

The relationship between physical activity levels in the third trimester with the birth anxiety

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Abstract

The aim of the present study was to examine the association of physical activity levels in the third trimester with the birth anxiety. This research was of a correlation kind and was conducted through field research. The population in this study were women who were 9 months pregnant and have attended Imam Hussein Hospital in Shahrood to give birth to their children. The sample size was 76 people. To gather information to determine the level of physical activity PPAQ and to determine the level of anxiety (STAI) Spielberger's Questionnaire were used. Validity of all methods was examined by researchers and experts in the field and their reliability using Cronbach's alpha, respectively (0.81, 0.71). For data analysis SPSS Software Version 16 was used and to test the research hypothesis the Kolmogorov- Smirnov test, Pearson and Spearman correlation coefficients were used. Findings show that there is significant inverse relationship between the level of physical activity and birth anxiety at the time of delivery ($P < 0.05$). but there is not a significant relationship between activity at work and footwork with birth anxiety ($P > 0.05$). According to research findings it is suggested that pregnant women in the third trimester exercise activities at home lightly and do not stop them until the labor, to feel less anxious.

Keywords: physical activity, anxiety, pregnancy, childbirth

Introduction

Pregnancy is of the most important periods in a woman's life. This period is accompanied by dramatic changes in psychological needs (anxiety and depression) as well as physical needs (over-weight and cardiac output) (Cunningham and Normen, 2001). On the other hand it is proved that regular physical activity is of positive effects mentally and physically (HHS, 2010). Nevertheless, about 60% of pregnant women stop their physical activity in the period of pregnancy (Zhang and Savitz, 1996) and it is fair to say that pregnancy leads to women reducing or stopping their physical activities (Monk and et al., 2001). Although a number of studies have proven that physical activities positively affect the mother as well as the neonate and can help an easy delivery (American College of Sports Medicine, 1999) and in spite of physiological demonstration of sports in pregnancy (Polley and et al., 2002) to this day there is no clear comprehensive understanding of the impacts of sports with different intensities and durations on the mother and the neonate. American Society of Obstetrics and Gynecology Specialists (ACOG) in 2002 stated that pregnant women can do medium-intensity exercises for a duration of 30 minutes a day almost every day provided that the type of exercise used have no potential harm to the mother's abdomen and provided that there are no clinical disorder for the mother. Among the positive effects of exercise in the period of pregnancy, one could name; reducing blood concentration, reducing backache, improving mental health, improving the quality of life, and improving physical performance (Wolf and Weissgerber, 2003; Dumas and et al., 1995; Kagan and Kuhn, 2004; Sihvonen and et al., 1998).

In a part of his paper titled “exercise in the period of pregnancy”, (Tiffany, 2012) suggested that exercising in water with a medium intensity reduces backache in pregnant women and can determine the time of delivery. Also relative to walking, Yoga is more effective in reducing blood pressure and heartbeat rate. Through exercise, the activity of the Vagus Nerve increases and in turn this increase reduces the level of Cortisol, P substance and Serotonin which consequently reduces pain. Nonetheless, side effects like the increase in the mother’s body temperature and probability of damaging the infant, decrease in infant’s growth due to the decrease in blood supply to the placenta, the decrease in Glucose accessibility of the infant due to reducing the level of blood sugar in the mother’s body are implied in some researches. (Bruce, 1994; Clapp and et al., 2002; Magann and et al., 1996). Some researchers have suggested that pregnancy is a kind of crisis in women’s lives and although pregnancy and consequently childbirth is a cause for happiness, for some women it can be the cause of anxiety (Lee and et al., 2007). Labor anxiety, is not limited to the mother, but also affects her fetus. Maternal anxiety and emotional conditions that affect the developing fetus has emotional effect on the mother's nervous system which causes it to release certain chemicals such as acetylcholine and epinephrine and cortisol and transfers through the placenta to the fetus and leads to effects Such as increased fetal movements, anemia, more - Active stimulation - High variability, poor diet, the infant having nightmares and ... (Hamid and et al., 2008; O'Connor et al., 2007). Since childhood is the era in which mental fundamentals of the child are formed, the primary support for mother's emotional interaction is very important for children's physical and mental health (Borjesson and et al., 2004) And regarding the fact that the reduction of pain, followed by reduction of the Emergency obstetric care, a new component in modern midwife care, in this study the relationship between physical activity and anxiety and cortisol level, are investigated the time of delivery.

Material and Methods

This study is descriptive of a correlation type which is conducted through field research. The population in this study are the women who were giving birth to their children in Emam Hussein Hospital of Shahrood and for the first time, in the year 2013. Using Krejcie and Morgan's table, 76 people were chosen randomly as the sample. To gather data for this exercise library method alongside with field research was used. Then data gathering tools in this study are the two questionnaires of Anxiety and physical activity. Two trained midwives explained how to fill the questionnaire to the sample and helped them through filling the Spielberger’s questionnaire of Anxiety and physical activity, and after they were filled the two midwives collected the questionnaires. The validity of the questionnaires was approved by the experts of the major and the reliability was approved using Cronbach’s alpha which was 0.81 and 0.71 for physical activity and sleeping quality questionnaire respectively. PPAQ standard questionnaire which is related to physical activity during pregnancy is divided into four groups of questions; in-house activities (16 questions), footwork (3), at-work activity (5), entertainment and sports (8). The intensity of the activity is calculated by MET (Metabolic Equivalent Test) which is a unit to estimate the metabolic expenditure in a physical activity. To calculate the intensity of the activities, MET is multiplied by the time spent on the activity during a day or a week. Level of activity is calculated summing the intensities with regards to the type of activity during for week or a day. For example if someone spends half an hour doing heavy work like sweeping this figure is multiplied by MET for sweeping which is 3 and in the end the intensity of physical activities is summed regarding the type of activity. Activities with a MET value lower than 1.5 are considered as non-active, between 1.5-3 light activity, 3-6 medium, and higher than 6 intense activity. Questionnaire (STAI) State-Trait Anxiety Inventory Anxiety, assesses the patent anxiety at the time of delivery and its total score is between 20 and 80. A score up to 76 shows high level of anxiety. -Descriptive and inferential statistics is used to rank raw scores, designing tables, frequency distribution, and calculating the dispersion indexes like the mean, standard deviation, Inferential statistics of Kolmogorov-Smirnov test and Pierson’s and Spearman’s correlation coefficient were used too. All the tests required were conducted by SPSS. 16 software on the basis of objectives and the significant level was set on $P < 0.05$.

Results

A total number of 76 healthy 9-month pregnant women were present in this study. Average age for the participants was 28.17 ± 5.50 . 10.5% of the sample had the experience of miscarriage, and the rest did not. 39.7% of the sample had a natural delivery while 60.3 had to do Cesarean to give birth to their children (Table.1)

Table 1: Demographical properties

Miscarriage experience	Percent	Type of delivery	Percent
Yes	10.5	Natural	39.7
No	89.5	Caesarean	60.3
Mother's age	$\bar{X} \pm SD$	28.17±5.50	
Total	76		76

For the variables to be normally distributed Kolmogorov- Smirnov test was used. Since the level variable footwork was less than $\alpha=0.05$ it was not normally distributed. Therefore to test the hypotheses of the study non-parametric tests were used. For other variables of interest the level was more than $\alpha=0.05$ then they are normally distributed and to test the hypotheses of the study parametric tests were used.

Table 2: The results for normality of main variables using Kolmogorov- Smirnov test

Statistics Dimension	N	Mean	k-s	Sig
house activities	76	1.67	0.964	0.310
Footwork	76	1.62	2.22	0.0001
at-work activity	76	1.23	3.47	0.0001
entertainment and sports	76	1.70	1.004	0.266
Anxiety	76	52.15	0.862	0.447

Table 3: The relationship between different aspects of physical activity and birth anxiety

Variable	Statistics	Anxiety
house activities	Pearson	0.249*
	Sig	0.030
	N	76
Footwork	Spearman	-0.220
	Sig	0.056
	N	76
at-work activity	Spearman	-0/061
	Sig	0.600
	N	76
entertainment and sports	Pearson	-0.386**
	Sig	0/001
	N	76

Significance level set at 0.05*

Significance level set at 0.01**

As you can see in the table 3, according to Pearson and Spearman's correlation coefficient and Sig., there is a significant inverse relationship between physical activity of house activities, entertainment and sports and anxiety of birth. But for other aspects namely; at-work activity and footwork, no significant relationship was discovered.

Discussion and conclusion

This study provides a new insight in the fields of physical activity in the last three months of pregnancy. The findings of the current study show that, there is an inverse correlation between the level of physical activity at home, recreation and sport with anxiety in pregnant women at delivery and. In other words, increasing physical activity, recreation and sport activities at home and anxiety in women is significantly decreased which is consistent with the results of (Sedaghati and et al., 2006; Teixeira and et al., 2005; Glynn and et a., 2008; Nordhagen and et al., 2002).

Evenson and Bradley (2010) also reached the conclusion that many pregnant women are able to exercise for 30 to 37 weeks which should continue regularly. Also in the field of physical activity at work and traveling there was no significant relation, therefore the fact that these activities (entertainment and housework) are activities above the average intensity although the sample didn't show activity, may be because the sample in this study were in their last trimester of pregnancy and they were too afraid to do anything heavy and they were in a state of non-activity. Ariel and et al, (2006) suggested that there are numerous factors for which women feel concerned near their delivery time. The most common ones being fear to lose control, fear of pain, fear to be incapable, being in unfamiliar places and vaginal examinations.

According to the results it is suggested that do light exercises in the last trimester at home and do not stop this process until they give birth to their children. This leads to less anxiety and concern during delivery.

References

- American College of Obstetricians and Gynecologists, 2002. Exercise during pregnancy and the postpartum period (ACOG Committee Opinion No. 267). *Obstetrics and Gynecology.*; 99: 171-173.
- American College of Sports Medicine, 1999. Guidelines for Graded Exercise Testing and Exercise Prescription. 2nd Ed. Philadelphia: Lea & Febiger;88,101-106
- Ariel JL, John T, Sorrell CS, Rodgers, Meredith ML, 2006. Anxiety sensitivity as a predictor of labor pain. *European Journal of Pain*;10:263-270.
- Borjesson B, Paperin C, Lindell M, 2004. Maternal support during the first year of infancy. *J Adv Nurs. Mar*; 45(6): 588-94.
- Bruce RA, 1994. Exercise, functional aerobic capacity, and aging-another viewpoint. *Med Sci Sports Exerc*; 16:8-13.
- Clapp JF, Kim H, Burciu B, 2002. Continuing regular exercise during pregnancy: effect of exercise volume on fetoplacental growth. *Am J Obstet Gynecol.*; 186: 142-7.
- Cunningham J, Pau C, Normen F, 2001. Williams Obstetrics. 21th edition. New York: McGraw Hill
- Dumas GA, Reid JG, Wolfe LA, 1995. Exercise, posture and back pain during pregnancy, part 1: Exercise and posture. *Clinical Biomechanics.*; 10(2): 98-103.
- Evenson KR, Bradley CB, 2010. Beliefs about exercise and physical activity among pregnant women . *Patient Education and Counseling* .79 .124–129.
- Glynn M, Laura M, Schetter CD, Hobel Calvin J, Sandman Curt A, 2008. Pattern Of Perceived Stress and Anxiety in Pregnancy Predicts Preterm .*Health Psychology*; 27(1): 43-51.
- Hamid F, Asif A, Ijaz Haider I, 2008. Study of Anxiety and Depression During Pregnancy. *Pak J Med Sci*; 24(6): 861-64.
- Kagan KO, Kuhn U, 2004. Exercise and Pregnancy. *Herz*; 29(4): 46-34.
- Lee AM, Lam SK, Sze Mun Lau SM, Chong CS, Chui HW, Fong DY, 2007. Prevalence, course, and risk factors for antenatal anxiety and depression. *Obstet Gynecol. Nov*; 110(5): 1102-12.
- Magann EF, Evans SF, Newnham JP, 1996. Employment, exertion, and pregnancy outcome: Assessment by kilocalories expended each day. *Am J Obstet Gynecol.*; 175: 182-7.
- Monk C, Fifer WP, Myers M, 2000. Maternal stress responses and anxiety during pregnancy: Effects on fetal heart rate. *Developmental Psychobiology*; 36: 67-77.
- Nordhagen IH, Sundgot-Borgen J, 2002. "Physical activity amongst pregnant in relation to pregnancy-related complaints and score of depression". *Journal of Psychosomatic Obstetrics & Gynecology*, 122 (5): 470-474.
- O'Connor TG, Caprariello P, Blackmore ER, Gregory AM, Glover V, Fleming P, 2007. ALSPAC Study Team. Prenatal mood disturbance predicts sleep problems in infancy and toddlerhood. *Early Hum Dev. Jul*; 83(7): 451-8.
- Polley BA, Wing RR, Sims CJ, 2002. Randomized control trial to prevent excessive weight gain in pregnant women. *International Journal of Obesity and Related Metabolic Disorders.*; 11: 1494-1502.

- Sedaghati P, Ardjmand A, Sedaghati N, 2006. Does Regular Ergometric Training Have Any Effect On The Pregnancy Outcome?. *Iranian Journal of Pediatrics*, 16 (3):325-331.
- Sihvonen T, Huttunen M, Makkonen M, Airaksinen O, 1998. Functional change in back muscle activity correlate with pain intensity and prediction of low back pain during pregnancy. *Arch Phys Med Rehabil.*; 79(10): 1210-2.
- Teixeira J D, Martin O, Prendiville V, Glover, 2005. “The effects of acute relaxation on indices of anxiety during pregnancy”. *Journal of Psychosomatic Obstetrics & Gynecology*, 26(4): 271 – 276.
- Tiffany F, 2012. Prenatal exercise research .*Infant Behavior and Development*, 35(3):397-407.
- U.S. Department of Health and Human Services. *Healthy People, 2010. Conference Edition (Two Volumes)*. Washington DC: Centers for Disease Control and Prevention; 2000.
- Wolf LA, Weissgerber TL, 2003. Clinical physiology of exercise in pregnancy: a literature review. *J Obstet Gynaecol Can*; 25(6): 473-83
- Zhang J, Savitz DA, 1996. Exercise during pregnancy among U.S. women. *Annals of Epidemiology*. 6: 53-59 *JObstet Gynaecol Can.*; 25(6): 473-83.