Original Article

The study of physical activity and some relative factors in referred pregnant women to Isfahan Health-Care Centers and Shahid Beheshti Hospital

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ABSTRACT

Background: Physical activity generally declines during pregnancy, but activity barriers during this period are not well understood. The objective was to determine physical activity and some relative factors in referred pregnant women. **Materials and Methods:** This cross-sectional study was carried on 384 in referred pregnant women to Isfahan Health Care Centers and Shahid Beheshti Hospital in second stage sampling method in 2013. Demographic/prenatal characteristics, physical activity (36Q) and prenatal life quality questionnaire (26Q) were completed by participants. The statistical analysis was performed with various statistical tests such as the *t*-test, one-way ANOVA, individual correlation coefficient, and linear regression using SPSS statistical software (version 16). **Results:** Based on the findings, 98.7% (n = 378) of pregnant women had low physical activity. Also, there were a correlation among physical activity and parity, age, gestational age ($P \leq 0.005$). **Conclusion:** Since physical activity is recommended for the most of pregnant women, it is imperative to promote physical activity between pregnant women and some intervention suggestions.

Key words: Barriers, physical activity, pregnancy

INTRODUCTION

Physical activity is defined as any kind of activity which muscle begins to move and use more energy than resting time.[1] Furthermore, physical activity is defined as any kind of physical movements that cause health promotion. Evidence showed that moderate intensity physical activity during gestational age for most women was useful.[2-4] Therefore, in 2012 American researchers reported only 23% of women who has physical activity, based on American College of Obstetrics and Gynecology, are experienced cesarian delivery. In addition, regular exercise having kept enzyme levels and cardiovascular hormone in pregnancy could promote faster after pregnancy, increased oxygenation, hypotension and follow the arterial thrombosis.[5] While, the results showed that the only 14.8% of 4471 of women before pregnancy, 10.4% of women during the first quarter, 8.5% of women in the second quarter and only 6.5% has physical activity.[6] During studies in different countries various factors in the lack of physical activity during gestational age was influenced which these factor according to most researchers divided to three categories include intrapersonal factors (physical and mental), interpersonal factors (social) and environmental factors.[7-9] Therefore, the study results of Chasan-Taber *et al*. showed between mother's age (P = 0410) and parity (P < 0001/0) with physical activity that was related to housekeeping in Latin American women.[10] While study of Schmidt *et al*. showed, there is no relation between index of

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mother physical impact and physical activity. In addition, it is reported women with more than one child has more physical activity which relate to housekeeping.[11] In another study in Canada is showed that tiredness, timeless and barriers and problem which related to health are effective negative factors to a reduction in pregnant women physical activity.[12] Quality study among Mexican women showed that spouse support and also cultural norms has been emphasized on needs of more women in resting during pregnancy to protect their infants. As Chasan-Taber *et al*. showed women immigrating to another country according to norms of the community, continue their physical activity in pregnancy.[10] The result of the Evenson *et al*. study showed environmental factors and domestic politics of accommodation for pregnant women were factors such as lack of physical activity is uncommon.[9] Furthermore, based on the theory of bio-social individual profile and environmental factors are the main role in increasing physical activity in promoting health and their development. For example, Stokols said that multiple dimensions and interaction between environment and individual profile involved as main factors in perceived of physical activity and health outcomes.[13] The multiple dimensions included cultural, social and physical dimensions. Later, he perceive genetic factors, psychological and behavioral pattern are individual profile that are interacted with effective environment dimensions on health. Overall, there is no doubt the identification of physical activity. Barriers during pregnancy could be good guide in reviewing ways to attract pregnant women in physical and exercising activity. The purpose of the study was determination of physical activity and related factors.

MATERIALS AND METHODS

Cross-sectional study on 384 of pregnant women done based on cluster sampling. The women who are in third quarter voluntary and based on inclusion criteria of the study include: Written consent, tendency to participation in the study, lack of dangerous pregnancy. Data collection tool included: (1) Demographic characteristic questionnaire maternal age, gestational age (week), educational level. (2) Physical activity during pregnancy questionnaire. Physical activity during pregnancy questionnaire was made by Chasan-Taber *et al*. in 2004 containing 36 questions with six values and seven dimensions.[14] The questionnaire dimensions were included: Sedentary activities (5 questions), low-intensity (9 questions), moderate intensity (13 questions), high intensity (2 questions), activities related to housing (12 questions), activities related to job (5 questions) and activities related to exercises (9 questions). In order to calculate each of these dimensions in this questionnaire, the total spent time for each of the activities was multiplied by the total intensity of that activity. To facilitate grading, score of 2 was considered for low-intensity activity, score of 3 for moderate-intensity activity and a score of 4 for high-intensity activity. For easier evaluation and interpretation, the total score in this questionnaire was converted to 100. Thus, according to the questionnaire, scoring was done in this way that for the option of none, the score of 0 was considered, score of 0.25 for the option of <½ h/week or daily, score of 0.75 for the option of ½ h up to 1 h, score of 1.5 for the option of 1–2 h, score of 2.5 for the option of 2–3 h and the score of 3.5 for the option of more than 3 h. Therefore, with a maximum of 3.5 and a minimum of 0, by calculating the severity of each activity in the maximum calculated score minus the minimum score multiplied by 100 and divided by the sum of scores, the score was converted to 100. Validity of physical activity during pregnancy questionnaire was reported 0.78. The reliability of its dimensions was included: Sedentary activities (0.79), low-intensity activity (0.78), moderate-intensity activity (0.82), high-intensity activity (0.81), housing-related activities (0.860), job-related activities (0.93) and exercise-related activities (0.83).[15] The researcher got research approval from Ethical Considerations Committee of the Isfahan University and obtained a letter of introduction from Isfahan Nursing and Midwifery School. She delivered a letter to the authorities of Health Care Centers and Shahid Beheshti Hospital, and after explaining about the research goals and obtaining pregnant women' written informed consent with respect to ethical codes, she conducted sampling and performed the study. In the presence of all of the inclusion criteria, informed consent forms were placed at their disposal. Then, they were asked to complete the questionnaires through interviews (by the researcher). The collected data was analyzed by using SPSS (SPSS Inc. Chicago.), Student's *t*-test, one-way ANOVA, Chi-square, the correlation coefficient and linear regression model. Significance level was considered as 0.05.

RESULTS

Result of the present study showed most units of research have age of 20–35 years, a child, age of pregnancy 29–37 weeks, level of education and diploma spouse and level of income less of 5 million riyals [Table 1].

Most research unit has light physical activity [Table 2].

Result of Pearson correlation coefficient test showed there is a correlation among individual age profile, number of child and level of total grade income with physical activity [Table 3].

DISCUSSION

The result of the present study showed across individual profile, age has a direct relation with a total grade of physical activity, so more increasing age more physical activity. According to result of the present study, Fell's study findings and Pereira *et al*. showed less mother's age less physical activity.[16-18] Lynch *et al*. in their sectional study showed women in 16–19 age with university education in comparison with 20–34 age women in secondary education have less physical activity before pregnancy and pregnancy ($P < 0.00$).[19] However, study of Mudd *et al*.[20] showed there is no relation between age of pregnant women and physical activity, but physical activity measure has relation with education level, race, marital

status, pregnancy age and income level as nonuniversity educational women, Caucasian white race, single, pregnancy age less of 14 weeks and low income have less physical activity. Gestational age and mother's education, and income level have correlation with physical activity. Across present study, study result of Fell *et al.*, Pereira, Hinton and Olson, showed less income level has been less physical activity.[16,18,21] In addition, present study results showed has been a correlation between the number of child with physical activity grade. Study of Lynch *al.* also showed nulliparous women rather than multiparous women in pregnancy have less physical activity ($P < 0.001$).[19] However, the present study, study of Mudd *et al.* showed there is no relation between parity and physical activity.[20] But the study of Fell *et al.*, Smith and Michel and Pereira *et al.* there is the relation between parity and physical activity.[16-18] Perhaps one of the probable reason of nonlikeness with another study is a measure of physical activity with different methods. As in the present study is used standard physical activity questionnaire in gestational age to time of activity in an hour and divided it into less, medium and severity. However, in the study of Hegaard *et al.* is defined physical activity to activity related to leisure such as types of exercise.[22] Perhaps one another likeness reason of the present study with some another likeness study is a different measure and physical activity severity in research unit. As in the present study average of physical activity grade was 4/6 h/weeks in research units. whereas Mudd *et al.* in Michigan city showed time average of physical activity in pregnant women had been 144 min/day in a way of medium until severity, but only about 98% of pregnant women had light physical activity.[20] In a study of American and Canada, results show 3–15% of women in pregnant have physical activity with use of energy,[3,9] whereas study results of Marshall *et al.* showed only 30% of pregnant women have light physical activity.[23] In Iran also study of Esmaelzadeh *et al.* in Tehran showed about 52% of pregnant women in first mid and 72% in second mid of pregnancy doesn't have any activity.[24] Although difference between the kind of culture and community could influence in measure, and physical activity pattern but pregnant women in the present study and also pregnant women in Donahue's study have not been enjoyed of appropriate physical activity intensity. What we can say at last increasing perception of women from physical activity and exercise in gestational age and conversion of their idea cause behavioral conversion.

So, it is advised in gestational age has been determined private program to promote women. Physical activity and valuate and pursuit rate of efficiency by pregnant women. To revise and promote in physical activity, and life quality in gestational age and to emphasis in instruction of physical activity level and life quality cultural community is important so advise some research about this theory. Hope the results of this research could be prepared necessary knowledge about rate of pregnant women physical activity to health senior management of revise necessary program and help to encourage to continue physical activity.

Table 1: Frequency distribution of subjects based on maternal age, gravid, gestational age, maternal and spouse educational level, economic status

Variables	*n*	Percentage
Age (year)		
<20	9	2.4
20-35	348	91.6
>35	23	6
Mean±SD	27.5±4.6	
Gravida		
0	228	60
1	112	29.5
2	36	9.5
3	4	1.1
Mean±SD	0.5±0.7	
Gestational age (week)		
≤28	112	29.5
29-37	224	59
>37	44	11.6
Mean±SD	31.4±4.40	
Spouse educational level		
Non	308	81.1
Academic	72	18.9
Maternal educational level		
Nonacademic	270	71.0
Academic	110	29.1
Economic level (rial)		
<5,000,000	208	54.7
5,000,000-10,000,000	150	39.5
>10,000,000	22	5.8

SD=Standard deviation

Table 2: Frequency distribution of subjects based on Physical activity level

Physical activity level	*N*	Percentage
Light	375	98.7
Moderate	5	1.3
Total	380	100
Mean±SD	11.8±6.4	

SD=Standard deviation

Table 3: Pearson correlation coefficient between individual and family profile (maternal age, gravid, gestational age, maternal and spouse educational level, economic status)

Variables	Age		Gravida		Gestational age		Spouse educational		Maternal educational		Economic status	
	P	Pearson correlation	*P*	Pearson correlation	*P*	Pearson correlation	*P*	Pearson correlation	*P*	Pearson correlation	*P*	Pearson correlation
Total physical activity	0.01	0.13	0.001	0.23	0.04	−0.11	0.20	0.06	0.17	0.07	0.006	0.14

CONCLUSION

The results of the present study showed that pregnant women physical activity is in low level and age, number of child and family income levels were factors of lack of pregnant women physical activity. Cognition of these factors help to health and remedial cadre to organize health activity and physical activity which herein obstetricians have important role in health first aid to receive health goals.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Wilson K. Exercise effects on physical activity level, self-perception, and quality of life of sedentary children, the interaction of BMI, and the association between moderate to vigorous physical activity and psychological variables. [Dissertation]. East Carolina University; 2010.
2. Schlüssel MM, Souza EB, Reichenheim ME, Kac G. Physical activity during pregnancy and maternal-child health outcomes: A systematic literature review. Cad Saude Publica 2008;24 Suppl 4:s531-44.
3. Borodulin KM, Evenson KR, Wen F, Herring AH, Benson AM. Physical activity patterns during pregnancy. BMC Womens Health 2009;9:1-7.
4. Butler CL, Williams MA, Sorensen TK, Frederick IO, Leisenring WM. Relation between maternal recreational physical activity and plasma lipids in early pregnancy. Am J Epidemiol 2004;160:350-9.
5. Downs DS, Chasan-Taber L, Evenson KR, Leiferman J, Yeo S. Physical activity and pregnancy: Past and present evidence and future recommendations. Res Q Exerc Sport 2012;83:485-502.
6. Domingues MR, Barros AJ. Leisure-time physical activity during pregnancy in the 2004 Pelotas Birth Cohort Study. Rev Saude Publica 2007;41:173-80.
7. Weir Z, Bush J, Robson SC, McParlin C, Rankin J, Bell R. Physical activity in pregnancy: A qualitative study of the beliefs of overweight and obese pregnant women. BMC Pregnancy Childbirth 2010;10:18.
8. Leiferman J, Swibas T, Koiness K, Marshall JA, Dunn AL. My baby, my move: Examination of perceived barriers and motivating factors related to antenatal physical activity. J Midwifery Womens Health 2011;56:33-40.
9. Evenson KR, Moos MK, Carrier K, Siega-Riz AM. Perceived barriers to physical activity among pregnant women. Matern Child Health J 2009;13:364-75.
10. Chasan-Taber L, Schmidt MD, Pekow P, Sternfeld B, Manson J, Markenson G. Correlates of physical activity in pregnancy among Latina women. Matern Child Health J 2007;11:353-63.
11. Schmidt MD, Pekow P, Freedson PS, Markenson G, Chasan-Taber L. Physical activity patterns during pregnancy in a diverse population of women. J Womens Health (Larchmt). 2006;15:909-18.
12. Donahue SM, Zimmerman FJ, Starr JR, Holt VL. Correlates of pre-pregnancy physical inactivity: Results from the pregnancy risk assessment monitoring system. Matern Child Health J 2010;14:235-44.
13. Almeida F. The Relationship Between Social Networks, Social Support, Physical Activity and Self-rated Health: An Exploratory Study. [Dissertation]. University of Denver; 2008.
14. Chasan-Taber L, Schmidt MD, Roberts DE, Hosmer D, Markenson G, Freedson PS. Development and validation of a Pregnancy Physical Activity Questionnaire. Med Sci Sports Exerc 2004;36:1750-60.
15. Ota E, Haruna M, Yanai H, Suzuki M, Anh DD, Matsuzaki M, *et al.* Reliability and validity of the Vietnamese version of the Pregnancy Physical Activity Questionnaire (PPAQ). Southeast Asian J Trop Med Public Health 2008;39:562-70.
16. Fell DB, Joseph KS, Armson BA, Dodds L. The impact of pregnancy on physical activity level. Matern Child Health J 2009;13:597-603.
17. Smith SA, Michel Y. A pilot study on the effects of aquatic exercises on discomforts of pregnancy. J Obstet Gynecol Neonatal Nurs 2006;35:315-23.
18. Pereira MA, Rifas-Shiman SL, Kleinman KP, Rich-Edwards JW, Peterson KE, Gillman MW. Predictors of change in physical activity during and after pregnancy: Project Viva. Am J Prev Med 2007;32:312-9.
19. Lynch KE, Landsbaugh JR, Whitcomb BW, Pekow P, Markenson G, Chasan-Taber L. Physical activity of pregnant Hispanic women. Am J Prev Med 2012;43:434-9.
20. Mudd LM, Nechuta S, Pivarnik JM, Paneth N, Michigan Alliance for National Children's Study. Factors associated with women's perceptions of physical activity safety during pregnancy. Prev Med 2009;49:194-9.
21. Hinton PS, Olson CM. Predictors of pregnancy-associated change in physical activity in a rural white population. Matern Child Health J 2001;5:7-14.
22. Hegaard HK, Kjaergaard H, Damm PP, Petersson K, Dykes AK. Experiences of physical activity during pregnancy in Danish nulliparous women with a physically active life before pregnancy. A qualitative study. BMC Pregnancy Childbirth 2010;10:33.
23. Marshall ES, Bland H, Melton B. Perceived barriers to physical activity among pregnant women living in a rural community. Public Health Nurs 2013;30:361-9.
24. Esmaelzadeh S, Taavaoni S, Ahmadi Z, Haghani H. Trend of exercise before, during and after pregnancy. Iran J Nurs 2008;21:135-41.