



ORIGINAL RESEARCH

Women's Knowledge and Opinions on Midwife-Led Continuity Preconception Care and Counseling

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ABSTRACT

This study was aimed at determining the knowledge and opinions of women about the midwife-led continuity preconception care and counseling (MLCPCC). The research is of descriptive type. The sample of the study consisted of 178 women aged 18-49 years. The study data were collected online the Personal Information Form and Form to Assess Women's Knowledge and Opinions of MLCPCC. Of the women participating in the study, 29.2% were in the age group of 30-34 years, 70.2% were married, 75.3% were at least university graduates, and 12.9% received preconception care and counseling. Of those who received preconception care and counseling, 6.7% received preconception care and counseling from midwives. The mean score the participants obtained from the Form to Assess Women's Knowledge and Opinions of MLCPCC was 41.97 ± 9.22 (Min-Max: 0-48). The participants' descriptive characteristics and pregnancy experience-related characteristics did not affect the scores they obtained from the Form to Assess Women's Knowledge and Opinions of MLCPCC ($p > 0.05$). Although most of the participants were higher education graduates, they did not receive preconception care and counseling, which is quite surprising. The fact that the mean scores they obtained from the Form to Assess Women's Knowledge and Opinions of MLCPCC were high suggests that they supported MLCPCC, which plays a significant role in the development of women and community health.

Introduction

In many parts of the world, midwives are perceived as the primary care providers of women of reproductive age (ten Hoope-Bender et al., 2014). According to the World Health Organization, Midwife-Led Continuity Care is defined as the provision of care and counseling to women in line with their needs by the same midwife or midwife group (WHO, 2016). In the Midwife-Led Continuity Care model, midwives take part in the planning, organizing and providing of the care from the start of preconception to the postnatal period as pioneering professionals (Czeizel, 2012; Sandall et al., 2016). One of these midwife-led care services provided in every period of the life of women is preconception care and counseling (Czeizel, 2012).

Preconception care is the primary protective health care that supports the preparation of women for pregnancy and the healthy maintenance and termination of pregnancy, and is aimed at contributing to new generations' being made up of healthier individuals (Beckmann et al., 2014; Shawe et al., 2015). It is known that preconception care creates a preliminary preparation for a healthy pregnancy which reduces mortality and morbidity rate among mothers and babies during labor and postpartum, increases mother and infant health in high- and low-income countries, prevents unwanted and unplanned pregnancies, and contributes to the development of fertility awareness and pregnancy planning culture (Karakaya and Coşkun, 2013; Dean et al., 2014; Başı and Aksu, 2018). Within this context, it is thought that midwife-led continuity preconception care and counseling (MLCPCC) can contribute to the improvement of women's health. In this approach, midwives advocate the rights of women, plan their care by assessing their needs, provide training and counseling to them, and refer them to appropriate units when necessary (Czeizel, 2012; Beckmann et al., 2014; Shahid et al., 2014; Sandall et al., 2016).

In MLCPCC, the aim is to increase women's satisfaction by focusing on holistic and humanistic principles. According to the philosophy of such care and counseling, the woman is in the center and benefits from individualized care services uninterruptedly (Sandall et al., 2016; WHO, 2016). For instance, in some countries such as Australia, New Zealand, the Netherlands, England and Ireland, pre-pregnancy, pregnancy, birth and postpartum services are carried out uninterruptedly under the leadership of midwives (Shahid et al., 2014; Shawe et al., 2015; Sandall et al., 2016). In studies conducted on Midwife-Led Continuity Care (MLCC), it was reported that women used less painkillers, that episiotomy, caesarean section and perinatal mortality rates and women's fear and stress levels decreased, that spontaneous birth rates increased, that women had high levels of sense of control and satisfaction at birth and during the postpartum period, and that not unnecessary interventions but natural methods were supported (ten Hoope-Bender et al., 2014; Forster et al., 2016; McLachlan et al., 2016; Sandall et al., 2016; Wiegerinck et al., 2018; Hanahoe, 2020; Vincent et al., 2022).

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Organization maintain the view that when women are reached before pregnancy, their preconception knowledge, attitudes and behaviors should be improved and all women of reproductive age should be able to receive healthcare both of which are among the objectives of preventing the complications likely to occur after birth (WHO, 2013; ACOG, 2019; CDC, 2022). Within this context, it is thought that MLCPCC can support the goals aimed at developing the health of women in particular and that of community in general, and that it can make positive contributions to the mother-child health. Midwife-led continuity care model which has been proved to have both individual and social benefits by several studies should be used in preconception care and counseling and women's awareness of its benefits should be raised. Thus, studies in which women's knowledge and opinions about MLCPCC are determined should be conducted. The present study was conducted to determine women's knowledge and opinions about the midwife-led continuity preconception care and counseling.

Material and Methods

Aim and Type of Research

This study was conducted to determine women's knowledge and opinions on midwife-led pre-pregnancy care and counseling. The research is descriptive in type.

Research Population and Sample

The population of this descriptive study comprised women of reproductive age who were registered in three family health centers in a province located in the Central Anatolian region of Turkey, were selected by the lottery method, were in the age group of 18-49 years, accepted to participate in the study, were not pregnant, had no psychiatric/psychological diagnosis, who had internet access, were able to use the internet, a computer, tablet and/or smartphone, had neither communication nor language problems. The number of 18-49-year-old women of reproductive age who were registered in the aforementioned family health centers was 17,899. The minimum sample size of the study was calculated as 163 using the OpenEpi Version 3 program ($N: 17899$, $p: 50\% \pm 5$, confidence limits (d) $= \pm 0.05$, confidence level: 80%) (Dean et al., 2021). Considering the possibility of losses during the study, we included 178 women in the sample.

Data Collection and Analysis

The study data were collected using the Personal Information Form and Form to Assess Women's Knowledge and Opinions of MLCPCC between July 2021 and September 2021. Due to the COVID-19 pandemic, data were collected via online surveys (Google Forms). It took the participants approximately 5-10 minutes to fill in the online form.

Personal information form: In the form developed by the researchers based on the literature (ten Hoope-Bender et al., 2014; Sandall et al., 2016; Gökdemir and Eryılmaz, 2017; Başı and Aksu, 2018) there are 12 items questioning

the participants' age, education status, occupation status, income status, and obstetric history.

Form to assess women's knowledge and opinions of the midwife-led continuity preconception care and counseling (MLCPCC): The form developed by the researchers based on the literature (ten Hoope-Bender et al., 2014; Shawe et al., 2015; Sandall et al., 2016; Gökdemir and Eryılmaz, 2017; Başlı and Aksu, 2018; Wiegerinck et al., 2018; Hanahoe, 2020; Vincent et al., 2022) includes 24 questions asked to determine the participants' knowledge and opinions about MLCPCC. Responses given to the questions are rated as follows: agree: 2, no idea: 1 and disagree: 0. The higher the score obtained from the form is, the higher the participant's knowledge level is and the more favorable her opinion of MLCPCC is.

Statistical Analysis

The study data were analyzed using the IBM SPSS Statistics 22 statistical package program. In the descriptive statistics, percentage, arithmetic mean, standard deviation, median, minimum and maximum values were used. Shapiro-Wilk normality test and Q-Q plots were used to determine whether the data were normally distributed. Because the data were not normally distributed, the Mann-Whitney U test was used in comparisons of two independent groups, and the Kruskal-Wallis test was used in comparisons of more than two independent groups. Statistical significance level was accepted as $p < 0.05$.

Results

Of the women participating in the study, 29.2% were in the age group of 30-34 years, 70.2% were married, 75.3% were at least university graduates, 53.4% did not work in any paid job, 15.7% did not have social security, 54.5% stated that they had income equal to their expenses, and 77.5% had a nuclear family (Table 1).

Of them, 37.7% had never been pregnant, 40.4% had never given birth. Of the women who gave birth, 33.4% underwent a cesarean section, 12.9% received preconception care and counseling. Of those who received preconception care and counseling, 6.7% received preconception care and counseling from midwives. (Table 2).

The analysis of the participants' knowledge and opinions of Midwife-led Continuity Preconception Care and Counseling demonstrated that most of them (66.9%-89.3%) agreed with the items in the MLCPCC form (Table 3).

The responses the participants gave to the questions in the MLCPCC form are rated as "agree: 2", "no idea: 1" and "disagree: 0". The mean score they obtained from the form was 41.97 ± 9.22 (min-max: 0-48). The participants' descriptive characteristics (Table 4) and pregnancy experience-related characteristics (Table 5) did not affect the scores they obtained from the Form to Assess Women's Knowledge and Opinions of MLCPCC ($p > 0.05$).

Table 1. Descriptive characteristics of the participating women (n=178)

Descriptive characteristics		n	%
Age (years)	18-24	37	20.8
	25-29	41	23.0
	30-34	52	29.2
	35-49	48	27.0
Marital status	Single	53	29.8
	Married	125	70.2
Educational status	Primary school	3	1.7
	Junior high school	8	4.5
	Senior high school	33	18.5
	University and above	134	75.3
Employment status	Not employed	95	53.4
	Employed	83	46.6
Having social security	No	28	15.7
	Yes	150	84.3
Perceived income status	Income less than expenses	41	23.0
	Income equal to expenses	97	54.5
	Income more than expenses	40	22.5
Family structure	Nuclear family	138	77.5
	Extended family	40	22.5
Total		178	100.0

Table 2. Pregnancy experience-related characteristics of the participating women (n=178)

Characteristics		n	%
The number of pregnancies	Nulligravidae	67	37.7
	1	45	25.3
	2	38	21.3
	3	19	10.7
	4	9	5.1
The number of deliveries	Nulliparae	72	40.4
	1	50	28.1
	2	42	23.7
	3	12	6.7
	4	2	1.1
Mode of delivery (n=106)	Vaginal	39	23.1
	Caesarean section	56	33.4
	Vaginal and caesarean section	11	6.5
Receiving preconception care and counseling	No	155	87.1
	Yes	23	12.9
The person from whom preconception care and counseling was received	Those who never received counseling	155	87.1
	Midwife	12	6.7
	Nurse	3	1.7
	Physician	6	3.4
	Others	2	1.1
Total		178	100.0

Table 3. Participating women's knowledge and opinions about Midwife-Led Continuity Preconception Care and Counseling (MLCPCC)

Women's knowledge and opinions		Disagree	No idea	Agree
If I decide to have children by receiving MLCPCC, I think it can improve my pre-pregnancy health.	n 9	12	157	
	% 5.1	6.7	88.2	
I think I can have a health checkup before I get pregnant if I receive MLCPCC.	n 8	13	157	
	% 4.5	7.3	88.2	
If I get pregnant after receiving MLCPCC, I think I will have a healthy pregnancy.	n 13	10	155	
	% 7.3	5.6	87.1	
I think I will have adequate knowledge of childcare before I become pregnant if I receive MLCPCC.	n 19	13	146	
	% 10.7	7.3	82.0	
I think that risk factors such as anemia, diabetes, Rh incompatibility, breast cancer etc. can be determined before getting pregnant if I receive MLCPCC.	n 11	10	157	
	% 6.2	5.6	88.2	
I think I will have a happy and fulfilling sex life if I receive MLCPCC.	n 39	23	116	
	% 21.9	12.9	65.2	
I think I will consider using additional supplements (vitamin medicine, Folic Acid/Vitamin B9 etc.) 3 (three) months before getting pregnant if I receive MLCPCC.	n 20	13	145	
	% 11.2	7.3	81.5	
I think I will have enough knowledge about the vaccines that should be administered before getting pregnant if I receive MLCPCC.	n 9	10	159	
	% 5.1	5.6	89.3	
I think I will consider getting genetic counseling before getting pregnant if I receive MLCPCC.	n 20	17	141	
	% 11.2	9.6	79.2	
I think I will consider getting a screening (cervical cancer screening, HIV, Hepatitis B, Syphilis, etc.) before I get pregnant if I receive MLCPCC.	n 13	15	150	
	% 7.3	8.4	84.3	
I think that I will have enough knowledge about the effect of chronic diseases on the pregnancy process and the necessary treatment if I receive MLCPCC.	n 10	11	157	
	% 5.6	6.2	88.2	
I think I will gain awareness of fertility if I receive MLCPCC.	n 14	10	154	
	% 7.9	5.6	86.5	
I will think about planning to get pregnant whenever I want and using family planning methods effectively if I receive MLCPCC.	n 16	12	150	
	% 9.0	6.7	84.3	
I think that I will have enough knowledge about healthy eating if I receive MLCPCC.	n 15	14	149	
	% 8.4	7.9	83.7	

Table 4. Distribution of the scores the participating women obtained from the Form to Assess Women's Knowledge and Opinions of Midwife-Led Continuity Preconception Care and Counseling according to their descriptive characteristics

Descriptive characteristics	n	$\bar{X} \pm SD$	Med (Min-Max)
Age (years)			
18-24	37	39.54±11.22	45 (0-48)
25-29	41	40.61±11.19	46 (0-48)
30-34	52	43.46±7.55	46 (14-48)
35-49	48	43.4±6.66	46 (24-48)
Test*		KW=2.849 p=0.411	
Marital status			
Single	53	41.47±10.52	46 (0-48)
Married	125	42.18±8.65	46 (0-48)
Test**		Z=-0.548 p=0.584	
Educational status			
High school and below	44	40.41±10.43	45.5 (0-48)
University and above	134	42.49±8.77	46 (0-48)
Test**		Z=-1.228 p=0.219	
Employment status			
Not employed	95	41.13±9.34	45 (0-48)
Employed	83	42.94±9.05	47 (0-48)
Test**		Z=-1.780 p=0.075	
Social security			
No	28	41.25±8.42	46 (22-48)
Yes	150	42.11±9.38	46 (0-48)
Test**		Z=-0.916 p=0.360	
Perceived income status			
Income less than expenses	41	41.24±11.39	46 (0-48)
Income equal to expenses	97	41.7±9.02	46 (0-48)
Income more than expenses	40	43.38±7.06	46 (14-48)
Test*		KW=0.646 p=0.724	
Family structure			
Nuclear family	138	42.29±9.27	46 (0-48)
Extended family	40	40.88±9.09	46 (10-48)
Test**		Z=-1.298 p=0.194	

*Kruskal Wallis test was used, **Mann-Whitney U test was used.

Discussion

In the present study, of the participating women who gave birth, 33.4% underwent a cesarean section, and only 12.9% received preconception care and counseling. Of those who received preconception care and counseling, 6.7% received preconception care and counseling from midwives. In a study in which interventions to reduce unnecessary cesarean sections in healthy women and babies were investigated, the researchers determined that midwife-led care was associated with higher rates of physiological births, safer outcomes, and lower healthcare costs and positive motherhood experiences in high-income countries compared to control groups not having undergone these interventions (Betran et al., 2018). In a systematic review and meta-analysis study, organizational reforms supporting the midwife-led continuous care in maternity wards were determined to reduce cesarean rates (Chapman et al., 2019). The comparison of the results of the aforementioned studies with those of the present study revealed that cesarean section rates were higher in the present study, which was probably because most of the participants in the present study did not receive midwife-led preconception care and counseling. On the other hand, although most of the participants were higher education graduates, 87.1% of them did not receive preconception care and counseling is quite noteworthy, which indicates that MLCPC services are not yet at the desired level for women to access.

According to the data in the Health Statistics Yearbook published by the Ministry of Health in Turkey (2019), the number of midwives and nurses per 100 thousand people is 306 in Turkey. This supports the present study findings indicating that the number of midwives and nurses in Turkey is insufficient in providing health services. In a Cochrane systematic review, it was demonstrated that midwife-led care model was more effective than doctor-led care models for low-risk women during labor because in the former model, there was less intervention, outcomes were better, and maternal and neonatal mortality and morbidity rates were lower (Sandall et al., 2016). In addition, in the report on midwifery in the world, according to the World Health Organization and the International Confederation of Midwives (2021) stated that it was confirmed that an estimated 4.3 million lives could be saved annually by 2035 by increasing the number of midwives and the quality of care they provide. For instance, midwife-led care provided in obstetric units has been reported to have a significant success in placing Sweden among the 5 countries with the best maternal and newborn outcomes in the world (Lindgren and Erlandsson, 2022).

The International Confederation of Midwives (2023) also made such announcement as "Trust the Evidence: Invest in Midwives" and emphasized the importance of investing in midwives. It has also been reported that preconception care and counseling is an area of intervention that reduces poor perinatal outcomes, promotes health by risk assessment, prevents unwanted

pregnancies, and forms the basis of a healthy society (Fowler et al., 2022). The results of the present study regarding the participants' knowledge and opinion indicating that MLCPC would prepare them better for a healthy pregnancy, that it might ensure the identification of the risk factors before pregnancy, and that it would reduce pre-pregnancy disease burden, maternal and infant mortality rates are consistent with the results of the aforementioned studies. In a study, the researchers concluded that midwife-led care yielded positive results regarding birth control, immunization, and psychosocial and public health. In the same study, it was emphasized that when midwifery care is provided by trained, licensed and supervised midwives, resources are used more efficiently, which leads to better results (Renfrew et al., 2014). The results of the present study indicating that most of the participants would establish an effective communication based on empathic understanding, that they would be supported psychosocially and gain awareness of fertility, that they could plan to become pregnant whenever they want to and use family planning methods effectively, that they would have sufficient knowledge about vaccines, and that they thought that care and counselling would be less costly thanks to the MLCPC are consistent with the results of the aforementioned studies.

In the literature, midwives' ability to cooperate with women through the continuity of care is considered important in terms of guiding women throughout the system, which is argued that this situation can help women to make conscious decisions by supporting them to state their needs clearly (Fox et al., 2023). In the present study, most of the participants thought that they would establish an effective communication based on empathic understanding, which supports the view in the previous statement. In a randomized controlled study conducted with 20-40-year-old women of reproductive age, it was reported that the provision of health care and counseling on reproductive health before pregnancy raised the intervention group's awareness of factors such as quitting tobacco use which affects health, avoiding alcohol, being in normal weight and starting to use folic acid before pregnancy. In the same study, they determined that women's knowledge about fertility and health awareness before pregnancy increased (Skogsdal et al., 2019). In the present study, the participants were in similar age groups and most of them thought that their knowledge and opinions about MLCPC would help them develop healthy life style behaviors (regular exercise, not smoking, not consuming alcohol, having a balanced nutrition, etc.) and would encourage them to take additional supplements three months before pregnancy (folic acid/ vitamin B9, etc.), which are consistent with the findings in the literature. That the mean score the participants obtained from the Form to Assess Women's Knowledge and Opinions of MLCPC was high also suggests that the participants supported the MLCPC which contributes to the development of women and community health, and that they could benefit from it.

Conclusion

Although most of the participants were higher education graduates, 87.1% of them did not receive preconception care and counseling, which is quite surprising. That the mean score the participants obtained from the Form to Assess Women's Knowledge and Opinions of MLCPC was high also suggests that the participants supported the MLCPC which contributes to the development of women and community health, and

that they thought they could benefit from MLCPC. The midwife-led continuity preconception care and counseling model which has been proved to have many individual and social benefits in several studies is also expected to be used in preconception care and counseling and to raise women's awareness of the benefits of the model. The number of studies conducted on MLCPC in the literature is very few. Thus, we recommend that studies in which women receive MLCPC should be conducted with larger populations.

Table 5. Distribution of the scores the participating women obtained from the form to assess women's knowledge and opinions of midwife-led continuity preconception care and counseling according to their pregnancy experience-related characteristics

Characteristics	n	$\bar{X} \pm SD$	Med (Min-Max)
The number of pregnancies			
Nulligravidae	67	41.19±10.13	46 (0-48)
1	45	42.82±8.12	46 (10-48)
2	38	42.37±9.7	46 (0-48)
≥3	28	41.93±8.2	46 (15-48)
Test*		KW=0.395	p=0.941
The number of deliveries			
Nulliparae	72	41.56±9.87	46 (0-48)
1	50	42.1±7.96	45 (10-48)
2	42	41.52±10.57	46 (0-48)
≥3	14	45±4.87	46 (32-48)
Test*		KW=1.511	p=0.680
Mode of delivery			
Not given birth yet	72	41.56±9.87	46 (0-48)
Vaginal	39	39.05±12.17	46 (0-48)
Caesarean section	56	44.29±5.18	46 (24-48)
Vaginal and caesarean section	11	43.27±6.07	46 (32-48)
Test*		KW=2.600	p=0.457
Receiving preconception care and counseling			
No	155	41.65±9.64	46 (0-48)
Yes	23	44.13±5.35	46 (30-48)
Test**		Z=-0.736	p=0.462

*Kruskal Wallis test was used, **Mann-Whitney U test was used.

Declarations

Acknowledgments

This study was presented as an oral presentation at the 5th International 6th National Midwifery Congress on 11-14 November 2021.

The authors would like to thank all of the individuals who participated in the study.

Conflict of Interest

Authors disclose no potential conflicts of interest.

Ethics Statement

Before the study was conducted, we obtained the ethics committee approval from Sivas Cumhuriyet University's non-interventional clinical research ethics committee (Decision number: 2021-04/44, Date:14.04.2021) and written permission from the institution where the study was to be conducted (Commission Decision No. 2021/14).

Informed Consent

Informed consent forms from all participants were collected online. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Author Contributions

Conceptualization: ZBY, OH; methodology: ZBY, OH; software: ZBY, OH; validation: ZBY, OH; formal analysis: ZBY, OH; investigation: ZBY, OH; writing-original draft: ZBY, OH; writing-review&editing: ZBY, OH; visualization: ZBY, OH; supervision: ZBY, OH.

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Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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