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Araştırma Makalesi/Research Article

Pregnant Women's Knowledge About Preconception Counselling And Status of Receiving Preconception Counselling/Care in Turkey

Mükerrem BAŞLİ[1], Hilmiye AKSU[2]

Gebelerin Prekonsepsiyonel Danışmanlık İle İlgili Bilgileri ve Prekonsepsiyonel Danışmanlık/Bakım Alma Durumları

ABSTRACT

This study has been carried out to reveal pregnant women's knowledge about preconception counselling (PCC)and their status of receiving counselling/care in Turkey. This study has been designed as descriptive and cross-sectional study. It has been conducted with 361 pregnant women in Aydın which is located in west of Turkey. The data has been collected by a questionnaire prepared by the researchers. This study has shown that 48.2% of the participants did not know what preconception care was, and 65% did not know the preconception tests/analyses/examinations. Of pregnant women, 82.5% has thought that preconception care was significant for both genders, 67.6% has thought it was necessary for all reproductive-aged individuals. Our study has shown that most of the participants were not provided with preconception counselling/care. Employment status, educational status, and longest-lived city/region were related with women's knowledge ($p<.05$). According to this study, women have insufficient information about the topic and the rate of women receiving preconception care was low. Nurses are one of the most important healthcare professionals to provide preconception care properly. That is why they are recommended to keep their knowledge updated to deliver effective preconception care. In order to achieve this, they should conduct researches about PCC, and participate in certificate programs and in-service trainings.

Keywords: Knowledge, preconception care, preconception counselling, pregnant

ÖZ

Bu çalışma Türkiye'de gebe kadınların prekonsepsiyonel danışmanlık konusundaki bilgilerini ve danışmanlık/bakım alma durumlarını ortaya çıkarmak amacıyla yapılmıştır. Tanımlayıcı ve kesitsel nitelikteki bu çalışma 361 gebe kadın ile Türkiye'nin batısında yer alan Aydın'da gerçekleştirilmiştir. Veriler araştırmacılar tarafından hazırlanan anket aracılığıyla toplanmıştır. Araştırmada katılımcıların %48.2'sinin gebelik öncesi bakımın ne olduğunu bilmediği, %65'inin ise gebelik öncesi test-analiz-muayeneleri bilmediği belirlenmiştir. Gebelerin %82.5'i her iki cinsiyet için de gebelik öncesi bakımın gerekli olduğunu, %67.6'sı tüm üreme çağındaki bireyler için gerekli olduğunu düşünmektedir. Çalışmamız, katılımcıların çoğuna gebelik öncesi danışmanlık/bakım sağlanmadığını göstermiştir. Çalışma durumu, eğitim durumu ve en uzun yaşanan şehir/bölge kadınların bilgi düzeyi ile ilişkili bulunmuştur ($p<.05$). Bu çalışmaya göre kadınların konu ile ilgili bilgileri yetersiz olup gebelik öncesi bakım alan kadınların oranı düşüktür. Hemşireler gebelik öncesi bakımın doğru şekilde sağlanmasında en önemli sağlık çalışanlarından biridir. Bu nedenle gebelik öncesi bakım konusunda bilgilerini güncel tutmaları gerekmektedir. Bunun için, konu hakkında araştırmalar yapmaları, sertifika programlarına ve hizmet içi eğitimlere katılmaları önerilmektedir.

Anahtar kelimeler: Bilgi, gebe, prekonsepsiyonel bakım, prekonsepsiyonel danışmanlık

[1]**Corresponding author**: RN, MSc, New Cross Hospital, The Royal Wolverhampton NHS Trust, Wolverhampton/West Midlands, United Kingdom, **e-mail:** fbmukerrem@gmail.com, **ORCID ID:** 0000-0002-5490-916X
[2]Prof. Dr. Department of Obstetrics and Gynaecologic Nursing, Faculty of Nursing, Aydın Adnan Menderes University, Aydın, **e-mail:** hilmiyeaksu@yahoo.com, **ORCID ID:** 0000-0001-6975-3172

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Araştırma Aydın Adnan Menderes Üniversitesi Bilimsel Araştırma Projeleri Birimi tarafından HF18013 proje numarası ile yüksek lisans tezi olarak desteklenmiştir.

GENİŞLETİLMİŞ ÖZET

Giriş: Prekonsepsiyonel bakım ve danışmanlık kadın sağlığı alanındaki en önemli sağlık hizmetlerinden birisidir. Bu sağlık hizmeti, gebelik sonuçlarını geliştirmek ve anne-bebek sağlığını korumak açısından prenatal bakımı tamamlamaktadır. Prekonsepsiyonel bakımın faydaları çeşitli çalışmalar tarafından ortaya koyulmuştur ve uluslarası klavuzlar tarafından önerilmektedir.

Amaç: Prekonsepsiyonel bakım ile ilgili uluslararsı literatürde birçok araştırma bulunmakla birlikte, ülkemizde bu konudaki araştırmalar kısıtlıdır. Bu nedenle, bu çalışma Türkiye'de gebe kadınların prekonsepsiyonel danışmanlık ve bakım hizmetleri konusundaki bilgilerini ve danışmanlık/bakım alma durumlarını ortaya çıkarmak amacıyla yapılmıştır. İkincil olarak da kadınların bilgileri ve bu hizmetten faydalanma durumunu etkileyen faktörlerin araştırılması amaçlanmıştır.

Yöntem: Araştırma tanımlayıcı ve kesitsel olarak yürütlmüştür. Çalışmaya, Türkiye'nin batısında yer alan Aydın ilinden 361 gebe kadın katılmıştır. Çalışmaya dahil olma kriterleri; 18-50 yaş arası olma, gebe olma, Türkçe konuşma ve anlama olarak belirlenmiştir. Çalışmaya katılmaya gönüllü olan ve kriterlere uyan tüm kadınlar araştırmaya dahil edilmiştir. Veriler, araştırmacılar tarafından hazırlanan anket aracılığıyla toplanmıştır. Uzman görüşü alınarak ve pilot çalışma yürütülerek son şekli verilen anket açık ve kapalı uçlu 45 sorudan oluşmuştur. Her katılımcıya ortalama yarım saat süre ayrılmıştır. Çalışma için etik kurul izni ve kurumlardan çalışma izni alınmıştır. Katılımcılardan yazılı ve sözlü onam alınmıştır. Veriler, Statistical Package for Social Sciences (SPSS) for Windows 22 programında analiz edilmiştir.

Sonuç: Araştırmada katılımcıların %48.2'sinin gebelik öncesi bakımın ne olduğunu bilmediği, %65'inin ise gebelik öncesi test-analiz-muayeneleri bilmediği belirlenmiştir. Gebelerin %82.5'i hem kadın hem de erkekler için gebelik öncesi bakımın gerekli olduğunu, %67.6'sı da tüm üreme çağındaki bireyler için gerekli olduğunu düşünmektedir. Çalışma, katılımcıların çoğunun gebelik öncesi danışmanlık/bakım hizmeti almadığını ortaya koymuştur. Kadınların %96.7'si prekonsepsiyonel bakımın gerekli olduğunu düşünmekte ve %88.9'u bir sonraki gebeliğinde bu sağlık hizmetinden faydalanmayı istemektedir. Prekonsepsiyonel bakım almak isteyen kadınların %55.1'i. bu hizmeti doktor/kadın doğum uzmanından almayı tercih edeceğini ifade etmiştir. Etkileyen faktörler incelendiğinde, çalışma durumu, eğitim durumu ve en uzun yaşanan şehir/bölge kadınların bilgi düzeyi ile ilişkili bulunmuştur ($p<.05$). Bu çalışmaya göre kadınların konu ile ilgili bilgileri yetersiz olup gebelik öncesi danışmalık ve bakım alan kadınların oranı düşüktür. Kadınların tanıtıcı özellikleri ile prekonsepsiyinel danışmanlık ve bakım alma durumu arasında istatistiksel olarak anlamlı bir fark bulunmamıştır.

Öneriler: Hemşireler gebelik öncesi bakımın doğru şekilde sağlanmasında önemli sağlık çalışanlarından biridir. Bu nedenle konu hakkında bilgilerini güncel tutmaları gerekmektedir. Bunun için, sertifika programlarına ve hizmet içi eğitimlere katılmaları önerilmektedir. Prekonsepsiyonel bakıma yönelik bir sağlık politikası geliştirilmeli, prenatal bakıma benzer şekilde ulusal bir klavuz ve bakım şeması kullanıma sunulmalıdır. Konuya yönelik farklı topluluklar ile yeni araştırmalar yapılması önerilmektedir.

INTRODUCTION

Preconception counselling/care (PCC) is one of the most crucial healthcare services in gynaecology/obstetrics. It is essential for prevention of congenital disorders and maternal/fetal deaths (Shannon et al., 2014; Ayalew et al., 2017) It aims to detect and resolve medical, behavioural, social situations that pose risks to women's health and pregnancy outcomes before pregnancy and to direct problems to the relevant institutions (Beckmann et al., 2014; Van Voorst et al., 2015). According to American College of Obstetricians and Gynaecologists (ACOG), Public Health Agency of Canada, and The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG); this healthcare service mainly covers risk assessment-screening, health promotion, and chronic diseases, substance use and exposure (Başli & Bilgiç, 2021). Preconception care completes prenatal care to improve pregnancy outcomes and maternal and offspring health. Even if prenatal care is provided widely and with high quality, it is not effective alone in improving health; better results are obtained combined with PCC (Güler Baysoy & Özkan, 2012).

According to some research results in the area, preconception folic acid use and vaccination rates were increased in women who had received this healthcare before their pregnancy (Elsinga et al., 2008; Agricola et al, 2014; Beckmann et al., 2014; Smith et al. 2014). It has been observed that multivitamin use before pregnancy was increased and alcohol use was decreased in women who received preconception counselling (Williams et al., 2012; Agricola et al., 2014). According to a study's result that has been done in a maternity clinic, it has been reported that the rates of preterm labour and hypertensive diseases were lower in women who received preconception counselling (Beckmann et al., 2014). Besides, a study

which has been carried out with diabetic women has found that women with diabetes who received preconception counselling had lower third trimester HbA1c levels and fetal loss rates (Holmes et al., 2017). Moreover, a systematic review has presented that brief/intensive preconception education helped improve knowledge, behaviours, and health outcomes (Withanage et al., 2022). Despite its proven effectiveness, studies have shown that women do not benefit from this healthcare sufficiently and do not have enough information about it (Williams et al., 2012; Temel et al., 2013; Luton et al., 2014; Nilsen et al., 2016; Ayalew et al., 2017).

Preconception care is considered as a duty of all healthcare staff that cares for people at reproductive age, and it requires a multidisciplinary and collaborative approach (Başli & Aksu, 2018). Along with this, the roles and responsibilities of primary health care professionals in preconception care come to the fore (Güler Baysoy & Özkan, 2012). In particular, nurses and midwives who are in frequent contact with individuals are the most appropriate and important health care professionals to provide PCC (Goossens et al., 2018). Nurses are in an integrative position in preconception care; they take roles in every stage of this care. Education, counselling, risk assessment and ensuring continuity of care are among the responsibilities of nurses (Hurst & Linton, 2015). It is essential that nurses offer information about PCC to all individuals of reproductive age. Nurses should participate in certificate programs and in-service trainings, and keep their information timely. In addition, national guidelines should be prepared and made available by experts (Başli & Bilgiç, 2021). These steps help the healthcare professionals be more aware and well-prepared to provide PCC.

There are many studies on PCC in the international literature. However, there is not enough research on the subject in Turkey, although these services are currently in use and provided (Başli & Aksu, 2018). Also, some researches completed in Turkey has been examined. However, existing researches in Turkey mainly have focused on the needs of reproductive-aged women. A study conducted by Genç Koyucu et al. (2017) has clearly revealed that women need preconception care before their pregnancy. So as to evaluate the true needs and knowledge of women about this care, there is an increasing requirement of further researches. Therefore, this study's primary objective was set to determine the pregnant women's knowledge about PCC and their status of receiving counselling/care in Turkey. The secondary objective was determined as to explore the related individual factors.

MATERIALS AND METHODS

This research is a descriptive and analytical cross-sectional study. The questions of this research are as follows;

1)What is the knowledge level of pregnant women about preconception counselling?

2)What are pregnant women's opinions about preconception counselling?

3)What is the pregnant women's rate of receiving PCC before their conception?

4)What are the related factors with pregnant women's knowledge about PCC and their access to the service?

Study Population and Sample

This research has been conducted with 361 pregnant women who came for pregnancy checks to obstetrics outpatient clinics of Aydın Gynecology and Pediatric Hospital and Aydın Adnan Menderes University Training and Research Hospital in Aydın/Turkey between June and December 2018. The known universe sampling method has been used to calculate the sample size of the study (Baştürk & Taştepe, 2013). The G power method has been used to assess the power of the sample. In those two hospitals, a total of 18,461 pregnant women were followed in 2017. According to the study of Williams et al. (2012), the rate of women who received PCC was 32% (p = 0.320). Researchers analyzed Pregnancy Risk Assessment Monitoring System data from Maine, New Jersey, Utah, and Vermont. Their population is similar to our research. With 95% probability ($\alpha = 0.05$), with a deviation of d = 0.05 and taking q = 0.680 t = 1.97 number; the sample size has been calculated as 328. Considering the possibility of loss from our sample, it has been added to 10 % and 361 pregnant women have been decided as the sample.

Individuals have been selected by using the random sampling method, one of the improbable sampling methods (Baştürk & Taştepe, 2013). Inclusion criteria are as follows: (a) being between 18-50 years old, (b) being pregnant, (c) speaking and understanding Turkish. All pregnant women who accepted to participate have been included. Solely, women with disabilities in communicating have been excluded from the study.

Data Collection and Data Collection Tool

The research data has been collected with a questionnaire prepared by the researchers, and this questionnaire was based on the available current researches in the literature. Relevant researches about the topic have been examined, and suitable questions have been added and adapted to our research (Williams et al., 2012; Temel et al., 2013; Luton et al.,

2014; Nilsen et al., 2016; Ayalew et al., 2017; Bortolus et al., 2017; Lammers et al., 2017).

For the content validity, comprehensibility and reliability of the data collection instrument, opinions of 10 clinical and academic experts in their area have been obtained. The form has been revised. According to the suggestions of the experts; we removed a couple of questions and rewrite some of our questions. After this, a pre-application of the improved form has been conducted with 10 pregnant women before the initial data collection. As a result of this, validity and applicability of the questionnaire have been proved, and no further changes have been made on the questionnaire. Following these steps the questionnaire became applicable on the main sample.

The final questionnaire has consisted of 45 open and closed-ended questions. The three parts in the form are as follows; socio-demographic characteristics (age, educational status, etc.), obstetric characteristics (number of pregnancies, number of live births, etc.), and questions about PCC. The answers to these questions have been obtained through the answers given by the participants. The research data has been collected in the waiting areas in front of the outpatient clinics through face-to-face interviews before or after their examination. For face-to-face interviews, no interviewer or student nurse has been utilised. One of the researchers had taken the responsibility of interviewing with the participants. The researcher approached women blindly while in the waiting room. The study has been explained each women and their consent has been obtained separately. Terminology on the form was not medical, so our participants could understand the questions easily. No information provided to the women that might impact the findings.

The application of the questionnaire has taken an average of 15-20 minutes. Apart from this time, providing information about the research and obtaining consent in regards of Helsinki Declaration was approximately 10 minutes. In total, volunteer women spared their nearly half an hour for participating the research.

Evaluation of Data

The data obtained in the study has been analyzed using the Statistical Package for Social Sciences (SPSS) for Windows 22 program (IBM Corp, 2013. Armonk, NY). The results have been evaluated at a 95% confidence interval, and the significance level is $p< .05$. Descriptive statistics and chi-square analysis have been used to evaluate the data. Normality tests have not been done since the variables were not numerical. Main characteristics taken into account in the analyses are; employment and educational status, longest-lived city/region, income status, family type, presence of chronic diseases, problems in previous pregnancies and desire for current pregnancy. Gravida and parity have been analyzed as first pregnancy, presence of problem in previous pregnancy and no problem in previous pregnancy.

Ethical Considerations

Pre and final approval (Date: 21.05.2018 - Protocol Number: 2018/008) have been obtained from Aydın Adnan Menderes University, Faculty of Nursing Non-Clinical Research Ethics Committee. Official research permissions have also been obtained from the Aydın Gynecology and Pediatric Hospital (07.06.2018-69836136) and Aydın Adnan Menderes University Training and Research Hospital (11.06.2018-E.34155). Informed consent (written, verbal) has been obtained from all the participants. All procedures have been carried out in accordance with the Helsinki Declaration.

RESULTS

Participants' Characteristics

The mean age of women was 27.95 ± 5.67. Of women, 72.6% were unemployed, 46% were primary school graduates, 50.7% had lived in the provinces (developed cities/towns). Of the participants, 72% state that their income was equivalent to expenses (Table 1).

Of the women, 58.5% state that they had no problem in their previous pregnancies, 85.4% did not have any problem in their previous deliveries. The problem was defined as any situation out of usual pregnancy and birth process. Of the participants, 84.8% state that they had desired their current pregnancy, 77.3% did not smoke before pregnancy, and 96.7% did not use alcohol before pregnancy (Table 2).

Participants' Knowledge and Views about PCC

Our study has found that 62.6% of the participants were not aware of the PCC concept (This means they had not heard of it before, at the time of research). Of women, 65% did not know the preconception analyzes, tests, and examinations, and 48.2% did not know what PCC really was (This data was according to women's definition of PCC). Of the women, 82.5% stated that PCC was necessary for both genders, 67.6% of women stated that PCC should be given to all reproductive-aged individuals. Of the participants, 42.1% stated that preconception care should be provided by doctors/obstetricians (Table 3).

Table 4 shows that, of the women, 96.7% think that PCC was necessary, and 88.9% wanted to receive this care in their next pregnancies. Of those who wanted to receive this healthcare 55.1% stated that they would prefer PCC from obstetricians. Of the participants'

53.7% stated that they had made a pre-pregnancy preparation, these women frequently had had a sufficient and balanced diet (65.4%) and weight regulation (50%).

Table 1. Socio-demographic Characteristics of Women (n=361)

Characteristics	Mean	SD (min-max)
Age	27.95	5.67 (18-42)
Age of Spouse/Partner	31.98	5.77 (18-50)
	Number	**Percentage (%)**
Employment Status Employed	99	26.4
Unemployed	262	**72.6**
Education Status		
Illiterate	5	1.4
Literate	7	1.9
Primary school	166	**46.0**
High school	95	26,3
University and higher	88	24.4
Education Status of Spouse/Partner		
Illiterate	3	0.8
Literate	2	0.6
Primary school	160	**44.3**
High school	109	30.2
University and higher	87	24.1
Longest-lived Place		
Village	68	18.8
Town	13	3.6
County	97	26.9
Province	183	**50.7**
Perceived Income Status		
Less	88	24.4
Equivalent	260	**72.0**
More	13	3.6
Family Type		
Nuclear	288	**79.8**
Large	73	20.2
Social Security		
Yes	302	**83.7**
No	59	16.3
Chronic Diseases		
Yes	38	10.5
No	323	**89.5**
Genetic/Hereditary Diseases		
Yes	11	3.0
No	350	**97.0**
Genetic/Hereditary Diseases in Family/ Spouse's Family		
Yes	5	1.4
No	356	**98.6**

Table 2. Obstetric Characteristics of Women (n=361)

Characteristics	Mean	SD (Min-Max)
Number of pregnancies	2.30	1.73 (1-8)
Number of live births	1.56	0.76 (1-5)
Number of stillbirths	1.46	0.63 (1-3)
Number of spontaneous abortions	1.36	0.61 (1-4)
Number of living children	1.54	0.74 (1-4)
	Number	**Percentage (%)**
Problems in Previous Pregnancies (n=248) Yes	103	41.5
No	145	**58.5**
Name of the Problem (n=103)		
Abortion	78	**75.8**
Gestational Diabetes (GDM)	9	8.8
Preeclampsia	7	6.8
Others	16	15.5
Problems in Previous Deliveries (n=247)		
Yes	36	14.6
No	211	**85.4**
Name of the Problem (n=36)		
Stillbirth	11	**30.6**
Dystocia	11	**30.6**
Premature birth	8	22.2
Others	6	16.8
Desire for Current Pregnancy (n=361)		
Yes	306	**84.8**
No	55	15.2
Smoking Before Pregnancy (n=361)		
Yes	82	22.7
No	279	**77.3**
Drinking Alcohol Before Pregnancy (n=361)		
Yes	12	3.3
No	349	**96.7**

[*] *More than one answer was given. Percentages were calculated over the total 'n.'*

Table 3. The Women's Knowledge about Preconception Counselling and Care

	Number	Percentage (%)
Hearing the Concept of PCC (n=361)		
Yes	135	37.4
No	226	**62.6**
From which source (n=109)		
Family Health Centre	47	**43.1**
Hospital	42	38.5
TV/social media/internet	19	17.4
Book/journal	1	0.9
From who (n=115)		
Nurse/midwife	77	**67.0**
People around	27	23.5
Doctor	11	9.6
Knowing the Concept of PCC (n=361)		
Knows	21	5.8
Partially knows	166	46.0
No idea/Don't know	174	**48.2**
Knowing the analyzes, tests, and examinations that should be done before pregnancy*		
Don't know	235	**65.1**
Blood analysis	100	27.7
Hormone tests	52	14.4
Urine analysis	34	9.4
USG	21	5.8
Genetic tests	18	5.0
Others	37	10.1
People Who Need PCC(n=361) **		
Only women	44	12.2
Only men	3	0.8
Women and men	298	82.5
No idea	16	4.4
Situations Which Required PCC (n=361)		
For women who previously had a problematic pregnancy or miscarriage	27	7.5
For couples who are planning pregnancy	56	15.5
For couples who have trouble conceiving	34	9.4
For all reproductive-age individuals	244	**67.6**
Topics involved in PCC *		
Vaccination	222	61.5
Nutrition	287	**79.5**
Weight control	247	68.4
Chronic diseases	248	68.7
Genetic counselling	229	63.4
Vitamin-folic acid supplements	259	71.7
Quitting harmful habits	281	77.8
Others	29	8.0
Medical staff who provide PCC (n=361)		
Family physician	78	21.6
Nurse/midwife	121	33.5
Obstetrician	152	**42.1**
All	7	1.9
Do not know/No idea	3	0.8

* *More than one answer was given. Percentages were calculated over the total n.*

** *In the questionnaire, instead of preconception care, pr e-pregnancy care term was used to make it more understandable. That is the reason why everybody was able to answer the question.*

Table 4. The Women's Views on PCC and Pre-Pregnancy Preparations

Views	Number	Percentage (%)
Thinking PCC Necessary (n=361)		
Yes	349	**96.7**
No	12	3.3
Reasons for thinking PCC necessary*		
To be informed and become conscious	262	**75.0**
To have a healthy pregnancy	62	17.7
To have a healthy baby	51	14.6
To give a healthy birth	23	6.5
To prepare for motherhood psychologically	15	4.2
Others	42	11.8
Reasons for not thinking PCC necessary (n=12)		
Because I search on the internet	12	100.0
Seeking PCC in subsequent pregnancies (n=361)		
Yes	321	**88.9**
No	40	11.1
Medical staff preferred to receive PCC (n=321)		
Family physician	54	16.8
Nurse/midwife	82	25.5
Obstetricians	177	**55.1**
All	8	2.5
Pre-pregnancy Preparations (n=361)		
Yes	194	**53.7**
No	167	46.3
Which preparations		
Quitting smoking[1] (n=82)	17	20.7
Quitting alcohol[1] (n=12)	2	16.6
Treatment and control of chronic diseases[2] (n=38)	17	45.7
To be vaccinated[3]	8	4.1
Adequate and balanced diet[3]	127	**65.4**
Weight regulation[3]	97	50.0
Folic acid/vitamin use[3]	73	37.6
Time to start taking folic acid/vitamin use before pregnancy	2.79±2.12 month before pregnancy (min 1- max 12)	

**More than one answer was given. Percentages were calculated according to number of women who stated that PCC is necessary (n = 349).*
[1] Percentages were calculated according to the number of women who used smoking and alcohol before pregnancy.
[2]Percentage was calculated according to the number of women who had a chronic disease (n=38)
[3]More than one answer was given. Percentages were calculated according to the number of women who has preparations before pregnancy.

Related Factors with Participants' Status of Receiving PCC

The study has reported that 94.5% of the women did not receive PCC in their pre-pregnancy period. Women who received PCC, 85% of them received this healthcare from a nurse/midwife, and 70% had access to it from a family health centre. No significant difference has been found between participants' characteristics and receiving PCC (p> .05) (Table 5).

Related Factors with Participants' Knowledge on PCC

Employment status, educational status, and longest-lived city/region have been seen influential on women's knowledge about PCC. There was a significant relationship between family type and women's knowledge in terms of for whom/in which situations PCC was required, and the preconception analysis, tests, and examinations. The status of desiring current pregnancy was related to women's knowledge as well. The perceived income level has been found related to women's knowledge about pre-pregnancy analysis, tests, and examinations (p< .05). On the other hand, having a chronic disease and a problem in previous pregnancies were not in relation to women's knowledge (p> .05). Table 6-9 clearly demonstrate the related factors about women's knowledge.

Table 5. Women's Status of Receiving PCC

	Number	Percentage (%)
Status of Receiving PCC (n=361)		
Yes	20	5.5
No	341	**94.5**
Content of PCC*		
Pregnancy process	9	**45.0**
Baby care	8	40.0
Nutrition	7	35.0
Birth process	7	35.0
Breastfeeding	7	35.0
Contraception	6	30.0
Weight control	4	20.0
Preparation for motherhood	2	10.0
Harmful habits	1	5.0
Medical staff who was given care (n=20)		
Nurse/midwife	17	**85.0**
Family physician	2	10.0
Obstetrician	1	5.0
Health institution where was taken care (n=20)		
Family Health Centre	14	**70.0**
Hospital	6	30.0

**More than one answer was given. Percentages were calculated according to the number of women who received PCC (n = 20)*

Table 6. Related Factors for Women's Knowledge of the Concept of Preconception Counselling/Care

	Knowledge of the Concept of Preconception Counselling/Care							
	Correct		Partially Correct		Does not know/ No idea			
	n	%	n	%	n	%	χ^2	P
Employment Status								
Employed	9	42.9	59	35.5	31	17.8		
Unemployed	12	57.1	107	65.5	143	82.2	16.080	**0.000**
Total	21	100.0	166	100.0	174	100.0		
Educational Status								
Primary School or below	5	23.8	68	41.0	105	60.4		
High School	6	28.6	44	26.5	45	25.9	26.644	**0.000**
University and above	10	47.6	54	32.5	24	13.8		
Total	21	100.0	166	100.0	174	100.0		
Longest Lived Place								
Village/Town	1	4.8	34	20.5	46	26.4		
County	7	33.3	41	24.7	49	28.2	7.212	0.125
Province	13	61.9	91	54.8	79	45.4		
Total	21	100.0	166	100.0	174	100.0		
Perceived Income Status								
Less	4	19.1	40	24.1	44	25.3		
Equivalent/High	17	80.9	126	75.9	130	74.7	2.558	0.634
Total	21	100.0	166	100.0	174	100.0		
Family Type								
Nuclear	19	90.5	135	81.3	134	77.0		
Large	2	9.5	31	18.7	40	33.0	2.562	0.278
Total	21	100.0	166	100.0	174	100.0		
Presence of Chronic Disease								
Yes	1	4.8	18	10.8	19	10.9		
No	20	95.2	148	89.2	155	89.1	0.787	0.675
Total	21	100.0	166	100.0	174	100.0		
Presence of Problems in Previous Pregnancy								
Yes	5	23.8	54	32.5	44	25.3		
No	10	47.6	60	36.2	76	43.7	3.258	0.516
First Pregnancy	6	28.6	52	31.3	54	31.0		
Total	21	100.0	166	100.0	174	100.0		
Desire for Current Pregnancy								
Yes	21	100.0	144	86.7	141	81.0		
No	0	0.0	22	13.3	33	19.0	6.154	**0.046**
Total	21	100.0	166	100.0	174	100.0		

Table7. Related Factors for Women's Knowledge on Target/Required Population for PCC

	Knowledge of for Whom PCC is required					
	Correct		Incorrect/No idea			
	n	%	n	%	χ^2	P
Employment Status						
Employed	88	29.5	11	29.0		
Unemployed	210	70.5	52	71.0	3.807	**0.050**
Total	298	100.0	63	100.0		
Educational Status						
Primary School or below	131	43.9	47	74.6		
High School	82	27.6	13	20.6		
University and above	85	28.5	3	4.8	22.885	**0.000**
Total	298	100.0	63	100.0		
Longest Lived Place						
Village/Town	59	19.8	22	34.9		
County	81	27.2	16	25.4	7.187	**0.028**
Province	158	53.0	25	39.7		
Total	298	100.0	63	100.0		
Perceived Income Status						
Less	72	24.2	16	25.4		
Equivalent/High	226	75.8	47	74.6	0.075	0.963
Total	298	100.0	63	100.0		
Family Type						
Nuclear	244	81.9	44	69.9		
Large	54	18.1	19	31.1	4.671	**0.031**
Total	298	100.0	63	100.0		
Presence of Chronic Disease						
Yes	31	10.4	7	11.1		
No	267	89.6	56	88.9	0.028	0.868
Total	298	100.0	63	100.0		
Presence of Problems in Previous Pregnancy						
Yes	88	29.5	15	23.8		
No	113	37.9	32	50.8	3.593	0.166
First Pregnancy	97	32.6	16	25.4		
Total	298	100.0	63	100.0		
Desire for Current Pregnancy						
Yes	253	84.9	53	84.1		
No	45	15.1	10	15.9	0.024	0.877
Total	298	100.0	63	100.0		

Table 8. Related Factors for Women's Knowledge on Required Situations for PCC

	Knowledge of in Which Situations PCC is required					
	Correct		**Incorrect**			
	n	**%**	**n**	**%**	**χ^2**	**P**
Employment Status						
Employed	90	30.0	9	14.8		
Unemployed	210	70.0	52	85.2	5.920	**0.015**
Total	300	100.0	61	100.0		
Educational Status						
Primary School or below	132	44.0	46	75.4		
High School	84	28.0	11	18.0		
University and above	84	28.0	4	6.6	21.618	**0.000**
Total	300	100.0	61	100.0		
Longest Lived Place						
Village/Town	63	21.0	18	29.5		
County	88	29.3	9	14.8	6.014	**0.049**
Province	149	49.7	34	55.7		
Total	300	100.0	61	100.0		
Perceived Income Status						
Less	71	23.7	17	27.9		
Equivalent/High	229	76.3	44	72.1	0.491	0.782
Total	300	100.0	61	100.0		
Family Type						
Nuclear	246	82.0	42	68.9		
Large	54	18.0	19	31.1	5.432	**0.020**
Total	300	100.0	61	100.0		
Presence of Chronic Disease						
Yes	31	10.3	7	11.5		
No	269	89.7	54	88.5	0.070	0.791
Total	300	100.0	61	100.0		
Presence of Problems in Previous Pregnancy						
Yes	84	28.0	19	31.1		
No	118	39.3	27	44.3	1.539	0.463
First Pregnancy	98	32.7	15	24.6		
Total	300	100.0	61	100.0		
Desire for Current Pregnancy						
Yes	256	85.3	50	82.0		
No	44	14.7	11	18.0	0.445	0.505
Total	300	100.0	61	100.0		

Table 9. Related Factors for Women's Knowledge on Preconception Analysis, Tests, and Examinations

	Knowledge of Preconception Analysis, Tests and Examinations					
	Yes		**No**			
	n	**%**	**n**	**%**	**χ^2**	**P**
Employment Status						
Employed	45	35.7	54	23.0		
Unemployed	81	64.3	181	77.0	6.684	**0.010**
Total	126	100.0	235	100.0		
Educational Status						
Primary School or below	44	38.9	134	57.0		
High School	33	26.2	62	26.4	24.849	**0.000**
University and above	49	38.9	39	16.6		
Total	126	100.0	235	100.0		
Longest Lived Place						
Village/Town	18	14.3	63	26.8		
County	38	30.1	59	25.1	7.415	**0.025**
Province	70	55.6	113	48.1		
Total	126	100.0	235	100.0		
Perceived Income Status						
Less	18	14.3	70	29.8		
Equivalent/High	108	85.7	165	70.2	10.699	**0.005**
Total	126	100.0	235	100.0		
Family Type						
Nuclear	109	86.5	179	76.2		
Large	17	13.5	56	23.8	5.434	**0.020**
Total	126	100.0	235	100.0		
Presence of Chronic Disease						
Yes	15	11.9	23	9.8		
No	111	88.1	212	90.2	0.390	0.532
Total	126	100,0	235	100.0		
Presence of Problems in Previous Pregnancy						
Yes	40	31.7	63	26.8		
No	41	32.6	104	44.2	4.708	0.095
First Pregnancy	45	35.7	68	29.0		
Total	126	100.0	235	100.0		
Desire for Current Pregnancy						
Yes	112	88.9	194	82.5		
No	14	11.1	41	17.5	2.549	0.110
Total	126	100.0	235	100.0		

DISCUSSION

Preconception counselling/care is one of the most important healthcare services in gynaecology/obstetrics. It is vital to improve maternal/fetal health outcomes (Shannon et al., 2014; Ayalew et al., 2017). It aims to identify risk factors for women's health and pregnancy outcomes before conception and to address them appropriately (Beckmann et al., 2014; Van Voorst et al., 2015). Although significant progress has been made in antenatal care, a functional preconception care scheme is not in effect in Turkey (Başli & Aksu, 2018). This causes women not to be able to adequately access to preconception care. So, it is important to reveal knowledge levels of women about PCC and what extent they can reach this care and related factors.

Participants Knowledge and Views about PCC

In our study, most pregnant women had not heard PCC before. The women who were aware of this care had heard this from health institutions and nurses/midwives. A study conducted by Ayalew et al. (2017) has reported that most of the women did not hear PCC, and half of the women who heard this care obtained the information from a health institution. Another study has reported low awareness about preconception period among reproductive-aged women (Umar et al., 2019). This data is important, because obtaining information from health professionals increases the reliability of the information. Besides, this data has revealed the crucial role of nurses for PCC.

Our study has revealed that most of the women did not know the PCC exactly. We also observed that most women did not know about the pre-pregnancy analyzes tests, and examinations. Similarly to our research, some studies report a lack of knowledge about PCC (Williams et al., 2012; Temel et al., 2013; Ayalew et al., 2017; Lammers et al., 2017). Another research carried out among reproductive aged women has stated that only a small rate of women had enough knowledge of PCC as well (Lemma et al., 2022). This data indicates that women are not aware of the need for counselling/care in the pre-pregnancy period. This finding indicates the lack of knowledge about what to do before pregnancy. Besides, some of the women may be thinking about the test are only necessary during pregnancy. Furthermore, most of the women participating in the study have stated that PCC was necessary for both genders and all reproductive-aged individuals. However, Ayalew et al. (2017) has reported a different finding than our study. According to their study, most women did not know whom PCC was necessary for. This finding is valuable in terms of delivering this care to all reproductive aged individuals.

On the other hand, almost half of the participants in our study have stated that an obstetrician should provide PCC. According to the study of Bortolus et al. (2017), similarly to our study, women considered the obstetricians as primary source of information for preconception health. A study completed with Turkish population have also reported that most of the women expected this care from obstetricians (Genç Koyucu et al., 2017). This finding indicates that women thought PCC as the duty of obstetricians/doctors only. Along with this, they may be more confident about doctors' knowledge and guidance about it. Moreover, it can be learned from this data that nurses and midwives should improve their knowledge to provide concrete information and guidance to individuals.

The majority of women in this study thought that PCC was necessary. In a study carried out by Lammers et al. (2017), has presented a similar result. And, the most of the participants also wanted to receive PCC in their next pregnancy. The study conducted by Genç Koyucu et al. (2017) has revealed that women needed care before conception. Although this study supports our finding, there are some other studies that report different results. Lammers et al. (2017) has found that nearly half of the women were not interested in PCC. Besides, one of the studies has revealed that women did not want to receive PCC even though their attitudes were positive (Van der Zee et al., 2013). According to our study's results, it can be concluded that most women in Turkish society were aware of the importance of PCC and their attitudes were positive. This means; our population is eager to receive preconception care. This will be beneficial to health care professionals deliver care and educate people more easily.

Related Factors with Participants' Knowledge on PCC

According to this study, unemployed women were less likely to hear about PCC before. They did not know what PCC really was, for whom/in which situations it was necessary, and preconception tests, and examinations. In the study, education status was also an effective factor on the knowledge about PCC. Similarly, Ayalew et al. (2017) have reported that increased education levels increased the women's knowledge levels. Besides, Umar et al. (2019) also have presented the positive relation between employment status and awareness of PCC. The reason for this data may be considered as, unemployed women have fewer social interactions and access to information.

In this study, knowledge of women who has lived in a province for the longest time was found to be better. Residing in a developed city/town facilitates assists people access to health care and information effortlessly. Women with a better income and, women who owns a nuclear family had a higher knowledge on some topics. Lemma et al (2022) has reported that income status had significant effect on women's knowledge. Higher income status could facilitate access to health services, and women with larger families may think that preconception care was provided only in problematic situations. Moreover, our results have indicated that women who desired their pregnancy had a higher rate of knowing about PCC.

Related Factors with Participants' Status of Receiving PCC

In this study, most of the pregnant women did not receive PCC before their pregnancy. Some of the studies in the literature about the topic have presented similar results (Luton et al., 2014; Genç Koyucu et al., 2017). Contrary to our findings, a few researches have reported that approximately half of the participants had received PCC (Williams et al., 2012; Nilsen et al., 2016; Goossens et al., 2018). Some studies have reported that women mostly had received PCC (Lammers et al., 2017; Amanak & Karaçam, 2019). Our study result may be related to the absence of functional care diagrams. On the other hand, multiparous women who received prenatal care may have preferred not to ask for pre-pregnancy advice. This result shows us that, preconception care should be given more importance and people should be provided more concrete information on PCC.

Women's status of receiving PCC was not found as related to participant's characteristics in our study. However, in the study of Williams et al. (2012), women with a low education level and, women who did not plan their pregnancy were less likely to receive preconception care. Amanak & Karaçam (2019) have reported that women with a moderate income had a higher rate of receiving PCC. Another study conducted by Lammers et al. (2017) has shown that women who had planned pregnancy in 1-5 years had a higher rate of receiving PCC. Our result shows that each and every woman needs this care, and regardless of their individual characteristics, PCC should be accessible to the public.

CONCLUSION

This study indicates that nearly half of the participants had no information what this care was for. According to data, women had some information on the subject, but this could not be considered sufficient. As a result of the study, women's status of receiving PCC was unexpectedly low. Along with this, women had favourable opinions about PCC and they preferred to reach this care. Main related factors for knowledge were identified as employment status, educational status, longest-lived city/region, income status, family type, and desire for current pregnancy. There was no relation found between participants' characteristics and receiving PCC.

Preconception care requires a multidisciplinary approach. It is accepted as the duty of all health professionals who work with reproductive aged people. For this, health professionals should provide information about PCC to all reproductive-aged individuals. Since PCC is considered a primary health care, the roles of public health professionals come to the fore. Nurses should participate in certificate programs and in-service trainings so as to improve their knowledge and access to current scientific and functional information on PCC.

Health policies are required to be developed to cover deficiencies in the field. As for prenatal care, a flow chart and a national guideline should be formed for PCC by experts along with leading institutions for healthcare (World Health Organisation, Centre of Disease Control, etc). While offering these sources, Turkish population and health system characteristics must be taken into consideration. These documents should be made available to the public and all professionals. Preconception care should be provided as a routine health care, not depending on the wishes of individuals. People of reproductive age, especially women, should be invited for an interview to provide information on the subject regularly. In addition, follow-up appointments should be provided after the information sessions. It is recommended to conduct new studies with other sample groups and more individuals at different times and places to fill the void about the topic.

Limitations of the Research

There are some limitations present for this research. Researchers conducted this study as a descriptive and cross-sectional study, and information emerging from the research results may change over time. Since the participants were selected by the random sampling method, the study results only cover the sampled individuals. Finally, the data's reliability is limited by the accuracy of the information given by the women.

Despite of the limitations, this research could be considered as significant and beneficial. This research

will increase the awareness of all health professionals, nurses, and people on the topic. Thus, it will contribute to nurses taking an active role in completing the existing deficiencies in the area. Moreover, the research will contribute to the scientific knowledge and provide data to fill the lack of information. It will be useful to determine which factors are influential in accessing preconception care.

Araştırmanın Etik Yönü/ Ethics Committee Approval:

Ethics committee approval was obtained from the Adnan Menderes University Faculty of Nursing Non-Interventional Clinical Research Ethics Committee for the implementation of the research (Date: 21/05/2018 Protocol No: 2018/008). Institution permissions have also been obtained from the Aydın Gynecology and Pediatric Hospital (07.06.2018-69836136) and Aydın Adnan Menderes University Training and Research Hospital (11.06.2018-E.34155).

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