Genel Sağlık Bilimleri Dergisi
Journal of General Health Sciences (JGEHES)
DOI:https://doi.org/10.51123/jgehes.2022.40

Cilt: 4 Sayı:1 Yıl: 2022 Araştırma Makelesi / Research Article E-ISSN: 2687- 5403

The Relationship Between Pregnant Women's Prenatal Attachment Levels and Health Practices During Pregnancy and Affecting Factors

Arzu ABİÇ[1] Ahu AKSOY CAN[2] Duygu VEFİKULUÇAY YILMAZ[3]

[1]Eastern Mediterranean University, Faculty of Health Sciences, Nursing Department, Gazimağusa, Turkish Republic of Northern Cyprus, arzu.abic@gmail.com *(Sorumlu Yazar/ Corresponding Author)*
[2]Mersin University, Faculty of Nursing, Department of Obstetrics and Gynecology Nursing, Mersin, Turkey, aksoyahu91@gmail.com
[3]Mersin University, Faculty of Nursing, Department of Obstetrics and Gynecology Nursing, Mersin, Turkey, duyguulu@gmail.com

Article Info

Article History
Received: 21.09.2021
Accepted: 21.12.2021
Published: 25.04.2022

Keywords:
Prenatal Attachment,
Pregnancy,
Health Promotion,
Nursing.

ABSTRACT

Purpose: The aim of the study was to examine the factors affecting maternal satisfaction andearly parenting behavior at birthand the relationship between them.
Method: The research is descriptive and relationship-seeking. It was conducted with 168 women who had just given birth at the Faculty of Medicine Hospital in Konya and met the inclusion criteria between 03.04.2020 and 03.06.2020. The data of the study were collecte dusing the introductory information form, Postpartum Satisfaction Scaleand Postpartum Parenting Behavior Scale.
Results: It was found that there is a statistically significant relationship between the type of delivery, income status and planned pregnancy status of the women and their postpartum satisfactions coreaverages. Asignificant relationship was observed between birthtype, age, pregnancy and number of livingc hildren and postpartum early parenting behavior. It was determined that there was a weak, positive and statistically significant relationship between postpartum satisfaction an dearly parenting behavior.
Conclusions and Suggestions: Our study results showed that as women's postpartum satisfaction increases, their early parenting behaviors may also increase. Health professionals, especially midwives, should adoptand provide evidence-based and holistic care in order to increase birth satisfaction. This will lead to an increase in positive parenting behaviors that will affect the future life of the baby.

Gebelerin Prenatal Bağlanma Düzeyleri ile Gebelikteki Sağlık Uygulamaları Arasındaki İlişkinin ve Etkileyen Faktörler

Makale Bilgileri

Makale Geçmişi
Geliş: 21.09.2021
Kabul: 21.12.2021
Yayın: 25.04.2022

Anahtar Kelimeler:
Prenatal Bağlanma,
Gebelik,
Sağlık Uygulamaları,
Hemşirelik.

ÖZ

Amaç: Bu araştırma, üçüncü trimesterde bulunan gebelerin prenatal bağlanma düzeyleri ile gebelikteki sağlık uygulamaları arasındaki ilişkinin belirlenmesi amacıyla yapılmıştır.
Yöntem: Bu araştırmanın örneklemini 134 üçüncü trimester gebe oluşturmuştur. Araştırmanın verileri araştırmacılar tarafından hazırlanan gebe tanılama formu, Prenatal Bağlanma Envanteri ve Gebelikte Sağlık Uygulamaları Ölçeği II kullanılarak toplanmıştır.
Bulgular: Bu araştırmada gebelerin prenatal bağlanma ve gebelikte sağlık uygulamaları puan ortalamaları arasında orta düzeyde pozitif yönde anlamlı bir ilişkinin olduğu belirlendi ($r=0.496$; $p<0.001$). Araştırmamızda öğrenim düzeyi yüksek olan ve gebelikleri planlı olan kadınların prenatal bağlanma ve gebelikteki sağlık uygulamaları düzeylerinin daha yüksek olduğu saptandı ($p<0.05$). Buna ek olarak çalışan, gelir durumu iyi olan ve primipar gebelerin gebelikte sağlık uygulamalarına katılım düzeylerinin daha yüksek olduğu bulundu ($p<0.05$).
Sonuç ve Öneriler: Gebelerin prenatal bağlanma düzeyleri arttıkça gebelikte sağlık uygulamalarına katılımlarının arttığı belirlendi. Araştırmadan elde edilen sonuçlar doğrultusunda verilecek hemşirelik bakımında gebelerin prenatal bağlanma düzeyleri göz önüne alındığında gebelerin sağlık uygulamalarına katılımları artırılabilir.

*Bu çalışma 07-09 Ocak 2021 tarihinde 2. Uluslararası 3. Ulusal Halk Sağlığı Hemşireliği Kongresinde sözel bildiri olarak sunulmuştur.

Citation: Abiç, A., Aksoy Can, A. & Vefikuluçay Yılmaz, D. (2022). The relationship between pregnant women's prenatal attachment levels and health practices during pregnancy. *Genel Sağlık Bilimleri Dergisi, 4*(1), 21-28.

INTRODUCTION

Pregnancy is a crucial time for mothers, newborn, and child that needs some health practices. Health practices during pregnancy is defined as the activities surrounding the health of pregnant women as well as the fetus and newborn which affecting the course and result of the pregnancy (Lindgren, 2005). These practices involve balanced nutrition, not smoking or consuming alcohol, not using redundant pills, adequate physical activity, and participation in prenatal courses. Following these health practices can improve the health of the mother, fetus, and newborn and decrease the rate of negative health results (Lindgren, 2003; Alhusen et al., 2012; Alhusen et al., 2016). However, improper execution of these commands may lead to several problems such Health practices during pregnancy is defined as the activities surrounding the health of pregnant women as well as the fetus and newborn which affecting the course and result of the pregnancy (Lindgren, 2005). as stillbirth, premature birth, premature rupture of membranes, low birth weight, congenital anomalies, and mental retardation (Aksoy and Vefikuluçay Yılmaz, 2019).

Health practices during pregnancy have a crucial role in prenatal care. The Antenatal Care Model of the World Health Organization (WHO) and the Prenatal Care Management Guide of the Ministry of Health in Turkey suggest four follow-ups practices during pregnancy. These follow-ups practices include the detection of pregnancy complications, immunizations, assessment of alcohol use and smoking, detection of teratogens and other viral diseases, and acquisition of healthy life behaviors (World Health Organization, 2016; TC Sağlık Bakanlığı, 2014).

Studies showed that participation of mothers in health practices during pregnancy is related to many factors such as mental state, social support, health education, and planning of the pregnancy (Alhusen et al., 2016, Sezer and Sen, 2020, Hadian et al., 2019, Lindgren, 2001, Lancaster et al., 2010, Yanikkerem et al., 2013). One important factor that may affect participation in health practices during pregnancy is prenatal attachment (Maddahi et al., 2016). Prenatal attachment is a special relationship developed between the mother and fetus during pregnancy (Salehi and Kohan, 2017). The mother's acceptance of the changes that occur in her body during pregnancy and her ability to transfer positive emotions to her baby underlies this attachment. Prenatal attachment causes pregnant women to adapt to the motherhood role and establish a healthy relationship with her baby during the postpartum period (Abazari et al., 2017; Alhusen et al., 2013; Wada et al., 2020). Also, it was determined that pregnant women with a high level of prenatal attachment demonstrate more positive health behaviors and practices since they think that this will positively affect the health of their babies (Canella et al., 2018).

Health practices during pregnancy and prenatal attachment are two closely related factors. To the best of our knowledge, there are very few studies related to this subject, which is important for the protection and maintenance of society's health, especially the mother's and children's health. The result of this study can provide guidance in the planning of the consultancy related to the prenatal period and the delivery of nursing services. So, this study aimed to determine the relationship between the prenatal attachment levels of pregnant women in the third trimester and health practices during pregnancy.

METHOD

Research Design

This was a descriptive cross-sectional study that was conducted from 2019 to 2020 in Turkey.

Research Sample

The population included 134 pregnant women in the third trimester who applied to the Non-Stress Test Polyclinic of a public hospital for prenatal follow-up between the dates of November 2019 to January 2020. The inclusion criteria were the age 18 and above, being able to speak Turkish fluently,

not having any communication problem, chronic disease, or infertility treatment history, and being agree to participate in the study. The sample size of the study was calculated to be 82 with 80% statistical power and 0.05 margin of error considering the efforts to find a correlation of 0.3 rates, meaning mediocre effect size, between the Prenatal Attachment Inventory (PAI) and Health Practices in Pregnancy Questionnaire-II (HSQ-II) using the G Power 3.1.9.4 program.

Research Instruments and Processes

Data were collected using Prenatal Attachment Inventory (PAI) and Health Practices in Pregnancy Questionnaire-II (HSQ-II) as well as an identification form prepared by researchers in line with literature.

Pregnant Women Identification Form: This form included eight questions regarding the pregnant women's sociodemographic characteristics (age, education, Job, and income) and their obstetric characteristics (gravida, planning status of the pregnancy, experiencing health issues during pregnancy, and knowing the gender of the baby) (Lindgren, 2003; Lindgren, 2005; Alhusen et al., 2012; Alhusen et al., 2013; Alhusen et al., 2016; Abrazi et al., 2017).

Prenatal Attachment Inventory: This tool was developed by Muller in 1993 and adapted to Turkish by Yılmaz and Beji in 2009. This scale evaluate prenatal attachment and have 21 short items. The scale is scored with a 4-Likert options of "almost always (4 points)," "most of the time (3 points)," "sometimes (2 points)," and "almost never (1 point)". The lowest score is 21 and the highest score is 84. A higher score indicates a higher level of prenatal attachment. Yılmaz and Beji found the total Cronbach's Alpha coefficient to be .84 (Yılmaz and Beji, 2013). In this study, the Cronbach's Alpha coefficient was .90.

Health Practices in Pregnancy Questionnaire-II: This scale was used to collect the health practices of the pregnant women. This scale was developed in 2005 by Lindgren and its Turkish reliability and validity study was conducted in 2006 by Er. The scale includes 34 questions. However, during the Turkish reliability and validity study, a question related to marijuana abuse had a low internal validity mean score; therefore, it was excluded from the scale and the scale was administered with 33 questions. Items 5, 6, 7, 11, 21, 22, 23, 24, 25, 32, and 33 are reverse items and their coding is reversed. The lowest score is 33 and the highest score is 165. The highest score indicates that the best health practices were used during pregnancy. The lowest score indicates poor health practices. The Cronbach's alpha coefficient of the Turkish form of the scale is .74 (Er, 2006). In this study the Cronbach's Alpha coefficient was .77.

Data Analysis

Data were analyzed by a biostatistic specialist using the SPSS 20.0 package program (Statistical packet for Social Sciences for Windows). Descriptive statistic test were percentage, mean, and standard deviation. Variables were evaluated in terms of normality and homogeneity after controlling for prerequisites (Shapiro-Wilk Test and Levene test). Analytic statistic tests were Student's t-test for two-group mean score comparison, One Way ANOVA for mean score comparison of more than two groups, and Tukey test for multiple comparison tests. Pearson's correlation coefficient was used to determine the relationship between the two continuous variables. The level of statistical significance was considered at $p<0.05$. Test power was found to be 99% at the end of the study.

Ethic

The social sciences and humanities ethics committee of a public university approved this study on October 2019 (numbered 027). Also, written and oral permissions were obtained from the pregnant women who agreed to participate in the study.

RESULTS

Our analysis showed that the mean age of the pregnant women was 27.55±5.78. In total, 76.1% were not working, 69.4% had an equal income to their expenses, and 61.2% were multipara. Also, 70.9% had a planned pregnancy, 79.1% did not experience any health issues during pregnancy, and 53% had a male unborn baby. As table 1 indicates the mean PAI scores of the pregnant women were 61.57±11.73 and their mean HSQ-II scores were 123.48±14.00.

Table 1. *Pregnant Women's Mean PAI and HSQ-II Scores (n=134)*

	$\bar{X}$±SD	Min.-Max.	Cronbach α
PAI	61.57±11.73	35-84	.90
HSQ-II	123.48±14.00	84-151	.77

Our analysis showed significant difference between the mean scores of PAI and the education levels, whether the pregnancy was planned or not, and having any health issues during pregnancy ($p<0.05$) (Table 2). However, no statistically significant difference was found between the total score of PAI and the Gravida classification. However, primipara pregnant women's scores in the items of "I like to feel the movements of my baby," "I plan what will I do with my baby," and "I wonder where I touch on my baby's body" were significantly higher compared to multiparas.

Also, there were a statistically significantly difference between the mean scores of HSQ-II and the level of education, working status, level of income, gravida, and pregnancy's planning situation ($p<0.05$). Especially, primiparas possibilities to "regularly exercise at least three times a week twenty minutes a day," "take the multivitamins and prenatal vitamins prescribed by the physician or midwife," "attend the prenatal appointments," and "participate in prenatal class or plan to participate in an prenatal class" were determined to be highly significant compared to multiparas ($p<0.05$) (Table 2).

Table 2. *Mean scores of PAI and HSQ-II According to Sociodemographic and Obstetrics Characteristics of Pregnant Women (n=134)*

		Mean PAI Scores		Mean HSQ-II Scores	
	n	$\bar{X}$±SD	test / P	$\bar{X}$±SD	test / P
Education level[a]					
Illiterate	16	52.62±13.06		114.00±12.42	
Primary school	52	59.73±12.62	***F*** / p	116.63±12.67	***F*** / p
High school	38	61.47±8.80*, †	10.407 / <**0.001**	126.68±10.27*, †	25.225 / <**0.001**
University and more	28	70.21±6.69*, †, ‡		137.28±8.78*, †, ‡	
Working					
Yes	32	64.78±10.93	***t*** / p	131.93±14.13	***t*** / p
No	102	60.55±11.85	1.790 / 0.076	120.83±12.93	4.143 / <**0.001**
Income Status[a]					
Income<Expenditures	33	60.21±12.50		117.63±14.77	
Income=Expenditures	93	61.52±11.61	***t*** / p	124.88±13.39*	***t*** / p
Income>Expenditures	8	67.62±8.95	1.291 / 0.278	131.37±10.71*	4.877 / **0.009**
Gravida					
Primipara	52	63.07±11.87	***t*** / p	127.500±14.62	***t*** / p
Multipara	82	60.60±11.62	1.187 / 0.237	120.93±13.05	2.704 / **0.008**
Pregnancy					
Planned	95	63.14±11.24	***t*** / p	126.58±12.23	***t*** / p
Not planned	39	57.71±12.15	2.479 / **0.014**	115.92±15.27	4.254 / <**0.001**
Experiencing health problems during pregnancy					
Yes	28	62.61±11.51	***t*** / p	123.16±14.47	***t*** / p
No	106	57.60±11.93	2.031 / **0.044**	124.67±12.22	-0.506 / 0.614
Gender of the Baby[a]					
Girl	57	60.12±12.26		122.75±13.53	
Boy	71	62.56±11.23	***F*** / p	124.74±14.41	***F*** / p
I don't know	6	63.50±13.09	1.347 / 0.264	115.50±12.37	0.766 / 0.467

[a] Analysis of variance
***** Difference from the first category
† Difference from the second category
‡ Difference from the third category

This study found a positive mediocre significant correlation between PAI and HSQ-II (r=0.496; p<0.001). Accordingly, as the prenatal attachment levels of pregnant women increased, their participation levels in the health practices during pregnancy also increased (Table 3).

Table 3. *Relationship Between PAI and HSQ-II Mean Scores of the Pregnant Women*

	Statistical Value	HSQ-II
PAI	**r***	0.496
	p	<0.001

*Pearson's Correlation

DISCUSSION

This study aimed to determine the relationship between prenatal attachment and health practices during pregnancy. Our results showed that as the prenatal attachment levels of pregnant women increased, their participation levels in the health practices during pregnancy also increased.

This study showed that the prenatal attachment levels of the pregnant women was mediocre (61.57±11.73). Previous studies result also were similar with this study (Coşkun et al., 2019; Bakır and Sarızayim, 2020). A review of the literature showed that a higher prenatal attachment level is related to positive pregnancy, labor, and postpartum results. Pregnant women with a higher prenatal attachment have a healthier pregnancy, less labor-related fear, and a lower rate of depression and anxiety in the postpartum period (Salehi and Kohan, 2017; Coşkun et al., 2019; Bakır and Sarızayim, 2020; Pakseresht et al., 2018).

The minimum score of participation in health practices was 33 and the maximum score was 165. Thus, pregnant women's participation in the health practices was at a good level (123.48±14.00). Participation in health practices during pregnancy decreases risky pregnancies and postpartum complications, causes newborns to be healthy, and decreases the burden on healthcare services (Alhusen et al., 2016).

One of our findings was that prenatal attachment was directly affected by the status of pregnancy (planned or not). So, planned pregnancies can increase the prenatal attachment level. Previous studies also support this finding (Ossa et al., 2012; Yılmaz and Beji, 2013; Karakoç and Ozkan, 2017; Pakseresht et al., 2018; Coşkun et al., 2019; Karabulutlu et al., 2020; Çelik and Güneri, 2020). Pregnant women with unplanned pregnancies fall behind in receiving health care services, encounter more risky situations, have more complications, and have less self-care (Boden et al., 2015; Goossens et al., 2016; Srewart et al., 2016; Canella et al., 2018). In this regards, Zibellina et al. highlighted that a planned pregnancy and women's level of education has great importance for the increase of prenatal attachment and a healthy pregnancy. They said that as the level of education increased, prenatal attachment levels also increased (Zibellina et al., 2021). Similarly, Yılmaz and Beji (2013) and Çelik and Güneri (2020) found that the level of attachment between mother and baby increased during the prenatal period as the mother's level of education increased (Yılmaz and Beji, 2013; Çelik and Güneri, 2020). These results can be explained by the fact that women with higher level of education and planned pregnancies are ready to carry out their new roles and responsibilities.

This study also found that pregnant women who worked and had a good income participated more in the health practices. Similarly, previous studies showed that participation in health practices was associated with several sociodemographic characteristics. It was said that women's participation in health practices increases as their socioeconomic level increases (Onat and Aba, 2014; Gokyildiz et al., 2014). As Kim et al. stated, the socio-economical levels can affect nutrition, exercise, going to the pregnancy follow-ups, and taking the necessary vitamins during the pregnancy period (Kim et al., 2018). The level of education, working, and income status are the most significant determiners of the socioeconomic status and provided advantages for women to access health practices during pregnancy and the later periods, contributing to the mother's and child's health.

This study found that the participation in the health practices of multiparas was lower than that of the primiparas. Also, in a meta-analysis it was found that parity may decrease following health practices during subsequent pregnancies (Canella et al., 2018). This result indicated that multiparas were in a risky group in terms of health practices and they should be evaluated more carefully by nurses.

Furthermore, we found that as the prenatal attachment levels increased among pregnant women, the level of participation in health practices also increased. Brandon et al. (2009) indicated that pregnant women with higher prenatal attachment levels had higher levels of participation in health practices (Brandon et al., 2009). Also, Canella et al. (2018) found that prenatal attachment is a significant factor in health practices during pregnancy (Canella et al., 2018). So, nursing interventions that can evaluate and increase prenatal attachment seems to play a significant role in bringing health practices to the desired level during pregnancy.

CONCLUSION AND SUGGESTIONS

Our results showed that as the prenatal attachment levels of pregnant women increased, their participation levels in the health practices during pregnancy also increased. So, it is important to learn strategies to increase prenatal attachment to develop positive health behaviors during the prenatal period as well as using informing and consulting services. These consultancy services should involve not only the pregnant women but also the spouse and other family members. It should be highlighted that inadequate prenatal attachment may have negative effects on health practices performed by pregnant women. Women's health nurses can play a crucial role in these consultant services and it is recommended to determine the prenatal attachment levels of pregnant women and the affecting factors. Also, support groups should be created regarding prenatal care and training should be provided regarding the subject. Also, the relationship between prenatal attachment and health practices during pregnancy should be deeply explored by a qualitative studies or a quantitative one with larger sample groups.

Financial Support

No financial support.

Conflict of Interest

No conflict of interest.

Author Contributions

Design: A.A., A.A.C., D.V.Y., Data Collection or Processing: A.A., A.A.C., Analysis or Interpretation: A.A., A.A.C., Literature Search: A.A., A.A.C., D.V.Y., Writing: A.A., A.A.C., D.V.Y.

Acknowledgements

We thank all pregnant women who supported the conduct of the study.

REFERENCES

Abazari, F., Pouraboli, B., Tavakoli, P., Aflatoonian, M., & Kohan, M. (2017). Anxiety and its relationship with maternal fetal attachment in pregnant women in southeast of Iran. *i-Manager's Journal on Nursing*., *7*(3), 16-27. https://doi.org/10.26634/jnur.7.3.13788

Aksoy, A., & Vefikuluçay, Yılmaz, D. (2019). Toplum sağlığını arttırmada yeni bir hizmet modeli: prekonsepsiyonel bakım ve hemşirenin rolü. *Hemşirelikte Eğitim ve Araştırma Dergisi*., *16*(1), 60-67. https://doi.org/10.5222/HEAD.2019.060

Alhusen, J.L., Gross, D., Hayat, M.J, Woods, A.B, & Sharps, P.W. (2012). The influence of maternal fetal attachment and health practices on neonatal outcomes in low-income, urban women. *Res Nurs Health. 35*, 112–120. https://pubmed.ncbi.nlm.nih.gov/22262085/

Alhusen, J.L, Hayat, M.J, & Gross, D. (2013). A longitudinal study of maternal attachment and infant developmental outcomes. *Archives of Women's Mental Health*, *16*(6), 521-529. https://pubmed.ncbi.nlm.nih.gov/23737011/

Alhusen, J.L, Ayres, L., & DePriest, K. (2016). Effects of maternal mental health on engagement in favorable health practices during pregnancy. *Journal of Midwifery & Women's Health*. 61(2), 210-216. doi: 10.1111/jmwh.12407. https://pubmed.ncbi.nlm.nih.gov/26849176/

Bakır, N., Ölçer, Z., & Oskay, Ü. (2014). Yüksek riskli gebelerin prenatal bağlanma düzeyleri ve etkileyen faktörler. *Uluslararası Hakemli Kadın Hastalıkları ve Anne Çocuk Sağlığı Dergisi*, 1, 16–36. https://dergipark.org.tr/en/download/issue-file/7875

Bakır, N., & Sarızayim, S. (2020). The relationship between psychosocial health and prenatal attachment in pregnant women. *Perinatal Journal., 28*(2), 73–81. https://www.perinataldergi.com/Files/Archive/tr-TR/Articles/PJ-69e8e270-91d0-4163-a7d1-9ac70d61a409.pdf

Boden, J.M, Fergusson, D.M, & Horwood, L.J. (2015). Outcomes for Children and Families Following Unplanned Pregnancy: Findings from a Longitudinal Birth Cohort. *Child Indic Res*. *8*(2), 389-402. doi:10.1007/s12187-014-9241-y. https://link.springer.com/content/pdf/10.1007/s12187-014-9241-y.pdf

Brandon, A.R, Pitts, S., Denton, W.H, Stringer, C.A, & Evans, H.M. (2009). A History of The Theory of Prenatal Attachment. *Journal of Prenatal and Perinatal Psychology and Health*. *23*, 201–222. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3083029/pdf/nihms184421.pdf

Cannella, B.L, Yarcheski, A., & Mahon, N.E. (2018). Meta-analyses of predictors of health practices in pregnant women. *Western Journal of Nursing Research*. *40*(3), 425-446. https://doi.org/10.1177/0193945916682212

Coşkun, A., Okcu, G., & Arslan, S. (2019). The impact of distress experienced during pregnancy on prenatal attachment. *Perinatal Journal. 27*(2), 49–55. https://www.readcube.com/articles/10.2399%2Fprn.19.0272001

Çelik, F.P, & Güneri, S.E. (2020). The relatıonshıp between adaptatıon to pregnancy and prenatal attachment ın hıgh-rısk pregnancıes. *Medicina Academica Mostariensia. 8*(1), 170-177. https://hrcak.srce.hr/file/381901

Er, S. (2006). Gebelikte Sağlık Uygulamaları Ölçeği Türkçe Formu'nun Geçerlik ve Güvenirlik Çalışması. Dissertation [Yüksek Lisans Tezi, Ege Üniversitesi]. https://toad.halileksi.net/sites/default/files/pdf/gebelikte-saglik-uygulamalari-olcegi-toad.pdf

Gokyildiz, S., Alan, S., Elmas, E., Bostanci, A., & Kucuk, E. (2014). Health promoting lifestyle behaviours in pregnant women in Turkey. *International Journal of Nursing Practice*., *20*(4), 390-397. https://doi.org/10.1111/ijn.12187

Goossens, J., Van, Den, Branden, Y., Van, der, Sluys, L., Delbaere, I., Van, Hecke, A., Verhaeghe, S., & Beeckman, D. (2016). The prevalence of unplanned pregnancy ending in birth, associated factors, and health outcomes. *Hum Reprod. 31*(12), 2821-2833. https://doi.org/10.1093/humrep/dew266

Hadian, T., Mousavi, S., Meedya, S., Mohammad-Alizadeh-Charandabi, S., Mohammadi, E., & Mirghafourvand, M. (2019). Adolescent pregnant women's health practices and their impact on maternal, fetal and neonatal outcomes: A mixed method study protocol. *Reproductive Health. 16*(45). https://doi.org/10.1186/s12978-019-0719-4.

Karabulutlu, Ö., Beydağ, K.D., & Lazoğlu, M. (2020). Prenatal attachment levels and affectig factors of pregnant women living in istanbul and kars. *Kafkas J Med Sci*., *10*(1), 24–31. doi: 10.5505/kjms.2020.35002. https://dergipark.org.tr/tr/download/article-file/1151016

Karakoç, H., & Ozkan, H. (2017). The relationship with prenatal attachment of psychosocial health status of pregnant women. *International Journal of HealthSciences.* 5(1), 36-46. http://ijhsnet.com/journals/ijhs/Vol_5_No_1_March_2017/6.pdf

Kim, M.K., Lee, S.M., Bae, S.H., Kim, H.J., Lim, N.G., Yoon, S.J., Lee, J.Y., & Jo, M.J. (2018). Socioeconomic status can affect pregnancy outcomes and complications, even with a universal healthcare system. *International Journal for Equity in Health. 17*, 2. https://equityhealthj.biomedcentral.com/track/pdf/10.1186/s12939-017-0715-7.pdf

Lancaster, C.A., Gold, K.J., Flynn, H.A., Yoo, H., Marcus, S.M., & Davis, M.M. (2010). Risk factors for depressive symptoms during pregnancy: a systematic review. *American Journal of Obstetrics and Gynecology*, *202*(1), 5-14.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2919747/pdf/nihms-204040.pdf

Lindgren, K. (2001). Relationships among maternal–fetal attachment, prenatal depression, and health practices in pregnancy. *Research in Nursing & Health, 24*(3):,203-217. https://doi.org/10.1002/nur.1023

Lindgren, K.A. (2003). Comparison of pregnancy health practices of women in inner-city and small urban communities. *J Obstet Gynecol Neonatal Nurs*. *32*, 313-321. https://doi.org/10.1111/j.1552-6909.2012.01385.x

Lindgren, K. (2005). Testing the health practices in pregnancy questionnaire-II. *Journal of Obstetric, Gynecologic and Neonatal Nursing. 34*, 465–472. https://www.sciencedirect.com/science/article/abs/pii/S0884217515342842?via%3Dihub

Maddahi, M.S., & Dolatian, M. (2016). Correlation of maternal-fetal attachment and health practices during pregnancy with neonatal outcomes. *Electronic Physician*, *8*(7), 2639-2644. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014503/pdf/epj-08-2639.pdf

Onat, G., & Aba, Y.A. (2014). Health-promoting lifestyles and related factors among pregnant women. *Turkish Journal of Public Health*., *12*(2), 69-79. https://doi.org/10.20518/thsd.69694

Ossa, X., Bustos, L., & Fernandez, L. (2012). Prenatal attachment and associated factors during the third trimester of pregnancy in Temuco, Chile. *Midwifery*, *28*(5), 689–696. https://reader.elsevier.com/reader/sd/pii/S0266613811001318?token=322AB8C0AD1D88963E2EAF993A0412A862314946B009F9DCB654B43077A711F62DDD01D0D81745314641C428C721BE5A&originRegion=eu-west-1&originCreation=20220223074131

Pakseresht, S., Rasekh, P., & Leili, E.K. (2018). Physical health and maternal-fetal attachment among women: Planned versus unplanned pregnancy. *International Journal of Women's Health and Reproduction Sciences*. *6*(3), 335-341. http://ijwhr.net/pdf/pdf_IJWHR_298.pdf

Salehi, K., & Kohan, S. (2017). Maternal-fetal attachment: what we know and what we need to know. *International Journal of Pregnancy & Child Birth*. *2*(5), 146–148. https://medcraveonline.com/IPCB/IPCB-02-00038.pdf

Sezer, G., & Sen, S. (2020). The effect of individual counseling intervention on health practices in pregnancy: A randomized controlled trial. *Health Education Research*. *35*(5), 450-459. https://doi.org/10.1093/her/cyaa025

Stewart, H., McCall, S.J., McPherson, C., Towers, C.L, Lloyd, B., Fletcher, J., & Bhattacharya, S. (2016). Effectiveness of peri-abortion counselling in preventing subsequent unplanned pregnancy: A systematic review of randomised controlled trials. *J Fam Plann Reprod Health Care*., *42*(1), 59-67. https://srh.bmj.com/content/familyplanning/42/1/59.full.pdf

Türkiye Cumhuriyeti Sağlık Bakanlığı (2014). Türkiye Halk Sağlığı Kurumu. Doğum Öncesi Bakım Rehberi. 2014. Accessed May 18, 2020. https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/dogumonubakim.pdf

Wada, F.H., Prabandari, Y.S., & Hapsari, E.D. (2020). Bonding and attachment experience among postnatal mothers with spontaneous childbirth. *Belitung Nursing Journal*., *6*(1), 14-20. https://doi.org/10.33546/bnj.779

World Health Organization (WHO) (2016). Recommendations on Antenatal Care for a Positive Pregnancy Experience: Summary. Highlights and Key Messages from the World Health Organization's 2016 Global Recommendations for Routine Antenatal Care. Accessed May 18, 2020. https://apps.who.int/iris/bitstream/handle/10665/259947/WHO-RHR-18.02-eng.pdf;jsessionid=F6025C1A56C9C4D8C7AE5B1946F31329?sequence=1

Yanikkerem, E., Ay, S., & Piro, N. (2013). Planned and unplanned pregnancy: Effects on health practice and depression during pregnancy. *Journal of Obstetrics and Gynaecology Research*, *39*(1), 180-187. https://doi.org/10.1111/j.1447-0756.2012.01958.x

Yılmaz, S.D, & Beji, N.K. (2013). Prenatal bağlanma envanterinin Türkçe'ye uyarlanması: Güvenilirlik ve geçerlilik çalışması. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi*, *16*(2), 103-109. https://dergipark.org.tr/tr/download/article-file/29648

Yılmaz, S.D, & Beji, N.K. (2013). The effects of perinatal loss on the current pregnancy in Turkey. *Midwifery*. *29*(11), 1272–1277. https://reader.elsevier.com/reader/sd/pii/S0266613812002240?token=5AE63C0A55852985861D952771E903ABE39D874DEDB659306212D9463DCFFB9EA2B58483189DE8B4DE9A47BE259E32EC&originRegion=eu-west-1&originCreation=20220223074905

Zibellinia, J., Muscat, D.M, Kizirianc, N., & Gordon, A. (2021). Effect of health literacy interventions on pregnancy outcomes: A systematic review. *Women and Birth*., *34*(2), 180-186. https://reader.elsevier.com/reader/sd/pii/S1871519219308546?token=F892C596F1202F2CE9640089D9A2F331515B536FB8422BD93D10D5B28539BB8D416F1A84247221A02C0BE98B28AAB5B1&originRegion=eu-west-1&originCreation=20220223074941