THE EFFECT OF EXERCISE DURING PREGNANCY ON MOTHER’S DEPRESSION IN ZAHEDAN

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Abstract

Introduction and Objectives: Depression is a mood disorder that is considered today as a global epidemic. The prevalence rate among pregnant women was higher than other people and follow a lot of complications for mother and fetus. According to research, women are more prone to depression, this disorder increases the physical and mental disorders and women's health. Physical exercise is a way to reduce depression. Therefore this study was conducted to determine the effect of exercise on depression in pregnant women in Zahedan.

Materials and Methods: This is a quasi-experimental study and the population including pregnant women referred to health centers in Zahedan, which is based on the specified inclusion and exclusion criteria were divided into two groups. Appropriate exercise during pregnancy intervention in three sessions per week for eight weeks and weekly training under the supervision of researchers, experts as well as experts midwifery their sport. During the two pretest and post-test questionnaires completed by both groups, and the information was collected. Depression questionnaire was used to collect information. Data analysis was performed using SPSS version 21.

Findings: The results showed that the average depression score after intervention was 10.22 was significantly lower than before the trial. In second assessment, score of depression was 18.42 in the control group the shows a significant increase compared to the first one. Independent t-test showed a significant difference between the two groups of study. (p=0.0001)

Conclusion: The results of this study indicate positive effects of exercise on reducing depression in mothers during pregnancy, which can be a way to improve the health of pregnant women.

Keywords: Exercises during Pregnancy, Depression
Introduction

Pregnancy period is one of the most critical stages of women's life and health and a better life in directly affects in life of another person, is of particular importance. Hence pregnancy with psychological factors, physiological and endocrine secretions effect on the physical and mental impact on women and can affect their natural processes. (1) Depression is the most common mental illness that can reduce the ability of individuals from developing a person to perform his duties. (2) That is one of the most important and also the most common mood disorders and psychiatric disorders that affects about 25 percent of women in their lifetime. (3) Prevalence of depression in women in different cultures is almost two times more than men. (4) The reason for this difference may be due to hormonal differences, the effects of pregnancy, psychological and different social stressors for men and women, and models of behavior. (3)

The highest prevalence of major depressive disorder among reproductive age women is around the age of 18-44, although the likelihood of onset of the disorder from childhood to older people. (4) According to a study, stressful events are strongest predictor of onset of depression. (3) Pregnancy is a major stress that can cause or exacerbate the unfolding trends. Pregnancy period, despite the enthusiasm is stressful for many women. Stress in pregnancy and the postpartum period may be even lead to psychosis. (5)

Based on stress - talent model that provided by Ryan, fields such as genetic predisposition or family history of depression, a history of depression and poor cognitive styles can sync with failure to comply women with pregnancy-related stressors and depression can cause or exacerbate the incidence of maternal feeling. (6) Given that maternal depression directly affects the health and development of child and the high prevalence of depression in women, especially pregnancy period conditions and specific stresses the need to maintain and mental health of pregnant women in addition to their physical health. (7)

But the most common treatment for major depression is antidepressants. However, depression tends to return, and between half and three quarters of depressed patients in a period of two years after recovery, are faced again with another period of depression. The major current approach to drug treatment is continued to prevent the return of the disorder. (8) But in practical solutions suitable supplement medical treatments such as physical activity and exercise can also have a key role in reducing depression. According to the researchers, exercise is the best way to offer convenient, low-cost and minimal side effects and as a method of prevention and even treatment of mild depression is raised. (9) In addition to the
economic impacts and costs for the treatment, depression has other effects too. When depression and stress, chances of proper care, proper nutrition and physical activity is decreased and the increasing hormone levels make a person to be more susceptible to health problems. Meanwhile, sports and physical activity has many benefits. Because reduce the risk of heart attacks, diabetes and blood pressure and contribute to control weight and healthy bones, muscles and joints the further positive effects on depression. (10)

According to the rates of mental disorders, the effects of exercise in the treatment of numerous studies and even prevent mental health problems, especially depression have been conducted. Exercise helps to create a feeling of wellbeing as well as an important psychological tolerance life. Physical exercise by energy depletion and reduces mental stress is to calm people. (11)

A study in Finland found that people who exercise at least 2 or 3 times a week were significantly less depressed and angry, less stress and suspicion and distrust compared with those who do not exercise, as well as their understanding of health and better health and a high level of dependency and feel a stronger sense of social connection.

Finally, there is a strong link between mental health and well-being of regular physical activity. (12) Exercise reduced anxiety and depressive symptoms and improves mood, enhances well-being. Even a single session of aerobic exercise could have positive effects on fatigue and irritability. (13)

Reduce blood glucose levels of diabetic mothers (14), reducing back pain (15), mental health and improved quality of life (16), increase physical performance of mother (17) and improving the physical condition of pregnant women (18) including the effects of exercise effective regularly during pregnancy have been demonstrated in different studies.

36 percent of middle-aged women with urinary incontinence used Kegel exercises strengthen the pelvic floor during pregnancy and after pregnancy to reduce the incidence of urinary disorders and in case to control. (19)

Given that diet is not recommended in pregnancy, exercise can prevent the accumulation of excess fat in the body. (20) Create a sense of wellbeing, increase self-esteem, improved body image, reduce anxiety and depression, quick and easy adaptation to changes caused by pregnancy are the effects of exercise in pregnancy. (21)

In response to numerous questions about different sports and different intensities of harmful effects or consequences of pregnancy and during pregnancy, labor, type of delivery, birth weight, placental weight and Apgar score, the solutions are different and sometimes conflicting.
Therefore, achieving a clear response to the ambiguities in this field requires the implementation of numerous studies based on several variables, including the type of exercise, exercise time, and duration of exercise.

America pregnancy and gynecologic college and the Center for Disease Control and Prevention to comply with the standard exercise program recommends that healthy pregnant women that these methods can have beneficial effects for mother and fetus. (21)

America Disease Control and College of Sports Centers conducted a study entitled exercise during pregnancy and after childbirth. The purpose of this study was to determine the value of exercise in improving standards of maternal and exercise during pregnancy. This study was reviewed and the results of all the studies that have examined the effect of exercise on the mother and fetus has been collected.

Results of this study is based on the positive effects of exercise on pregnancy outcome and banned the sport in this period according to the results of research conducted over the past decades has determined. These exercises include exercises in supine position, the sport that they are likely to encounter over, deep diving, and climb to an altitude of over 6,000 feet and competitive exercises. (22) Nouhi et al (2010) studied pregnant women in Kerman and showed that knowledge about exercise during pregnancy is poor. These studies is consistent to the studies which indicated poor knowledge of pregnant women in pregnancy. The results showed that the majority of women gained their information from family and friends, women usually advised to reduce physical activity and a small group of women had received, data from physicians and team members prenatal care provider and only 25 percent of these women get their information from books for pregnancy period. (23) Jalalinia et al (2010) measured on the effect of exercise on depression in women with excessive weight. Generally, physical exercise is beneficial for depressed women and effective in reducing the level of their depression. Obtained results of this study were consistent with the results of other studies and provides strong evidence for the relationship between exercise and depression and emphasized on Iranian women daily exercise program. Depressed women without physical exercise, compared to women who did exercise 50 times more at risk of depression in severe level. (24) Despite this, about 60% of pregnant women during pregnancy remove their sports activities. (25) While many studies showing the beneficial effects of exercise on the mother and fetus during pregnancy. (26)

Sports activities are an integral part of the body and mind. So pay attention to women's sports as a major part of the body of society given their physiological needs and conditions is essential. (27)
Given that in the past decade, especially after 1980 the number of pregnant women who were interested in sporting activities during their pregnancy, to the extent that requires the need to do research on the effects of exercise on the mother and fetus and since exercise also play a role in reducing depression in pregnant women and despite a literature review of research in this field in our country were few, this study aimed to investigate the effect of exercises on depression pregnancy at pregnant women in the city of Zahedan in 2015.

**Methodology**

This research is a quasi-experimental study using a convenience sampling method and the criteria for entering women with gestational age of 16 to 20 weeks (in consultation with obstetrician and gynecologist), an embryo is alive and well, having single pregnancy, education to read and write, without having cardiovascular disease, musculoskeletal disorders and diseases that are forbidden to exercise in pregnancy, such as severe anemia, diabetes, inflammation of the airways, obesity or severe weight loss, blood pressure and hyperthyroidism (no disease was confirmed by a doctor.), no history of threatened abortion, lack of signs of premature labor, placenta previa and not having vaginal bleeding, or any sign of threatened abortion, the lack of high-risk pregnancies, lack of exercise and activity prohibition against physicians and willingness of subjects to participate. Research society to health centers in Zahedan Imam Ja'far Sadiq and Abuzar Ghaffari population consisted of all pregnant women referred to these centers formed in 2015 in Zahedan. The reason for choosing these two clinics in the city is placing them in the north and high-level city and visitors to the center have higher levels of education and culture, referring to the bottom edge of town centers and their cooperation. The sample size were 32 patients in each group and 64 patients in total. Given that there was a drop of samples for each group of 35 people (40 people) and a total of 70 (or 80) were considered. Ethical considerations for researchers by providing a written letter of introduction from the University of Medical Sciences, Kerman, Zahedan Medical Sciences University and with permission from the University of Medical Sciences was referred to health centers. After explaining the purpose of the study subjects and confirm their readiness to authorities and centers for inclusion, informed consent form completed by units of study and research.

Data collection tool was a questionnaire consisted of two parts:

1) Demographic characteristics

2) Beck Depression Inventory
Beck Depression Inventory II is second Beck Depression Inventory to assess severity of depression in adults and adolescents higher 13 years and is designed to measure symptoms in the past two weeks. Because BDI-I just covers 6 of 9 criteria for depression criteria, in 1996, was reviewed for consistency with DSM-IV and Depression Inventory (BDI-II) beck2 was made. (28) This questionnaire has 21 articles that any material is graded from 0 to 3: Option 1 score 0 and Option 2 score of 1 and Option 3 score 2 and option 4 score 3, finally, each person can score is between 0 and 63.

Scores are interpreted as follows: A score between 0 to 13: a minimum score without depression - A score between 14 and 19 mild depression - A score between 20 to 28: mild depression - A score between 29 and 63 severe depression.

Psychometric properties of the questionnaire in Iran on 94 samples have been studied. Accordingly Cronbach's alpha of the questionnaire was 0.91, test-retest reliability was 0.94 and reliability using two halves was 0.89. (28) Methods of the study in each group after the study was completed satisfaction questionnaires (pre-test). Intervention group exercise program pregnancy period and colleagues were clapp the instructions. The exercise protocol included warm-up, stretching, flexibility, followed by continuous aerobic walking is all about exercises for pregnant women, for at least 30 to 45 minutes, three days a week for 8 weeks was set up.

Exercises the upper and lower parts of the body for 15 minutes and then continuous aerobic exercise include walking was done for 5 minutes walking slowly in first and then increase a minute session workout time up to 15 minutes per session, from then until the end of the 24 sessions held constant activity and return to the original state in order to cool the body of stretching in an upright position for 10 to 15 minutes until when the heart rate less than 100 beats per minute, was used.

In order to prevent any possible health problems, exercise intensity below 60% of maximum heart rate by counting heartbeats per person and 3 times through the carotid pulse was controlled by the researcher (29).

Aerobic exercises under the supervision of physical education experts, midwives and researcher was administered. During exercise and recovery and favorable environment with the aim of fatigue and exercise of light music was used and after training in every session all subjects of fluids such as water or juice used.

Unlike test groups that participated in the drill program, to the control group did not recommend a specific training program emphasizes regular exercise if carried out during the research report. After the intervention of depression questionnaires were completed by the intervention and control groups. (Post-test) After collecting the data, all data compiled and analyzed by spss software version 21.
Research findings

Based on Results the mean age of the study group was 28.77± 4.97 years in the control group 28.88 ± 4.08 respectively. The independent t-test results showed no significant difference in mean age between the two groups. (p=0.9)

Table 1: Mean and standard deviation age, several pregnancy in pregnant women.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Groups</th>
<th>Frequency</th>
<th>Average</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>t test result</td>
</tr>
<tr>
<td>Age</td>
<td>Intervention</td>
<td>35</td>
<td>28.77</td>
<td>4.97</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>35</td>
<td>28.77</td>
<td>4.08</td>
</tr>
<tr>
<td>Number of children</td>
<td>Intervention</td>
<td>35</td>
<td>1.17</td>
<td>0.92</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>35</td>
<td>1.48</td>
<td>1.03</td>
</tr>
<tr>
<td>Number of pregnancy</td>
<td>Intervention</td>
<td>35</td>
<td>2.11</td>
<td>0.86</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>35</td>
<td>2.45</td>
<td>1.06</td>
</tr>
</tbody>
</table>

Findings showed that the average number of children in the intervention group was 1.17 ± 0.92 and is 1.48 ± 1.03 in control group. As well as independent sample t-test results showed no significant difference in mean number of children between the intervention and control groups. (p=0.18)

Also mean several pregnancy in the intervention group was 2.11 ± 0.86 and 2.45 ± 1.06 in the control group. As well as independent sample t-test results showed no significant difference between the intervention and control groups. (p=0.14)

The majority of pregnant women studied (68.6 percent of the intervention group and 45.7 percent in the control group) had higher education than diploma. Chi-square test results showed a significant difference between the two groups in terms of education level. (p=0.03). According to Table 2, mean depression score before the intervention groups was 13.4 and after the intervention decreased to 10.22. Paired t-test results showed that the decreased mean score in the intervention group had a significant difference. (P=0.0001)
In the control group, mean depression score of 13.40 to has increased 18.42 after intervention. The result of paired t-test showed that this difference was significant. (P=0.0001)

The mean depression score in the test group before the intervention was 13.40 and 13.40 in the control group and independent t-test showed no significant difference between the two groups before the intervention. (p=1) After intervention, the mean of the experimental group was 10.22 and 18.42 in the control group and independent t-test showed a significant difference between the two groups after the intervention. (p=0.0001)

Table 2: Mean and standard deviation of depression in pregnant women.

<table>
<thead>
<tr>
<th>Result of t-paired test</th>
<th>After intervention</th>
<th>After intervention</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard deviance</td>
<td>Average</td>
<td>Standard deviance</td>
<td>Average</td>
</tr>
<tr>
<td>t=5.14</td>
<td>4.58</td>
<td>10.22</td>
<td>7.5</td>
<td>13.4</td>
</tr>
<tr>
<td>df= 34</td>
<td></td>
<td></td>
<td>df= 34</td>
<td>p=0.0001</td>
</tr>
<tr>
<td>t=-8.26</td>
<td>7.02</td>
<td>18.42</td>
<td>8.95</td>
<td>13.4</td>
</tr>
<tr>
<td>df= 34</td>
<td></td>
<td></td>
<td>df= 34</td>
<td>p=0.0001</td>
</tr>
<tr>
<td>t=-5.78</td>
<td></td>
<td></td>
<td>t= 0.0001</td>
<td></td>
</tr>
<tr>
<td>df=68</td>
<td></td>
<td></td>
<td>df= 68</td>
<td>p=1</td>
</tr>
<tr>
<td>p=0.0001</td>
<td></td>
<td></td>
<td>p=0.0001</td>
<td></td>
</tr>
</tbody>
</table>

According to Table 3 in terms of depression scores before and after intervention none of the individual social variables were significant, but together total score of depression before and after treatment were significant difference. (p=0.0001)

Table 3: Analysis of variance pre-test and post-test intervention and control groups ranging depression.

<table>
<thead>
<tr>
<th>freedom degree</th>
<th>total of square</th>
<th>significant level</th>
<th>Changing resource</th>
<th>square average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801.099</td>
<td>1</td>
<td>0.0001</td>
<td>1801.099</td>
<td>362.637</td>
</tr>
<tr>
<td>10.1828</td>
<td>1</td>
<td>0.142</td>
<td>10.1828</td>
<td>2.180</td>
</tr>
<tr>
<td>0.591</td>
<td>1</td>
<td>0.713</td>
<td>0.591</td>
<td>0.119</td>
</tr>
<tr>
<td>Job</td>
<td>15.783</td>
<td>15.783</td>
<td>3.178</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>--------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Number of children</td>
<td>2.934</td>
<td>0.445</td>
<td>0.591</td>
<td>2.934</td>
</tr>
<tr>
<td>addiction</td>
<td>16.594</td>
<td>0.072</td>
<td>3.341</td>
<td>16.594</td>
</tr>
<tr>
<td>Number of pregnancy</td>
<td>1.008</td>
<td>0.654</td>
<td>0.203</td>
<td>1.008</td>
</tr>
<tr>
<td>Group</td>
<td>875.869</td>
<td>0.0001</td>
<td>176.349</td>
<td></td>
</tr>
<tr>
<td>Error amount</td>
<td>302.967</td>
<td>302.967</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17.943.000</td>
<td>17.943.000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Discussion and conclusion**

Based on the results obtained in relation to the overall objective of the present study, i.e., to determine the effect of exercises on depression pregnancy period pregnant women in city of Zahedan was found that the pregnant women suffer from some level of depression. Shahmiri and privileged (2006) in their study concluded that 32% of pregnant women suffer from depression, 22.33% is mild depression 6.67 percent is moderate depression and 3 percent suffer severe depression. (30) Shab Angiz and also Ehsanpour (2014) in their study founded pregnant women with depression were 26.7 percent. (1)

Rahmani et al (2011), Tabrizi and Lorestani (2010), Seyed Ahmadinejad et al (2014), Abdollah Zadeh Rafi et al. (2012) and Salari et al (2012) as part of their study concluded that percent of the pregnant women who were depressed. (31, 32, 33-34) Anderson's study showed that 14.1 percent of women suffer from depression. (35) Parsaei Rad et al in 2011 in his study concluded that pregnant women suffer from some level of depression. (36)

The results of this study and other studies mentioned above reflects the prevalence of depression in pregnant women, which should be seriously considered. Depression is the most common mental illness that can reduce the ability of individuals and through this of developing a responsible person on doing the things that prevent and according Depression is the fourth cause of disability in the world and it is predicted that by 2020, ranking second among the causes of the failure. (37)
Pregnancy is one of the critical periods in the lives of women and newborns that evolved from in womb. This period is a period that requires care and essential principles. Depression is a risk that it could threaten the health of the fetus in the womb and have side effects and sometimes irreparable. Unfortunately, despite the great importance of maintaining the health of the mother and fetus, now screening of depression is the most common and most dangerous diseases in pregnancy, during pregnancy does not occur in health centers and this causes many problems for mother and fetus.

Depression in pregnancy period is a potential risk to mother and fetus, is also causing adverse effects to them. (38) A pregnant woman has provided an environment for the developing fetus, but change psychological and mental disorders affect the fetus can be considered very important. Depression is a psychological changes that will have a negative impact on the mother and fetus. (39) Psychological processes in mother has extensive impact on the growth and health of the fetus. Because the intrauterine environment of continuous emotions and mental state affected mother and her pregnancy is the most stressful period of life. (40)

Evaluation of depression level in pregnant women with intervention and control groups after exercise showed that depression decreased after the intervention. Our study also showed that depression in the second evaluation in the control group increased significantly compared to the first one. This increase can be attributed to endure physical and psychological pressures on pregnant women to get closer to delivery. In connection with the effects of exercise on depression studies have been conducted in pregnant women. Saeedi in their study concluded that women in the intervention group that were planning exercise during their pregnancy experienced less postpartum depression than the control group. (41) Kuo et al. (2008) in their study founded the effects of exercise on reducing depression in women in the intervention group after giving birth. (42) Colonia et al in their study (2012) concluded that aerobic exercise during pregnancy reduces the amount of depression in pregnant women. (43) Drysta et al (2008) reported that aerobic exercises at home can have a significant impact on depressive symptoms in women. (26) Results of studies are consistent to the present study results that demonstrate the effect of exercise on depression in pregnant women during pregnancy and also in critical period after birth, which indicates the importance of exercise in this vulnerable group of society. Hence as research shows that regular physical activity, can have physical and emotional consequences of the positive, on the other hand, contrary to many people's minds not only exercise during pregnancy is not harmful to the health of the fetus, but also play an important role in health of the mother and fetus. (44) Lifestyle mother and her baby's health is important, but
usually sedentary pregnant women tend to choose their way of life. (45) So exercises in pregnancy period reduces the risk of constipation, decreased muscle spasm leg, lower back pain, pelvic infections, mental health and improved quality of life, reduce depression and anxiety, having better sleep pattern, increased physical performance and body condition and also low frequent urination in pregnant women, which has been demonstrated in different studies. (46) In this study, the role of exercises in treatment of depression in pregnant women was established. Given the importance of health spending in the health of mother and fetus pregnancy period, which in different societies and also by the World Health Organization is emphasizing. Health practitioners should be careful and a lot of effort to have this matter. Due to complications of depression on mother and fetus, recommendations and interventions should be done to reduce this problem that according to the results of this research exercises reduces these problems. So as well as considering other benefits mentioned about exercise during pregnancy, it is recommended, for pregnant women should be taught the importance of this issue, as well as measures to facilitate the exercise for pregnant women to be taken by the authorities. In total, the results of the study showed that pregnant women experience some degree of depression that exercise can reduce the amount of them. Therefore efforts for raise awareness among men and families about maternal depression and also the positive effects of exercises should be a priority for all health care providers in health centers such as nurses, midwives and consultants. Obviously training nursing and midwifery students in this field should be more concerned.

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