

Investigating Health Promotion Behaviors of Pregnant Women Referring to Comprehensive Health Services Centers of Bushehr in 2016

Mojtaba Fatahi Ardakani¹, Vida Sadat Anoosheh², Ahmad Sotoudeh^{3*}, Abdullah Hajivandi³, Narges Sotoudeh⁴, Zahra Yazdani³

1. Department of Health Education and Health Promotion, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2. Department of Ergonomic, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3. Department of Public Health, School of Public Health, Bushehr University of Medical Sciences, Bushehr, Iran
4. Department of Anatomy, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran.

ARTICLE INFO

Original Article

Received: 10 Dec 2018

Accepted: 28 Jan 2019



Corresponding Author:

Ahmad Sotoudeh

Sotoudeh_ahmad@yahoo.com

ABSTRACT

Introduction: Health-promoting behaviors and healthy behaviors are the healing factors for the promotion of health in pregnant women. The purpose of this study was to determine the health promotion behaviors in pregnant women referring to the comprehensive health centers in Bushehr (the capital city of Bushehr Province, Iran) in 2016.

Methods: In this descriptive study, 385 pregnant women referring to the comprehensive health centers were selected by convenience sampling. The data collection tool was a questionnaire consisting of two parts: the first part was related to demographic questions and the second part of the questionnaire was related to health promotion behaviors (Health Promotion Lifestyle Profile II) HPLP II which includes 52 questions. After confirming the validity and reliability of the tool, the data were analyzed through descriptive statistics, independent t-test, Pearson correlation, and one-way ANOVA.

Results: The mean score of health promotion behaviors was desirable. Also, among dimensions of health promotion behaviors, the area of health accountability with the mean and standard deviation of (38.25 ± 5.78) had the highest score, and the range of physical activity with the mean and standard deviation of (16.24 ± 5.47) had the lowest score. The age (being under 25 years old) and collegiate education level, among the demographic variables, had a significant relationship with health-promoting behaviors (P < 0.05).

Conclusion: The result of the study indicated a moderate level of health promotion behaviors in women participating in the present study. Therefore, it is necessary to pay more attention to the areas of physical activity, stress management, and social relationships.

Keywords: Life Style, Health Promotion, Pregnancy, Health Behavior, Bushehr

How to cite this paper:

Fatahi Ardakani M, Anoosheh VS, Sotoudeh A, Hajivandi A, Sotoudeh N, Yazdani N. Investigating health promotion behaviors of pregnant women referring to comprehensive health services centers of Bushehr in 2016. Journal of Community Health Research. 2019; 8(1): 38-45.

Copyright: ©2019 The Author(s); Published by Shahid Sadoughi University of Medical Sciences. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Introduction

Healthy behaviors are a normal daily routine that individuals have accepted in their lives in a way that is acceptable to them. These activities affect the health of the individuals (1). Health promoting behaviors are any action that is taken to increase or maintain a person's health and self-efficacy (2). Researches have shown that lifestyles and human behaviors are the cause of many chronic diseases (3). Improving and maintaining a healthy lifestyle for health professionals remains a continuing and global challenge (4). Health promotion behaviors are one of the key determinants of health, which is recognized as the underlying cause of the absence of many diseases, and promotion of health and prevention of diseases are directly related to these behaviors (5). Health promotion behaviors are classified in criteria and social relationships, health responsibilities, self-esteem, stress management, nutrition, and physical activity. All of these six dimensions of health promotion behaviors are to protect people's quality of life (6, 7). Health promoting behaviors have an impact on the quality of life in individuals, and having a healthy lifestyle model is a multidimensional issue of self-care activities as well as an individual's perception that such behaviors are for the preservation and promotion of his or her health (8, 9). The results of the studies showed that the behaviors and lifestyles of people are the causes of diseases.

52% of the causes of deaths are related to unhealthy behaviors and unhealthy lifestyle (10). Many health problems, including all kinds of chronic diseases such as cardiovascular disease, cancers, obesity, and diabetes, which are prevalent in most countries, are related to lifestyle and unsanitary behaviors of individuals (11) there are some studies done by the researchers on pregnant mothers about health promotion behaviors. In one study, it was found that mothers had the highest score in the area of responsibility and had the lowest score in stress management (12). In similar studies, the field of spiritual growth obtained the highest score, and the physical activity obtained the lowest score (13-15). In the other study, the highest and lowest score in the dimensions of health promoting behaviors were reported in terms of nutrition and social

relationships, respectively (16). Considering the vital role of mothers, their health is considered to be equal to the health of infants and children (17). Contextual factors in the life cycle of mothers such as feeding, stress management, exercise and rest, interpersonal communication, and care of pregnancy period are part of the lifestyle of mothers (18). Researches showed that psychological problems and the stress experienced during pregnancy can have negative effects on the health of the fetus and mother (19). Therefore, the lack of stress management during pregnancy is one of the factors affecting the growth and developmental neonatal delay (20). Thus, because of the importance of health-promoting behaviors during pregnancy, which is the health of the fetus and mother, and the fact that no study has been conducted to determine the health promotion behaviors in pregnant women in Bushehr, the present study aimed to determine the health-promoting behaviors in the pregnant women of Bushehr city in 2016.

Methods

This descriptive study was performed on 385 pregnant women who went to in Bushehr comprehensive health centers for consultation in 2016. The criteria for choosing the subjects were being at least one year in Bushehr, having no musculoskeletal problems, and willing to participate and leaving the medication.

Among the 13 centers four centers were randomly selected which were under the supervision of the health center of Bushehr. The pregnant women who went to comprehensive health centers for consultation for the routine prenatal care and had the conditions of participation in the study were selected to participate in the study. The sample size was determined based on the formula, with 95% confidence level and estimated error equal to 0.1 standard deviations. Thus, 385 samples were determined.

$$n = z^2 \epsilon^2 / (0.1 \epsilon)^2 = (1.96)^2 * 100 = 385$$

The questionnaire consisted of two parts: the first part of the questionnaire consisted of 10 questions about the subjects' demography (information

including age, level of education, spouse education, occupation, history of illness, income status, number of pregnancies, number of children, type of delivery, tobacco-addicted). Participants assessed their financial status as low, moderate and good by self-declaration.). The second part of the valid questionnaire of health promotion behaviors (Health promotion lifestyle profile II: HPLP II) which is a 52-item tool was the original English version that measures the health-promoting lifestyle in six subscales based on the Pender Health Promotion Framework and was developed and revised by Walker and colleagues in 1987 (21).

The reliability of the questionnaire was assessed. Thirty pregnant women completed the questionnaire. Mean score of Cronbach alpha was normal ($\alpha > 0.6$). This questionnaire provides a multidimensional assessment of health promotion behaviors. In this way, the frequency of applying health promotion behaviors is measured in 6 dimensions of health responsibility (9 questions), physical activity (8 questions), spiritual growth (9 questions), nutrition (9 questions), stress management (8 questions), and relationships (9 questions), that is 52 questions in total. In front of each question, there are four answers; never (1), sometimes (2), often (3) and always (4). The total score of overall health promotion behaviors is between 52 and 208, and for each dimension, a separate score should be calculated (21) the scores obtained from the questionnaire range from a minimum of 54 to a maximum of 216 variables. A score of 54 to 90 shows a poor lifestyle, a score of 90 to 135 shows a moderate lifestyle and a score of over 135 shows a desirable lifestyle. The lower the score, the lower the health promotion behaviors and the higher the score, health promotion behaviors are at a more favorable level. In other words, with the increase in the score of health promotion behaviors, the individual is maintaining and sustaining his health. Validity and reliability of this questionnaire in Iran were measured by Mohammadi Zaidi et al. and the Cronbach's alpha coefficient for the whole tool was calculated to be 0.82 (19). For the reliability of the research, preliminary study on 30 pregnant women was done to ensure the reliability

of the research instrument. After calculating the reliability, Cronbach's alpha of the responsibility scale was 0.84, physical activity 0.85, nutrition 0.78, self-actualization 0.91, stress management 0.81, and social relationship 0.79 which shows that the level of all was desirable and acceptable. After obtaining permission from the Research Delegation and the Ethics Committee of the University, the researchers, in coordination with the health center of Bushehr began to take samples. In order to collect the data, they were sent to the selected centers in person, and after clearing the purpose of the research and ensuring that the information of the individuals would remain confidential and with complete satisfaction of the mothers, questionnaires were given to them to be completed.

After completing the self-report questionnaires, the data were analyzed using SPSS 20 software. The descriptive statistics (frequency, percentage, mean and standard deviation) were used to describe the demographic variables and describe the health promotion behaviors. The correlation between different areas of health promotion behaviors was investigated and Pearson's coherency coefficient and its dimensions at different levels of demographic variables, Independent t-test and One-Way Variance Analogue were used. A significant level of 5% was considered.

Results

In this study, 385 pregnant women referring to the comprehensive health centers were investigated. The results showed that demographically the average and standard deviation of pregnant women were 29 ± 4.88 with the age range of 18 to 44. According to the level of education, 138 (35.8%) of the studied women had a diploma education, and 151 (39.2%) of their spouses reported high school education, 314 (81.5%) of the participants were housewives, 125 (34.4%) of the participants reported having a history of the disease, 254 (65.9%) of the sample units reported average household income. 135 of the pregnant women (35%) reported to have a second pregnancy, and 142 (51.2%) had one child. Also, 211 (54.8%) of women tended to choose

normal delivery. 37 (9.6%) of the samples reported smoking during pregnancy. The frequency distribution of responses is given in Table (1)

Table1. Mean±SD of health promotion behaviors and the relationship between the variables studied in the participants

Variables		Mean±SD	number(Percent)	P. Value
Age	Under 25 years old	139.60±22.80	117(30.38)	0.005
	25-34 Years Old	139.25±21.25	118(48.83)	
	35-44 Years Old	135.60±20.65	80(20.77)	
Level of Education	Elementary	135.33±22.85	54(14.02)	0.009
	Middle School	136.65±19.09	105(27.27)	
	High School	140.45±21.90	138(35.84)	
Husband's education	Elementary	140.96±21.32	88(22.85)	0.475
	Middle School	137.45±20.38	47(12.20)	
	High School	137.68±20.54	98(25.45)	
Job	Employed	140.32±21.19	151(39.22)	0.254
	Housewife	141.17±17.74	89(23.11)	
		141.25±21.14	71(18.44)	
History of the disease	Employed	139.41±21.56	314(81.55)	0.675
	Have	139.24±20.19	125(34.46)	
Income status	Have Not	140.55±21.65	260(67.53)	0.347
	Low	137.87±20.15	98(25.45)	
	Medium	139.45±21.55	254(65.97)	
Pregnancy period	High	139.96±21.89	33(8.57)	0.278
	First	138.82±21.72	108(28.47)	
	Second	142.45±22.75	135(35.54)	
	Third	140.54±21.17	89(23.11)	
Number of children	Fourth	140.33±22.85	53(13.76)	0.545
	1	141.25±21.12	142(51.26)	
	2	140.41±22.15	79(28.51)	
	3	138.55±21.87	35(12.63)	
Type of childbirth	4	138.89±22.14	21(7.58)	0.495
	Natural Childbirth	138.14±22.36	211(54.80)	
Tobacco addicted	Cesarean Section	138.54±21.78	174(45.19)	0.267
	Yes	136.22±22.54	37(9.61)	
	No	138.21±22.54	348(90.38)	

One-way analysis of variance, $P < 0.05$ was significant

In this study, the overall score of health promotion behaviors in pregnant women was 149.27 ± 21.29 . The results of the study also showed that among the dimensions of health

promotion behaviors, the highest and lowest scores were related to areas of health responsibility and physical activity, respectively (Table 2).

Table2. The Mean±SD of health promotion behaviors dimensions in the participants

Health promotion behaviors dimensions	Mean±SD	Score Limit
Spiritual growth	35/41±6/21	9-36
Health responsibility	35/52±5/78	9-36
Physical activity	16/24±5/47	8-36
Nutrition	25/41±4/99	9-36
Stress management	17/01±5/07	8-36
Interpersonal relationships	24/18±4/21	9-36
Total health promotion behaviors	149/27±20/21	52-208

According to Table 3, among the different dimensions of behaviors, promoting health is a direct and meaningful relationship.

Table3. Correlation between the various dimensions of health promotion behaviors

Health promotion behaviors dimensions	1	2	3	4	5	6
Physical activity	1					
Health responsibility	P<0.001 R=0.32	1				
Spiritual growth	P<0.001 R=0.15	P<0.001 R=0.51	1			
Stress management	P<0.001 R=0.36	P<0.001 R=0.23	P<0.001 R=0.59	1		
Interpersonal relationships	P<0.001 R=.052	P<0.001 R=0.36	P<0.001 R=0.53	P<0.001 R=0.52	1	
Nutrition	P<0.001 R=0.53	P<0.001 R=0.41	P<0.001 R=0.36	P<0.001 R=0.59	P<0.001 R=0.52	1

Discussion

In this study, health promotion behaviors in pregnant women referring to Bushehr comprehensive services centers were investigated. The results of this study showed that the overall score of health promotion behaviors in pregnant women was 149.27 ± 20.21 which indicates a desirable level among the pregnant mothers.

These results were in line with studies by Khodaveisi et al., Mahmoodi et al., and also Malakouti et al. (23, 13-22). In another study by Gharaibeh et al. to assess the health-promoting behaviors and its related factors in pregnant women in Jordan, the average overall score of overall health-promoting behaviors was reported to be in line with the current study (16). In a study by Chen et al. on the assistance of Chinese nurses, they reported a moderate score of overall health-

promoting behaviors (23). Contrary to the results of this study, Hsiao and colleagues also looked at health promotion behaviors among Vietnamese immigrant women in Taiwan. The results showed a very low level of health promotion behaviors (24). This difference can be due to the fact that the target community is different. , The refugees usually have different culture and values in contrast to the residents so they have higher rates of illness, and also limited access to resources which effects their lifestyle. The results of studies showed that pregnant mothers are motivated to improve their lifestyle habits and promote healthy behaviors at the onset of pregnancy (25-26). Therefore, it can be concluded that pregnant mothers can make positive changes in their health-promoting

behaviors because of their health and their fetus during pregnancy.

Other findings from this study showed that the scores of health promotion behavior areas range from highest to lowest, including areas of responsibility, self-actualization, nutrition, social relationships, stress management, and physical activity. In the study of Gharaibeh et al., the areas of health promotion behaviors were from the highest to lowest scores including health, self-esteem, social relationships, nutrition, stress management and physical activity, respectively, is in line with the highest and lowest scores in promoting health behavior in the present study (16). However, Rosta et al. in a study evaluated the self-efficacy and promoting behaviors of women in reproductive age in Shiraz and the highest and lowest scores were related to nutrition and social relationships, respectively (14). The study by Malakouti and colleagues reported the highest score in terms of nutrition and the lowest score in the field of physical activity (22). Mahmoodi et al. reported the highest score in spiritual growth and the lowest score in physical activity (13). In the study by Chen et al. in nurses' care, they reported the highest score in the field of interpersonal relationships and the lowest score in the field of physical activity (23).

Regarding the cause of the highest score in the field of interpersonal relations, they argued that in line with the nature of the work of the nurses and the scope of patient care, which is a complex, and repetitive work that is carefully and emphatically on interpersonal relationships, in fact, facilitating interpersonal relationships among nurses will improve care and effectiveness. In the study by kavlak et al., in low-income pregnant women in Turkey, the highest score was in terms of nutrition and social support and the lowest score was related to sport and stress management (27).

It can be concluded that in the studies conducted on pregnant women, the lowest score was belonged to the physical activity field. So the results of studies on the prevalence of physical activity in pregnant women in different countries also indicated a decrease in physical activity

during pregnancy in terms of level, duration, and severity (28-30). Usually, in pregnant women, the most common form of exercise is walking. Therefore, it is possible to increase the physical activity according to the history of physical activity before pregnancy and according to pregnancy conditions in the routine counseling by the health team on physical activity such as walking.

The results of this study showed a significant reverse correlation between age and health promotion behaviors. In the same vein, Khodaveisi et al. stated that with the increase in age, overall scores for overall health-promoting behaviors were reduced (12). However, Mahmoodi et al., and also Gokyildiz et al. in their studies on pregnant women in Turkey, reported that health promotion behaviors had declined with maternal age but were not statistically significant (31,13). As age increases, the individual's physical condition also changes. These changes contain slow metabolism, low physical activity, a decrease in appetite and digestive problems. Thus, in order to promote health and physical activity, counseling with a nutritionist and screening is highly recommended.

In this study, with the increase in the education, level of pregnant mothers, the overall scores for health-promoting behaviors also increased, and the difference was statistically significant which was consistent with the study by Kavlak and Gokyildiz et al. (27,31). However, Mahmoodi et al. reported that with increasing levels of education, health promotion behaviors in pregnant mothers increased, but this difference was not significant (13). People with higher levels of education are more likely to improve their lifestyle habits (30). Health literacy is associated with education. Low is one of the barriers in problem-solving. Those with low level of education should find accurate health information and have access to services. Thus, health providers should consider the people with a low level of education, and provide simple and conceivable information.

One of the limitations of the study was that a self-report questionnaire was used and also a sampling was available which reduces the

generalization of the results. Therefore, it is suggested that in future studies, random sampling be used from comprehensive health centers and effective interventions should be designed according to the areas of health promotion behaviors and the effect of education on these behaviors should be considered.

Conclusion

The results of this study showed that the overall score of health promotion behaviors in pregnant women was moderate. Strengthening health-promoting behaviors during pregnancy is vital for the health of pregnant and fetal mothers. The results of the study showed that the level of maternal health-promoting behaviors in this study was moderate. Also, the results showed that there was a significant relationship between demographic factors, the age of under 25 years old and collegiate education level with health-promoting behaviors. It is considerably necessary

for health care providers to pay more attention to the areas of social relationships, stress management and physical activity in routine care of pregnant mothers.

Acknowledgments

This project was approved by Bushehr University of Medical Sciences with the code number of 6510 and the ethics code of IR.Bpums.Rec.159.1394 in 2015. We are grateful to the Vice-Chancellor for Research and Technology of Bushehr University of Medical Sciences who provided the cost of this project. We also thank all mothers who participated in this study, the caretakers of Bushehr comprehensive health centers and health care providers who have facilitated the participation of the mothers and researchers in this study.

Conflict of Interest

There are no conflicts of interest to declare.

References

1. Lo SW, Chair SY, Lee FK. Factors associated with health-promoting behavior of people with or at high risk of metabolic syndrome: based on the health belief model. *Applied Nursing Research*. 2015; 28(2): 197-201.
2. World Health Organization (WHO). Global Status Report on Non-communicable Diseases. Available at: URL: https://apps.who.int/iris/bitstream/handle/10665/148114/9789241564854_eng.pdf?sequence=1. Accessed March 17 2019.
3. Chiou AF, Hsu SP, Hung HF. Predictors of health-promoting behaviors in Taiwanese patients with coronary artery disease. *Applied Nursing Research*. 2016; 30(1): 1-6.
4. Chiang CH, Yang SC, Hsu WC. Development and validation of the e-health literacy scale and investigation of the relationships between e-health literacy and healthy behavior among undergraduate students in Taiwan. *Formosa Journal of Mental Health*. 2015; 28(3): 389-420.
5. Yokokawa H, Yuasa M, Sanada H, et al. Age- and sex-specific impact of health literacy on healthy lifestyle characteristics among Japanese residents in a rural community. *Health*. 2015; 7(6): 679-688.
6. Saint Onge JM, Krueger PM. Health lifestyle behaviors among U.S. adults. *SSM - Population Health*. 2017; 3(1): 89-98.
7. Ahmadi A, Roosta F. Health knowledge and health promoting lifestyle among women of childbearing age in Shiraz. *Women's Health Bulletin*. 2015; 2(3): e25342.
8. Shaheen AM, Nassar OS, Amre HM, et al. Factors affecting health-promoting behaviors of university students in Jordan. *Health*. 2015; 7(1): 1-8.
9. Tehrani H, Taghdisi MH. Community action: a strategy for health promotion. *Iranian Journal of Health Education and Health Promotion*. 2015; 2(4): 255-259. [Persian]
10. Allah ES, Elzeiny HH, Ali RA. Health protecting and health promoting behaviors among preparatory school students in Zagazig city. *American Journal of Nursing*. 2015; 4(5): 247-254.

11. Baghersad Z, Shirazi M, Rasouli Z. Comparative study of health promoting behaviors among nursing, midwifery and operating room students in nursing and midwifery school of Isfahan university of medical sciences. *Journal of Health Promotion Management*. 2016; 5(2): 31-41. [Persian]
12. Khodaveisi M, Shabani A, Mohhamadi N, et al. Assessing predictors of health-improving behaviors of females referred to healthcare centers. *Journal of Health Promotion Management*. 2016; 6(3): 44-50. [Persian]
13. Mahmoodi H, Asghari-Jafarabadi M, Babazadeh T, et al. Health promoting behaviors in pregnant women admitted to the prenatal care unit of Imam Khomeini hospital of Saqqez. *Journal of Education and Community Health*. 2015; 1(4): 58-65. [Persian]
14. Rosta F, Ahmadi A. Self-Efficacy and Health Promoting Behaviors among Women of Reproductive Ages in Shiraz during 2013. *Journal of Ilam University of Medical Sciences*. 2016; 24(2): 90- 100. [Persian]
15. Lee FH, Wang HH. A preliminary study of a health-promoting lifestyle among Southeast Asian women in Taiwan. *The Kaohsiung Journal of Medical Sciences*. 2005; 21(3): 114-120.
16. Gharaibeh M, Al- Maratha R, Al Jada N. Life-style practices of Jordanian pregnant women. *International Nursing Review*. 2005; 52(2): 92-100.
17. Sehhatie Shafai F, Sadeghi S, Kushavar H, et al. The review on lifestyle and its relation with the pregnancy outcome in the pregnant women coming to educational hospitals of Tabriz in 2004. *Research Journal of Medical Sciences*. 2007; 1(2): 91-94. [Persian]
18. Monk C, Fifer WP, Myers MM, et al. Maternal stress responses and anxiety during pregnancy: effects on fetal heart rate. *Developmental Psychobiology: The Journal of the International Society for Developmental Psychobiology*. 2000; 36(1): 67-77.
19. Mohammadi Zaidi A, Pakpur Hajiagha A, Mohammadi Zeidi B. Validity and reliability of the Persian version of promoting health lifestyle questionnaire. *Journal of Mazandaran University of Medical Sciences*. 2011; 21(1): 103-113. [Persian]
20. Montazeri N, Kianipour N, Nazari B, et al. Health promoting behaviors among university students: a case-sectional study of Kermanshah University of medical sciences. *International Journal of Pediatrics*. 2017; 5(6): 5091-5099.
21. Walker SN, Sechrist KR, Pender NJ. The health-promoting lifestyle profile: development and psychometric characteristics. *Nursing Research*. 1987; 36(2): 76-81.
22. Malakouti J, Sehhati F, Mirghafourvand M, et al. Relationship between health promoting lifestyle and perceived stress in pregnant women with preeclampsia. *Journal of Caring Sciences*. 2015; 4(2): 155-163. [Persian]
23. Chen L, Zhang J, Fua F. Health-promoting lifestyles and their related influences among nursing assistants in nursing homes in China. *Applied Nursing Research*. 2018; 39(1): 97-102.
24. Hsiao CY, Chien MJ, Wu HS, et al. Correlates of health-promoting lifestyle behaviors among Vietnamese female immigrants in Taiwan. *Women Health*. 2017; 57(3): 342-357.
25. Hosseini M, Yaghmaei F, Hosseinzadeh S, et al. Psychometric “health promotion lifestyle profile 2”The Urban Health Center. *Payesh*. 2013; 11(6): 849-856. [Persian]
26. Cheng J, Wang T, Li F, et al. Self-rated health status and subjective health complaints associated with health-promoting lifestyles among urban Chinese women: a cross-sectional study. *Plos One*. 2015; 10(2): 1-13.
27. Kavlak O, Atan SU, Sirin A, et al. Pregnant Turkish women with low income: their anxiety, health-promoting lifestyles, and related factors. *International Journal of Nursing Studies*. 2013; 19(5): 507-515.
28. Lindqvist M, Lindkvist M, Eurenus E, et al. Change of lifestyle habits – motivation and ability reported by pregnant women in northern Sweden. *Sexual & Reproductive HealthCare*. 2017; 13(1): 83-90.
29. Nascimento SL, Surita FG, Godoy AC, et al. Physical activity patterns and factors related to exercise during pregnancy: a cross sectional study. *Plos One*. 2015; 10(6): 1-14.
30. Hegaard HK, Damm P, Hedegaard M, et al. Sports and leisure time physical activity during pregnancy in nulliparous Women. *Maternal and Child Health Journal*. 2011; 15(6): 806-813.
31. Gokyildiz S, Alan S, Elmas E, et al. Health-promoting lifestyle behaviors in pregnant women in Turkey. *International Journal of Nursing Practice*. 2013; 20(4): 390-397.