of

satisfaction with the education and counseling were about sexual health, complications during pregnancy, and regular holding of prenatal classes (Fig. 1D). The lowest satisfaction with the physical environment was about the privacy of the counseling and the examination room, and adequate and clean toilets (Fig. 1E). Besides, the findings showed the lowest satisfaction with the equipment was linked to the clients' covering exam drape sheets, thermometers, and napkins to wipe ultrasound gel (Fig. 1F).

Table 2. Women's satisfaction with different dimensions of prenatal care services.

Satisfaction	Score (0-100)	
Dimensions	Mean	SD
Communication of the client with the service provider	60.58	13.57
History Taking	76.33	14.4
Clinical examinations	66.43	14.41
Education and counseling	73.15	13.7
The Physical Environment	63.63	8.08
The Equipment	70.1	6.28
Total	68.99	9.54

**Fig. (1).** Mean scores of satisfactions of clients with the different dimensions of provided prenatal care services (A-F). (A higher resolution / colour version of this figure is available in the electronic copy of the article).

Table 3. The comparison between the women's satisfaction with the provided care by midwives and non-midwifery prenatal care providers.

Satisfaction Dimensions	Care Provider (Mean \pm SD)		P-Value Mann-Whitney
	Midwife	Non-Midwife	
Communication with the provider	79.04 \pm 7.48	68.4 \pm 7.81	0.001
History Taking	90.03 \pm 6.3	71.93 \pm 7.83	0.001
Clinical examinations	81.1 \pm 5.6	62.95 \pm 9.59	0.001
Education and counseling	85.92 \pm 7.64	69.3 \pm 8.02	0.001
The Physical Environment	71.13 \pm 5.37	70.81 \pm 6.86	0.79
The facilities and equipment	80.47 \pm 3.99	79.67 \pm 4.35	0.273
Total satisfaction	81.61 \pm 4.02	69.65 \pm 4.96	0.001

Table 4. Relationship between PNC women's satisfaction with demographic and gestational variables.

Variables	Clients Satisfaction	
	Test	Value p
Age	Pearson Correlation; $r=0.074$	0.848
Husband age	Pearson Correlation; $r=0.010$	0.685
Income	ANOVA; $F=0.212$	0.821
Education	ANOVA; $F=0.593$	0.539
Husband education	ANOVA; $F=2.343$	0.112
Job	T Test; $T=0.194$	0.869
Husband job	T Test; $T=-0.011$	0.981
Number of pregnancy	Spearman Correlation; $r=0.013$	0.86
Time of marriage	ANOVA; $F=0.393$	0.79
Number of abortions	T-test; $T=-0.556$	0.829
Number of living children	ANOVA; $F=1.355$	0.222
PNC midwife and non-midwife provider	T-test; $T=18.725$	0.001

The comparison between the women's satisfaction with the provided care by midwives and non-midwifery showed that the women's satisfaction with all provided care procedures, including communication, history taking, clinical exam, and education, were significantly higher by midwives compared to non-midwife providers. However, their satisfaction with the physical environment and the equipment was not significantly different between the two groups (Table 3).

The relationships between the women's satisfaction with demographic and fertility variables were analyzed and the only relevant variable was the providers. T-test showed that women's satisfaction with the provided care by midwives is significantly higher than that provided care by non-midwives (Table 4).

Regression analysis showed that only PNC providers can significantly predict satisfaction women's satisfaction with the provision of prenatal care services. The finding demonstrated that providing PNC by a non-midwife can reduce women's satisfaction by 42.480 (Table 5).

4. DISCUSSION

This is the first report of women's satisfaction with PNC services after implementing the "Health Sector Evolution Plan." In 2015 in Iran, the provision of primary health services was assigned to the "Health Care Team."

The findings showed that the lowest level of the client's satisfaction was related to the client's communication with PNC providers. The three items with the lowest scores in this dimension were "providing care in a private environment," "encouragement of the client to ask questions," and

Table 5. Multiple regression of the predictivity of women's satisfaction with the provision of prenatal care services by the midwifery and non-midwifery prenatal care providers.

Variables	Unstandard	SD	Standardized B	P-Value
Constant	332.210	3.587	-	<0.001
Health provider (reference): midwife	-0.0875	2.269	-.0.799	<0.001

“providing respectful care”. It seems that reasons such as the lack of a separate room for PNC care and counseling and the various and huge tasks of the health care team can affect the quality of the provider-client communication. Low-quality client-provider communication in PNC services was found in previous studies [6, 30]. The results showed that clients were dissatisfied with their privacy, and providing a private environment is a client right [31]. It has also been shown that a lack of compassionate and respectful care affects client satisfaction with perinatal services in Ethiopia [32].

Assessment of the client's satisfaction with the physical environment of PNC services also demonstrated the most important reasons for dissatisfaction include the “privacy of the counseling and examination room” and “adequate access to hygienic toilets.” Other studies also revealed the PNC client's dissatisfaction with the physical environment of PNC services in Iran [33, 34]. Providing private rooms for PNC counseling and exams is essential and was emphasized in different studies on Iran's PNC services [35]. Therefore, providing an appropriate PNC physical environment can be effective in the mother's satisfaction with PNC services [27, 33, 35]. Besides, providing private physical environments for PNC counseling and physical exams is highly important because sexual and reproductive health issues are the most private and confidential issues of clients [27, 36]. In addition, attention to the construction of toilets and their cleanliness has become a global challenge in recent years [37].

The results also demonstrated low satisfaction of clients with clinical exams such as “temperature and respiration rate measurement” and “the general physical exam.” PNC quality assessment in the Tehran-Iran public health center also demonstrated similar results [6]. It seems that PNC providers pay more attention to pregnancy-related exams, such as Leopold maneuvers or fetal heart assessment, and pay less attention to general exams, such as temperature and respiratory rate assessment. This challenge can be due to the high number of clients and low number of providers, which can jeopardize the timeliness of these measurements [4, 38]. Measuring vital signs is necessary for PNC visits, and in crowded conditions, fast measurement can be considered for low-risk pregnancies.

Low satisfaction with the equipment was indicated regarding “client's covering exam drape sheets,” “thermometer,” and “Napkin to wipe ultrasound gel.” Similar findings are shown in PNC services of Ahvaz-Iran [39]. It should be emphasized that providing adequate sheets is highly necessary for the PNC services that mostly all clients are required

for abdominal and sometimes vaginal exams in an environment that does not have enough room or partitions and even paravan. Therefore, for public PNC clinics that do not have enough room and paravan, providing adequate sheets is highly essential to keep the client's privacy during PNC-related exams [40]. Furthermore, considering enough budgets to buy napkins and making them available for clients to wipe, ultrasound gel seems to be essential.

The lowest satisfaction levels with counseling and training domain were related to “counseling about sexual health,” “complications during pregnancy,” and “regular holding of prenatal classes.” The results are consistent with the findings of Simbar and colleagues in Tehran-Iran PNC services that showed no regular classes for PNC clients and the need for sexual health counseling [6]. However, holding regular educational classes about risks during pregnancy, such as bleeding/spotting, premature membrane rupture, and decreasing fetal movement; as well as education about common complications during pregnancy, nutrition, vaccination, breastfeeding, preparation for childbirth, and neonatal care during PNC are considered in the national guideline for public PNC services. These preparation classes lead to women's empowerment in perinatal self-care [41]. It is also recommended that these classes be provided for couples to improve paternal participation in perinatal care [42, 43]. A study in a qualitative study in the Netherlands showed that the main strategies to improve the quality of PNC services include more continuity of the care provider during the prenatal, natal, and postnatal periods, more information and information specifically tailored for the person, client-centered communication, and a personal approach with enough time spent per client [44, 45].

The lowest scores of women's satisfaction with the process of history taking were related to taking history about infectious diseases, domestic violence, and then tobacco, alcohol, and drug use. Because infectious diseases such as COVID-19 have a great impact on the health of the mother and the fetus, they can cause negative consequences on the fetus, and it is important to be assessed in history taking [46]. PNC quality of care assessment in Tehran-Iran also showed low scores for history taking about domestic violence as well as tobacco, alcohol, and drug abuse [6]. There is no doubt that these high-risk factors have adverse effects on pregnancy outcomes such as low birth weight, abortion, and preterm labor [47]. Since domestic violence has significant impacts on the health and quality of life of women and their families, screening in prenatal care in PNC is very important, and the intervention for empowering women to re-

duce violence or an appropriate referral system is highly required [48, 49]. It is also demonstrated that women with high-risk behaviors (*i.e.*, tobacco-, alcohol, and drug use) not only associate with adverse consequences such as the risk of miscarriage, premature birth, low birth weight, stillbirth, and sudden unexpected death in infancy but also decrease the PNC visits, while adequate PNC provision during pregnancy has been shown to reduce maternal and fetal mortality and morbidities [50].

The comparison between the women's satisfaction with the provided care by midwives and non-midwifery showed that the women's satisfaction with all provided care procedures, including communication, history taking, clinical exam, and education, were significantly higher by midwives compared to non-midwife providers. Midwives are health personnel who are specially trained to provide maternal-fetal and neonatal care [27]. Evidence shows that midwifery-led models of care can avert two-thirds of maternal and neonatal deaths and stillbirths [18]. In addition, the World Health Organization has a special emphasis on the continuous midwifery model of care to improve the quality of services and the satisfaction of mothers. However, the implementation of these services can face challenges [51]. However, these challenges can be overcome in all countries, especially Iran [52]. The success of providing continuous midwifery-led care was indicated in Iran and other countries [53]. Therefore, the use of non-midwifery for PNC services not only reduces satisfaction but also the quality of care and increases the probability of maternal, fetal, and neonatal morbidity and mortality [53].

The results showed no relationship between the women's satisfaction with maternal age and occupation, spouse's age and occupation, family's income, number of pregnancies, and number of abortions. However, the satisfaction of women who receive care from midwives was significantly higher than women who receive care from non-midwives. Midwifery graduates are not only educated to provide professional PNC services but also trained to communicate with pregnant mothers [54]. Midwifery personnel are skilled in providing PNC counseling and services [55]. They also should learn to provide ethical and respectful perinatal care and counseling. Midwives play an important role in counseling, which requires listening skills and a sense of companionship to increase the confidence of pregnant mothers [56]. However, a study on the influential factors on job motivation among midwives as healthcare providers in the Iranian health sector evolution plan showed that low income, heavy workload, stress, and unrelated tasks to midwifery reduced job motivation and increased the tendency to quit in the healthcare midwives [57]. Therefore, it seems that the provision of care during pregnancy by midwives improves the satisfaction of mothers and the quality of the services, but some reforms are necessary for the Iranian health sector evolution plan to facilitate the provision of PNC services by midwives [51].

We assessed the women's satisfaction with the PNC services as an outcome of PNC services. Women's satisfaction with the services is described as a strategy for quality assurance. In this strategy, clients can report their opinion about

the structure and process of care (both technical and interpersonal) and its outcome and to rate the quality of the care they received and their satisfaction with it. The strengths of this strategy are that it can investigate such aspects of patient experience as access to care, amenities of care, interpersonal and technical aspects of care, health status, understanding of instructions, experience in comparison to expectations, and unmet needs. Satisfaction questionnaires that are sensitive to specific elements of care and change over time can be a valuable way of documenting improvement and excellence. However, the limitation of this strategy is the ability or inability of patients to judge the technical quality of care. Surveys also have the potential to disrupt the provider-client relationship. Survey data have not generally been given high priority in the past as sources of quality information or as forces for change within healthcare organizations. However, more recently, proponents of continuous improvement have placed increased emphasis on knowing the needs of those served, whether patients or other "customers" [58].

The Health Sector Evolution Plan was launched in Iran in 2015 [59]. It included different interventions to increase population coverage of basic health insurance and increase quality of care. However, Healthcare providers' concerns potentially threaten the sustainability and efficiency of the plan [60]. For example, a qualitative study about Iranian health system reform showed six themes of decreased trust of the caregivers, wasting caregivers' time in the health units, increased provision of services to the caregivers, decreased motivation for work, occupational burnout, and a sense of petition in the care providers [33]. In the present study, the client's satisfaction with PNC services was assessed after the health sector evolution plan was assessed. Three key points seem to be highlighted. Firstly, the results of the study showed similar findings from the quality of PNC assessment in previous studies, so it seems this plan did not lead to improved quality of PNC services in public settings. Secondly, providing care by health care teams in different settings, especially in public PNC settings, needs continuous evaluation and feedback for quality improvement because maternal mortality and morbidity can be increased by decreasing the quality of PNC services. Thirdly, using non-midwifery personnel for PNC services can decrease the quality of care. Besides, using midwifery personnel who are specifically trained for perinatal care and counseling and non-perinatal services wastes time and expertise, so it is not a cost-effective procedure in the health system and needs immediate reform.

In the present study, women's satisfaction was investigated based on routine and standard prenatal care, while women's satisfaction and even psychological condition can be impacted by a special condition, such as during the COVID-19 epidemic [61, 62], especially when some services should be provided based on the special condition such as giving online care and counseling services. Therefore, future studies are suggested to be concentrated on women's physical and psychological health as the outcomes of the quality of maternal care in special condition.

CONCLUSION

Client satisfaction is an outcome of the quality of health service, and its relationship with quality of care and structure of the services were shown in the previous studies. The women's satisfaction with all provided care procedures, including communication, history taking, clinical exams, and education, was significantly higher by midwives than by non-midwife providers. Therefore, the provision of care during pregnancy by the midwife improves the satisfaction of mothers and the quality of the services. Continuous evaluation and feedback for reforming and quality improvement of providing care by health care teams in perinatal care is highly recommended, as maternal mortality and morbidity can be increased by improving the quality of PNC services.

AUTHORS' CONTRIBUTION

ZG, MS, and STZ developed the project and designed the concept and study. ZG and MS contributed to the study design and managed data analysis. MS, STZ, and NB, and ZK prepared the first and revised drafts of the manuscript, edited critically the manuscript. ZG, MS, and ZK contributed to the preparation of the questionnaire and data collection. All authors have read and approved the manuscript and have agreed on the final manuscript and all tables.

LIST OF ABBREVIATIONS

CVI	=	Content Validity Index
CVR	=	Content Validity Ratio
PNC	=	Prenatal Care
SDGs	=	The Sustainable Development Goals

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

The approval of the Ethics Committee of Shahid Beheshti University of Medical Sciences, Iran was received with the ethical code IR.SBMU.PHARMACY.REC.1399.310.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent was read and signed by all participants.

STANDARDS OF REPORTING

STROBE guidelines are used.

AVAILABILITY OF DATA AND MATERIALS

All relevant raw data will be freely available to any scientist wishing to use them for non-commercial purposes

without breaching participant confidentiality. The datasets generated and/or analyzed during the current study are not publicly available because sending the data requires permission from the university, but they are available from the corresponding author upon reasonable request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

The authors express their gratitude to all participants of the study as well as the authorities of the Health Departments of Lorestan University of Medical Sciences. We also thank the deputy of research and the deputy of research at Shahid Beheshti University of Medical Sciences for their support of this project.

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