



The Effect of Religious Belief on the Attitudes of Pregnant's Toward the Fetal Health

Emre Demir¹ · Engin Yıldırım²

Published online: 10 April 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

The purpose of this study is to identify the effect of religious beliefs on the attitudes of pregnant women toward the health of the fetus. Pregnancy, one of the important periods of life, is a special period in terms of affecting both the mother's and the baby's health. Health beliefs and attitudes are the factors that have effects on mother–baby death rates (mortality)—which is one of the most important criteria showing health level of societies. However, the literature has limited number of studies on this issue. Volunteer participants who applied to the Gynecology and Obstetrics Polyclinic were administered a questionnaire in order to identify the frequency of performing worship practices. Women's beliefs about their roles in determining their fetus's health were measured using Fetal Health Locus of Control (FHLC) scale. FHLC scale is composed of 3 sub-scales which include Internality Locus of Control (FHLC-I), Chance Locus of Control (FHLC-C), and Powerful Others Locus of Control (FHLC-P). Non-normally distributed scale scores were analyzed with Mann–Whitney *U* test for two independent groups and Kruskal–Wallis test for three independent groups. The scores obtained from all the sub-scales of the FHLC scale according to the praying groups were statistically significant ($p=0.008$, $p<0.001$, $p<0.001$, respectively). The sub-scale scores were not statistically significant according to the tendency of giving alms ($p=0.269$, $p=0.695$, $p=0.079$, respectively). The FHLC-I and FHLC-P scores did not indicate differences according to the tendency of going to pilgrimage ($p=0.914$, $p=0.578$), but FHLC-C scores were significantly higher in those who tended to go to pilgrimage ($p=0.004$). There was a significant relationship between the tendency of performing prayer and going to pilgrimage and attitudes toward performing double–triple tests and oral glucose tolerance test ($p=0.002$, $p=0.035$, respectively). Religious beliefs were influential on the attitudes of pregnant women toward the health of the fetal. Gynecologists should consider patients' religious belief sensitivity while recommending them screening tests or planning their medication.

Keywords Fetal health · Pregnant · Religious rituals · Religious belief · Worship practices

Introduction

Pregnancy, one of the important periods of life, is a special period in terms of affecting both the mother's and the baby's health. The changes occurring in pregnant women in this period are very important for both the expectant mother and the fetus growing. Various studies in the field of medicine report that pregnancy follow-ups should start when couples think of having children (Casanueva et al. 2003). The mother-to-be is recommended to follow some procedures for pregnancy before she gets pregnant in order to enhance the healthy growth and development of the fetus (Schreiber and Traxler 2015). An example of this procedure includes taking folic acid before pregnancy; the benefits of folic acid for the baby's health have been reported in various study results (Chitayat et al. 2016). Folic acid plays an important role in the construction of new cells by participating in the DNA and RNA production. It works with vitamin B12 for the formation of hemoglobin, which is a rich protein in terms of iron in red blood cells (Kharb et al. 2018).

The baby's central nervous system starts to develop before the expectant mother is aware that she is pregnant. If the folic acid level of the mother is not sufficient, tissue incorporation in the neural tube might not occur completely, which could lead to the condition which is known as "spina bifida," a gap in baby's spine. In addition, as the insufficiency in folic acid level also causes central nervous system diseases, it could even cause the baby to die after birth before it develops (Zaganjor et al. 2016).

Health locus of control refers to the pregnant women's control of the pregnancy period. Pregnant women's attitudes are of great importance in this period. Beliefs and attitudes of pregnant women toward their pregnancy have effects on their behaviors about taking folic acid and iron and performing some tests such as double test, triple test, and oral glucose tolerance test. Locus of control was found to have effects on following prenatal health recommendations. Shortly, the pregnancy period, which affects both the mother's and the baby's health, is one of the important periods that requires determining the locus of control and taking appropriate actions (Duyan et al. 2012).

Labs and Wurtele (1986) reported that women's lack of strong internality could risk the unborn baby's health and they developed the Fetal Health Locus of Control (FHLC) in order to identify women's beliefs about their individual roles in determining the health of their unborn baby (Labs and Wurtele 1986). FHLC, developed by Labs and Wurtele (1986), was adapted to Turkish by Duyan et al. (2012). The scale aims to make guessing about the factors that could contribute to the health-related recommendations during pregnancy easier. FHLC scale is beneficial for guessing the health-related behaviors especially in the pregnancy period, and it contributes to the intervention programs developed for women with potential risk (Duyan et al. 2012).

Health beliefs and attitudes are the factors that have effects on mother–baby death rates (mortality)—which is one of the most important criteria showing health level of societies. However, the literature has limited number of studies on this issue. For instance, some women reject to perform double and triple tests due to their religious beliefs. They sometimes do not let the removal of the fetuses with anomalies.

The concepts of religion and religiousness have been defined in various disciplines such as sociology, psychology, and history in their own context (Muslu and Demir 2019; Demir 2019). Multidimensional nature of religion makes it difficult to define it and measure the level of religiousness. Koenig HG defined religion as an organized system of beliefs, practices, rituals, and symbols in order to make closeness to the religious, sacred transcendent (God) easier (Demir 2019; Koenig et al. 2001). Despite the fact that the literature includes numerous scales to measure religiousness, it is not possible to measure religious attitudes directly (Coştu 2009) because religious attitudes have various individual inner and psychological aspects. Therefore, measurement of religious attitudes could be possible only relatively. The most important indicators of religiousness in the Islamic religion are considered to be the level of performing pillars of Islam (Koenig et al. 2001). Therefore, instead of using a scale, the present study assessed pregnant women's religious beliefs through religious rituals, one of the greatest indicators of level of belief in the Islamic religion. The purpose of this study is to identify the effect of religious beliefs on the attitudes of pregnant women toward the health of the fetal.

Materials and Methods

Inclusion criteria were applying to the Gynecology and Obstetrics clinic, being 18 and over, being pregnant, and having the Islamic religion; exclusion criteria included being under 18 and not wanting to give information about religious beliefs. Volunteer participants who applied to the Gynecology and Obstetrics Polyclinic were administered a questionnaire in order to identify the frequency of performing worship practices. In each item in the questionnaire, the participants chose the option that indicated the frequency of performing worship practices. Women's beliefs about their roles in determining their fetus's health were measured using FHLC. Duyan et al. (2012) performed the validity and the reliability of the scale for adapting it to Turkish; this study utilized the Turkish version of the FHLC.

FHCL scale is composed of 18 items and 3 sub-scales which include Internality Locus of Control (1, 6, 8, 12, 15, and 17 items), Chance Locus of Control (2, 4, 9, 11, 14, and 16 items), and Powerful Others Locus of Control (3, 5, 7, 10, 13, and 18 items). The participants were asked to respond to the questions in the items between "I totally disagree=0" and "I totally agree=9." Hence, total score to be obtained from each sub-scale ranges from 0 to 54. Higher scores indicate positive attitudes toward "internality," "chance," or "powerful others," and lower scores indicate negative attitudes. The scores obtained from the scale were statistically compared with the religious beliefs frequency groups obtained from the questionnaire.

Before the start of the study, all individuals included in the study were informed about the study, and informed consent forms were obtained. The study was approved by Ethics Committee of the Hitit University Medical Faculty, and the study was conducted in accordance with the Helsinki Declaration.

Statistical Analysis

The data were analyzed by using SPSS (version 22.0, SPSS Inc., Chicago, IL, USA, license: Hitit University). The ggplot2 (version 3.1.0) package was used for figure generation in R Studio (version 1.1.447). Descriptive statistics for continuous variables were reported with median (minimum–maximum) in accordance with the distribution of data. In addition, mean \pm standard deviation (SD) was presented. Descriptive statistics of categorical data were presented as numbers and percentage (%). The normality distribution of data was evaluated by the Shapiro–Wilk test for statistical test selection. Homogeneity of variances was evaluated by Levene test. The nonparametric Mann–Whitney U test was used to compare the scale scores of the two independent groups according to worship practice groups and screening test preferences. The nonparametric Kruskal–Wallis test followed by post hoc pairwise multiple comparison was used to compare the scale scores of more than two independent performing prayer groups. Between-groups comparisons were performed using the Fisher exact test for categorical variables. p value < 0.05 was considered statistically significant.

Sample Size Estimation

A priori we determined the minimum number of participants required using a sample size estimation analysis with G-power package program. A total of 116 pregnancies were included in the study as a result of the sample size estimation analysis, which was performed with a medium effect size of Cohen (1988) criteria using the Student's t test with $\alpha = .05$ and $\text{power} = .80$ for the main objective of this study.

Results

Average age of the 116 participating pregnant women was 27.49 ± 5.55 . While the youngest participant was aged 18, the oldest one was aged 40. Average gestational week was 25.67 ± 7.89 . Of all the participating pregnant women, 30 (25.9%) graduated from primary school, 32 (27.6%) graduated from high school, 49 (42.2%) had associate/undergraduate degree, and 5 (4.3%) had postgraduate degree. Of all the participants, 55 (47.4%) did not work, 15 (12.9%) had minimum wage, 45 (38.8%) earned between 2000 and 5000 TL, and 1 (0.9%) reportedly had income of over 5000 TL. Other demographic characteristics are presented in Table 1. Scale mean scores were 44.17 ± 4.68 for the FHLC-I, 33.02 ± 4.84 for the FHLC-C, 44.30 ± 4.76 for the FHLC-P (Table 1).

Comparison of the scale scores according to the worship practices such as headscarves, alms, pilgrimage, and fasting is given in Table 2. The scale scores were not statistically significant according to the tendency of giving alms ($p = 0.269$, $p = 0.695$, $p = 0.079$, respectively). The FHLC-I and FHLC-P scores did not indicate differences according to the tendency of going to pilgrimage ($p = 0.914$, $p = 0.578$),

Table 1 Clinical characteristics of study population ($n = 116$)

	Mean \pm SD	Median (min–max)
Age (years)	27.49 \pm 5.55	28 (18–40)
Gravida	2.05 \pm 1.09	2 (1–5)
Parity	0.80 \pm 0.78	1 (0–3)
Live	0.75 \pm 0.78	1 (0–3)
Abortion	0.26 \pm 0.66	0 (0–4)
Gestational age at delivery (weeks)	25.67 \pm 7.89	26 (10–40)
Internality (FHLC-I)	44.17 \pm 4.68	44 (21–54)
Chance (FHLC-C)	33.02 \pm 4.84	34 (11–47)
Powerful Others (FHLC-P)	44.30 \pm 4.76	44 (28–53)

FHLC Fetal Health Locus of Control, SD standard deviation

but FHLC-C scores were significantly higher in those who tended to go to pilgrimage ($p = 0.004$). Both headscarves groups and fasting groups indicated significant differences in all scale scores ($p < 0.05$, Table 2). Figure 1 displays the boxplot in relation to the comparison of sub-scale scores according to the tendency of fasting.

Comparison of the scale scores according to the level of performing prayers is given in Table 3. The scores obtained from all the sub-scales of the scale according to the praying groups were statistically significant ($p = 0.008$, $p < 0.001$, $p < 0.001$, respectively, Table 3). The FHLC-I and FHLC-P scores indicated differences only between the “sometimes” and “five time” groups ($p = 0.007$, $p < 0.001$, respectively). The FHLC-C scores were significantly lower in the “never” group compared to the “sometimes” and “five time” groups ($p = 0.002$, $p < 0.001$, respectively, Fig. 2).

There were no relationships between headscarves, fasting, alms, and attitudes toward performing double–triple tests and oral glucose tolerance test ($p = 0.152$, $p = 0.599$, $p = 0.235$, respectively). There was a significant relationship between the tendency of performing prayer and going to pilgrimage and attitudes toward performing double–triple tests and oral glucose tolerance test ($p = 0.002$, $p = 0.035$, respectively; Table 4). As the frequency of performing prayer increased, there was a decrease in the attitudes of accepting to perform double–triple tests and oral glucose tolerance test. Attitudes of accepting the tests were lower in those who tended to go to pilgrimage as well (Fig. 3).

Discussion

Result of the present study showed that when the participants’ religious practices were categorized based on alms, no differences were found between the scale scores. However, an analysis of the participants’ performing prayer habits showed that those who performed five time prayers entrusted the fetus to faith more, and their internality and powerful others scores were lower. In addition, internality and powerful others scores were lower in those who adopted veiled clothes, and they were found to trust faith more.

Table 2 Comparison of Fetal Health Locus of Control scale scores according to the levels of some worship practices

	<i>N</i>	Mean \pm SD	Median (min–max)	<i>p</i> value
<i>Headscarf</i>				
Internality				
Yes	53	42.49 \pm 3.57	43 (32–52)	< 0.001*
No	63	45.59 \pm 5.05	46 (21–54)	
Chance				
Yes	53	34.81 \pm 3.37	35 (25–44)	< 0.001*
No	63	31.51 \pm 5.37	32 (11–47)	
Powerful others				
Yes	53	42.11 \pm 3.24	42 (36–51)	< 0.001*
No	63	46.14 \pm 5.06	47 (28–53)	
<i>Alms</i>				
Internality				
Yes	85	43.96 \pm 4.69	43 (21–54)	0.269
No	31	44.74 \pm 4.70	45 (32–53)	
Chance				
Yes	85	33.13 \pm 3.68	34 (26–44)	0.695
No	31	32.71 \pm 7.20	34 (11–47)	
Powerful others				
Yes	85	43.81 \pm 4.85	44 (28–53)	0.079
No	31	45.65 \pm 4.26	46 (37–53)	
<i>Thought of going to pilgrimage</i>				
Internality				
Yes	101	44.23 \pm 4.52	44 (21–54)	0.914
No	15	43.80 \pm 5.82	44 (32–52)	
Chance				
Yes	101	33.73 \pm 3.93	34 (26–47)	0.004*
No	15	28.20 \pm 7.33	28 (11–39)	
Powerful others				
Yes	101	44.18 \pm 4.69	44 (28–52)	0.578
No	15	45.13 \pm 5.30	45 (37–53)	
<i>Fasting</i>				
Internality				
Never-sometimes fasted	59	45.31 \pm 4.63	46 (32–53)	0.002*
Fasted in the month of Ramadan	57	43.00 \pm 4.48	43 (21–54)	
Chance				
Never-sometimes fasted	59	31.15 \pm 5.50	32 (11–47)	< 0.001*
Fasted in the month of Ramadan	57	34.95 \pm 3.05	35 (28–44)	
Powerful others				
Never-sometimes fasted	59	46.22 \pm 4.59	47 (37–53)	< 0.001*
Fasted in the month of Ramadan	57	42.32 \pm 4.09	42 (28–51)	

*Mann–Whitney *U* test statistically significant, *SD* standard deviation

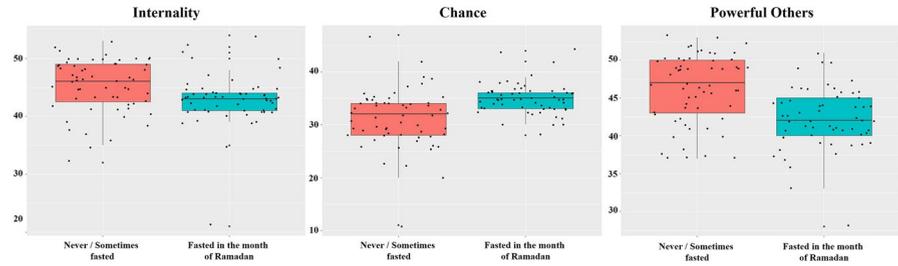


Fig. 1 Comparison of Fetal Health Locus of Control scale sub-scores according to the levels of fasting

Table 3 Comparison of Fetal Health Locus of Control scale scores according to levels of performing prayer

Prayer	N	Mean ± SD	Median (min–max)	p value	Post hoc p value
<i>Internality</i>					
Never	14	42.21 ± 8.58	42.5 (21–52)	0.008*	1–2: p = 0.669
Sometimes	76	45.08 ± 4.03	45.0 (35–54)		1–3: p = 0.948
Five time	26	42.58 ± 2.58	42.5 (39–51)		2–3: p = 0.007*
<i>Chance</i>					
Never	14	26.86 ± 7.14	27.5 (11–39)	< 0.001*	1–2: p = 0.002*
Sometimes	76	33.42 ± 4.13	34.0 (26–47)		1–3: p < 0.001*
Five time	26	35.15 ± 1.93	35.0 (32–42)		2–3: p = 0.051
<i>Powerful others</i>					
Never	14	44.00 ± 7.40	44.5 (28–53)	< 0.001*	1–2: p = 1.000
Sometimes	76	45.32 ± 4.30	46.0 (33–52)		1–3: p = 0.103
Five time	26	41.50 ± 2.97	41.0 (37–51)		2–3: p < 0.001*

*Kruskal–Wallis test statistically significant, SD standard deviation

Of all the pregnancies, approximately 3 to 5% are complicated due to genetic diseases or birth defects; these complications cause infant and childhood period deaths (Centers for Disease Control and Prevention (CDC) Update on overall prevalence of major birth defects—Atlanta, Georgia 1978). Approximately 1/150 of live births have chromosome anomalies, and the most frequently encountered chromosome anomaly is trisomy 21, which is followed by trisomy 13 and 18 (American College of Obstetricians and Gynecologists 2016). Free beta human chorionic gonadotropin (HCG) and pregnancy-associated plasma protein A (PAPP A) are used in combination with fetal sonographic nuchal translucency (double test) in the first trimester in order to screen fetal anomalies and chromosome defects. Fetal aneuploidy risk increases with the increase in the mother’s age, and the proportion of detection with screening test ranges between 82 and 87% (American College of Obstetricians and Gynecologists 2016). Triple test is performed in the second trimester of pregnancy for fetal aneuploidy screening. This test requires no specific ultrasonographic measurements. Maternal serum HCG, inhibin A, alpha fetoprotein (AFP), unconjugated estriol are

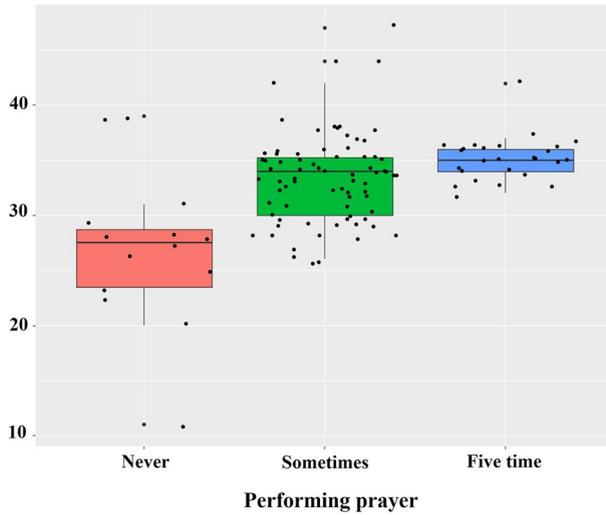


Fig. 2 Comparison of Fetal Health Locus of Control scale-chance scores according to the levels of performing prayer

Table 4 Relation between performing prayer and thought of going to pilgrimage groups and double–triple test screening and oral glucose tolerance test groups

	Test screening and oral glucose tolerance test		Total	<i>p</i> values
	Yes <i>n</i> (%)	No <i>n</i> (%)		
Performing prayer				
Never	13 (93.3)	1 (7.1)	14 (100)	0.002*
Sometimes	56 (73.7)	20 (26.3)	76 (100)	
Five time	11 (42.3)	15 (57.7)	26 (100)	
Thought of going to pilgrimage				
No	14 (93.3)	1 (6.7)	15 (100)	0.035*
Yes	66 (65.3)	35 (34.7)	101 (100)	
Total	80 (69)	36 (31)	116 (100)	

*Fisher exact statistically significant ($p < 0.05$)

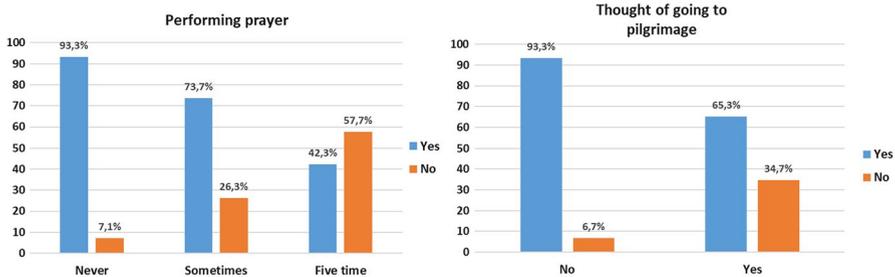


Fig. 3 Double–triple test screening and oral glucose tolerance test acceptance attitude according to religious ritual practice groups

measured together in order to obtain a combined risk. The power of detecting Down syndrome is close to the first-trimester test (Malone et al. 2005).

In the present study, we identified the participants' tendencies for both screening tests. We aimed to investigate medical diagnosis demands in different scales of the religiousness tendencies and found significant results.

Another issue which puts the mother and the fetus under risk is gestational diabetes. Approximately 7% of the pregnant women are affected by various types of diabetes, and the most frequently encountered one is gestational diabetes (Correa et al. 2015). The probability of preeclampsia increases in pregnant women with gestational diabetes, which increases the rates of cesarean section. (Ehrenberg et al. 2004). Probability of shoulder dystocia, birth trauma, neonatal hypoglycemia, and stillbirth increases in diabetic mothers' babies (Rosenstein et al. 2012). Oral glucose screening tests administered between the 24th and 28th weeks of pregnancy aim at identifying mothers with gestational diabetes (American Diabetes Association 2017). The present study aimed to identify the relationship between the expectant mothers' religious tendencies and attitudes toward the screening tests. There was a decrease in the attitudes toward accepting the double and triple screenings and oral glucose tolerance test with the increase in the frequency of performing prayers.

Tendency of performing the screenings tests in the gestational period demonstrates much variety in clinical practice. Heterogeneity identified in the attitudes toward the screening tests whose scientific benefits were proven is considered to result from the heterogeneity of the religious tendencies. The present study is the first study that investigated the relationship between patients' religious tendencies and their attitudes toward the screening tests in the pregnancy process.

This study has two important limitations. Firstly, the number of participants is low. Studies to be conducted with larger series would give a better reflection of patients' tendencies. The second limitation is that the participants' responses did not make it possible to form groups with equal number of participants. Different numbers of participants between these groups might result from the social value judgments and geographical features of the region where the study was conducted. Despite this social heterogeneity, we believe that healthy generations could be enhanced through clinicians making detailed explanations about screening tests during patient examinations.

Conclusion

We recommend that gynecologists should consider patients' religious belief sensitivity while recommending them screening tests or planning their medication. Religious beliefs and health are important concepts that complement each other in improving of fetal health.

Compliance with Ethical Standards

Conflict of interest Author Demir declares that he has no conflict of interest. Author Yıldırım declares that he has no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

- American College of Obstetricians and Gynecologists. (2016). Practice Bulletin No. 162: Prenatal diagnostic testing for genetic disorders. *Obstetrics and Gynecology*, *127*(5), e108.
- American Diabetes Association. (2017). Management of diabetes in pregnancy. *Diabetes Care*, *40*, S114–S119.
- Casanueva, E., Pfeffer, F., Drijanski, A., Fernández-Gaxiola, A. C., Gutiérrez-Valenzuela, V., & Rothenberg, S. J. (2003). Iron and folate status before pregnancy and anemia during pregnancy. *Annals of Nutrition & Metabolism*, *47*(2), 60–63.
- Centers for Disease Control and Prevention (CDC) Update on overall prevalence of major birth defects—Atlanta, Georgia, 1978–2005. (2008). *MMWR Morb Mortal Wkly Rep*. *57*(1):1–5.
- Chitayat, D., Matsui, D., Amitai, Y., Kennedy, D., Vohra, S., Rieder, M., et al. (2016). Folic acid supplementation for pregnant women and those planning pregnancy: 2015 update. *The Journal of Clinical Pharmacology*, *56*(2), 170–175.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale: L. Erlbaum Associates.
- Correa, A., Bardenheier, B., Elixhauser, A., Geiss, L. S., & Gregg, E. (2015). Trends in prevalence of diabetes among delivery hospitalizations, United States, 1993–2009. *Maternal and Child Health Journal*, *19*(3), 635–642.
- Coştu, Y. (2009). Approach to religion by the normative and popular: “A test on the Religious Orientation Scale”. *Journal of Divinity Faculty of Hitit University*, *8*(15), 119–139.
- Demir, E. (2019). The evolution of spirituality, religion and health publications: Yesterday, today and tomorrow. *Journal of Religion and Health*, *58*(1), 1–13.
- Duyan, V., Özcan, S., & Cömert-Okutucu, A. (2012). Fetal Health Locus of Control scale: Reliability and validity study. *Journal of Society & Social Work*, *23*(1), 13–23.
- Ehrenberg, H. M., Durnwald, C. P., Catalano, P., & Mercer, B. M. (2004). The influence of obesity and diabetes on the risk of cesarean delivery. *American Journal of Obstetrics and Gynecology*, *191*, 969–974.
- Kharb, S., Singh, A., Bala, J., Gahlawat, P., & Nanda, S. (2018). Prospective study on role of folic acid and vitamin B12 in early pregnancy and spontaneous abortion. *Biomedical and Biotechnology Research Journal (BBRJ)*, *2*(4), 265.
- Koenig, H. G., McCullough, M. E., & Larson, D. B. (2001). *Handbook of religion and health*. New York: Oxford University Press.
- Labs, S. M., & Wurtele, S. K. (1986). Fetal Health Locus of Control scale: Development and validation. *Journal of Consulting and Clinical Psychology*, *54*, 814–819.
- Malone, F. D., Canick, J. A., Ball, R. H., Nyberg, D. A., Comstock, C. H., Bukowski, R., et al. (2005). First-trimester or second trimester screening, or both, for Down’s syndrome. First- and Second-Trimester Evaluation of Risk (FASTER) Research Consortium. *New England Journal of Medicine*, *353*, 2001–2011.
- Muslu, Ü., & Demir, E. (2019). The effect of religious beliefs on the attitude of aesthetic surgery operation in Islam. *Journal of Religion and Health*, *1*, 10. <https://doi.org/10.1007/s10943-019-00767-0>.
- Rosenstein, M. G., Cheng, Y. W., Snowden, J. M., Nicholson, J. M., Doss, A. E., & Caughey, A. B. (2012). The risk of stillbirth and infant death stratified by gestational age in women with gestational diabetes. *American Journal of Obstetrics and Gynecology*, *206*(309), e1–e7.
- Schreiber, C. A., & Traxler, S. (2015). State of family planning. *Clinical Obstetrics and Gynecology*, *58*(2), 392–408.
- Zaganjor, I., Sekkarie, A., Tsang, B. L., Williams, J., Razzaghi, H., et al. (2016). Describing the prevalence of neural tube defects worldwide: A systematic literature review. *PLoS ONE*, *11*(4), e0151586.

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Affiliations

Emre Demir¹  · Engin Yıldırım²

✉ Emre Demir
emredemir82@gmail.com

¹ Department of Biostatistics, Faculty of Medicine, Hitit University, Çorum, Turkey

² Department of Obstetrics and Gynecology, Faculty of Medicine, Hitit University, Çorum, Turkey