

# Effects of Relaxation Therapy in the Management of Depression in Gestational Diabetes

JAVERIA SHAHZADI<sup>1</sup>, WARDAH IJAZ QAZI<sup>2</sup>, SANIA AZIZ<sup>3</sup>, MARIAM NAZ<sup>4</sup>, SIDRA HANIF<sup>5</sup>, HANIFA SULEMAN<sup>6</sup>

<sup>1</sup>Riphah International university, Islamabad

<sup>2</sup>Foundation university college of physical therapy

<sup>3</sup>Riphah International university, Islamabad

<sup>4</sup>Shalamar Institute of Health Sciences

<sup>5</sup>Ibadat international university, Islamabad

<sup>6</sup>Bolan University of Medical and Health Sciences, Quetta

Correspondence to: Javeria Shahzadi, Email: [Javeria\\_Shahzadi@hotmail.com](mailto:Javeria_Shahzadi@hotmail.com)

## ABSTRACT

**Background:** Gestational diabetes becoming a common gestational complication today generation. Data on effectiveness of relaxation therapy and relation of depression to that was not much significant. The study was design to measure the effectiveness of relaxation therapy in management of depression in GDM mothers.

**Objective:** To determine the effects of relaxation therapy for the management of depression in gestational diabetes.

**Methodology:** Current study is a randomized controlled trial including 40 participants who were randomly selected into control and interventional group. Interventional group was treated with Laura Mitchell Relaxation Techniques and breathing exercises once a week and followed for 6 weeks whereas control group was given conventional pharmacotherapy treatment only. Edinburgh Postnatal Depression Scale (EPDS) has been used to evaluate the depression in both groups at the baseline and after 6 weeks. Statistical analysis was done by SPSS v.21. Paired t-test and independent t-test has been used to interpret the data.

**Results:** Mean age of mothers was 30.97 ±5.17 years. The mean gestational age of mothers was 33.82±3.26 weeks; control group had mean gestational age (GA) 33.60±2.58 weeks and interventional group had mean G.A 34.05±3.88 weeks. The paired t-test value for both groups showed a significant increment i.e. (p <0.05) in reduction of depression that was measured through EPDS, pre-treatment mean value for group control is 16.75 ± 2.6 and post 6 weeks is 10.40 + 2.3 while pre-treatment mean for interventional group is 15.70 + 1.6 and post is 7.70 + 1.4. The independent t-test when applied on post-treatment results, it showed result with P <0.001 which shown significant reduction of pain in interventional group.

**Conclusion:** Relaxation exercises are significant in reducing depression in females with gestational diabetes.

**Keywords:** Edinburgh Postnatal Depression Scale (EPDS), Gestational Diabetes Mellitus (GDM), Laura Mitchell Relaxation Techniques, Relaxation Therapy.

## INTRODUCTION

Gestational Diabetes Mellitus (GDM) can be presented by high glucose levels that is first detected during pregnancy. It is also known as type 3 Diabetes Mellitus, which is one of the most prevalent type of diabetes mellitus and considered as the most common complication in pregnancy.<sup>(1)</sup>

GDM affects approximately 7% of pregnant females, those results in more than 200,000 cases per year. According to literature focusing on the specific population and diagnostic criteria, the prevalence may rise from 1 to 14%. GDM accounts for 90% of all the complications caused during pregnancy.<sup>(1)</sup>

Sign and symptoms of GDM include polydipsia, polyphagia and polyuria. Other includes high glucose level, rapid weight gain, polyhydramnios, glycosuria, nocturia and generalized pitting edema.<sup>(2)</sup>

There are both fetal and maternal complications that are linked to GDM. Fetal complications such as macrosomia, neonatal hypoglycemia, prenatal mortality, congenital malformation, hyperbilirubinemia, polycythemia, hypokalemia, and respiratory distress syndrome. Maternal complications like hypertension, preeclampsia, and risk of cesarean delivery.<sup>(3)</sup>

According to WHO Depression is a common mental disorder characterized by sadness, loss of interest in activities and decreased energy". Depression can be separated from normal mood swings on the basis of severity, the symptoms and the duration of disorders.

In childbearing years depression is more likely to occur. According to approximately 8%–12% of pregnant women lies under diagnostic criteria for major depression assessment.<sup>(4)</sup>

Previous researches provided evidence of a two-way link of depression with diabetes. One study in a large Medicaid population was conducted and it was found that diabetes which precedes pregnancy is associated with depression among pregnant women, although the findings with respect to GDM are less clear.<sup>(4)</sup>

There are several screening methods, like Edinburgh Postnatal Depression Scale (EPDS) that have been structured for

examining depression in females after their pregnancy. According to literature available, there is no tool that specifically can examine for antenatal depression. Murray and Cox enquired the use of the EPDS in pregnancy and suggested that it was successful for identification of females who are depressed (level II evidence). The scale is normally used in researches to find out prenatal mood related disorders.<sup>(5)</sup>

Psychotherapy, Complementary and Alternative medicine (CAM), yoga and other relaxation therapies are in use that is popular in treating depression in GDM mothers.<sup>(6)</sup>

Moreover, the efficacy of deep relaxation in pregnant women (e.g., stress reduction, improved immunity) and pregnancy outcome (e.g., fetal age at the time of delivery, delivery method, and intrauterine growth) have been recognized. Deep relaxation has been shown to increase the fetal age and weight at the time of birth, induced maternal relaxation during labor, and helps in normal delivery, decrease complications and time duration for labor.<sup>(6)</sup>

Stress, anxiety and depression, made variations in hormonal balance in mothers. These changes on endocrine system have greater impact on maternal and obstetric outcomes. Different relaxation techniques, mainly massage therapy, Progressive Muscle Relaxation (PMR) has positive effect on maternal cortisol levels.<sup>(7)</sup>

The relaxation therapy used in current research was Mitchell's physiological relaxation technique. The Mitchell's method of physiological relaxation also known as simple method of relaxation is the name given to a technique of relaxing the whole body or parts of your body. It works on the principles of tightening or contracting the muscles result in movement, movement cause repositioning of joints and limbs, when we are awake the brain will register changes in the body position through muscle, joint and skin sensation. The brain is only aware of the movement it causes. Movement can be control by nervous system; one muscle instruct to contract the opposing muscle instruct to relax.<sup>(8)</sup>

There is very limited work done on use of relaxation therapy in pregnant females, and the area of gestational diabetes lacks the

work and evidence of use of relaxation therapy. This study will also provide evidence of using physical therapy relaxation techniques to prevent depression in GDM mothers and will emphasize the importance of availability of women health physiotherapists in obstetric wards.

**METHODOLOGY**

This randomized controlled trial was conducted at Railway General Hospital Rawalpindi. During the course of study all ethical and moral values were considered and have been taken care off. The study did not caused any emotional or physical harm to the any respondent. Informed consent was assured prior to asking questions. 40 patients were randomly divided into control (n=20) and interventional group (n=20) through coin and toss method. Inclusion criteria were women between 18 to 40 years of age with diagnosed GDM and gestational age 13 to 40 weeks. Interventional group was treated with Laura Mitchell Relaxation Techniques and breathing exercises having three sets of 15 repetitions twice a week for six weeks and control group was given conventional pharmacotherapy treatment. EPDS was used to assess depression in both groups at baseline and after six weeks. Outcome measures were EPDS pre and post treatment. Data was analyzed through SPSS 21. Paired t test were used to interpret data on two different variables of same groups and independent t test were used to interpret the data on same variables of two different groups.

EPDS comprises 10 questions and maximum scores of 30. Patients who scores 10 or more than 10 would be suffering from depression depending on severity. This scale is an efficient tool of identifying patients at risk for depression in pregnancy.

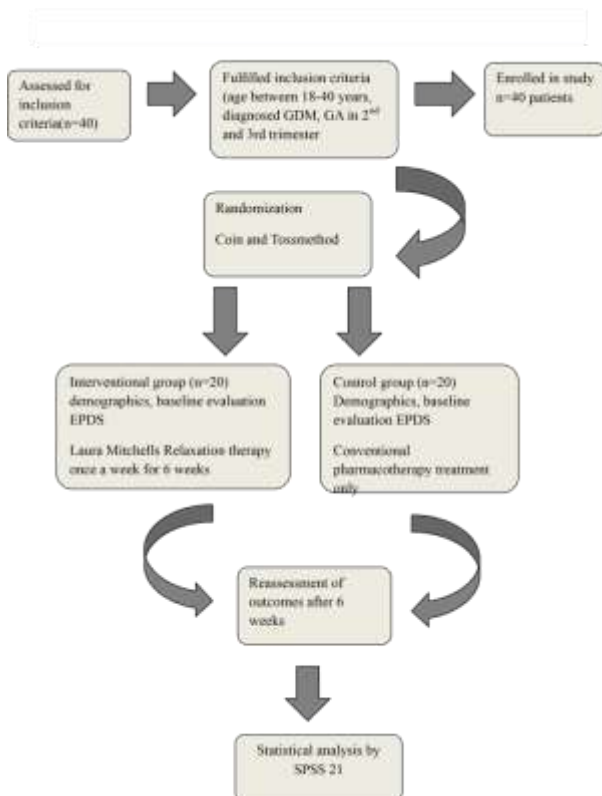


Figure-1: Consort Flow Diagram

**RESULTS**

Mean age of mothers is 30.97±5.17 years. The mean age of control group was 31.30±4.43 year while of interventional group was 30.65±5.92 year.

The mean gestational age of mothers was 33.82±3.26 weeks of which control group have mean gestational age 33.60±2.58 weeks and interventional having mean G.A 34.05±3.88 weeks.

The paired t-test value for both Group control and interventional showed a significant improvement in depression reduction measured on Eden Bergh post natal depression scale as shown in Table 1.

The independent t-test when applied on post treatment showed the between group analysis as shown in Table 2.

Table 1: Paired T test showed pre treatment and post treatment mean score on EPDS scale

Variables	Pre-Treatment Mean	Post –Treatment Mean	P- Value
Control	16.75+ 2.6	10.40+ 2.3	0.000
interventional	15.70 + 1.6	7.70+ 1.4	0.000

Table 2: Independent T test showed post treatment mean of both groups on EPDS scale

Variables	Groups	Mean (Pre-treatment)	Mean (Post-Treatment)	P- Value
EPDS	Control	16.75 + 2.6	10.40 + 2.3	0.000
	Interventional	15.70 + 1.6	7.70 + 1.4	

**DISCUSSION**

The current showed that Laura Mitchell's Relaxation exercises have reduced the depression in gestational diabetes significantly.

A trial by Fiskin et al in which they used diaphragmatic breathing exercises to enhance the psychological parameters of pregnant women, concluded that relaxation technique using diaphragmatic breathing improve the psychological health of females in pregnancy. The study is similar in terms of use of relaxation therapy with recent study, although the subjects were not diagnosed cases of GDM.<sup>(9)</sup>

A study by Campolong et al. suggested that use of relaxation exercises in pregnancy reduce the symptoms of depression and also contribute to positive post-partum quality of life. The Population in their study was pregnant females but differ from current study as they were not diagnosed with GDM. Although positive results have been observed in both studies.<sup>(10)</sup>

Angelo fermando et al conducted a randomized control trial for relaxation exercises and aerobic exercise training during pregnancy and found out that relaxation therapy reduces symptoms of depression in multiparous women. They used relaxation exercises combined with walk and stretching.<sup>(11)</sup> The results are similar with current study.

A study by Bastani et al examined the effects of relaxation techniques on anxiety and stress in pregnant females. Their findings showed significant fall of anxiety levels and stress for the experimental group as compared to control group after the application of techniques.<sup>(12)</sup> Their results support the findings of current study.

**CONCLUSION**

Relaxation exercises are significant in reducing depression in females with gestational diabetes.

**Disclaimer:** None to declare.

**Conflict of Interest:** None to declare.

**Funding Disclosure:** None to declare. Self-funded study

**REFERENCES**

1. Association AD. Gestational Diabetes Mellitus. Diabetes care. 2003;26:S103.
2. Gestational Diabetes. Mellitus Case Study, (2013).
3. Setji TL, Brown AJ, Feinglos MN. Gestational diabetes mellitus. Clinical diabetes. 2005;23(1):17-24.
4. Katon JG, Russo J, Gavin AR, Melville JL, Katon WJ. Diabetes and depression in pregnancy: is there an association? Journal of Women's Health. 2011;20(7):983-9.

5. Deirdre Ryan M, FRCPC Lisa Millis Nicholas Misri. Depression during pregnancy. 2005;51.
6. Gong H. Yoga for prenatal depression: a systematic review and meta-analysis. 2015 feb 5.
7. Fink NS UC, Cavelti M, Alder J. . Relaxation During Pregnancy: What are the Benefits for Mother, Fetus, and the Newborn? A Systematic Review of the Literature. 2012 Oct-dec;26(4):296-306.
8. neen. laura mitchell physiological relaxation 2014.
9. Fiskin G, Sahin NH. Effect of diaphragmatic breathing exercise on psychological parameters in gestational diabetes: A randomised controlled trial. *European Journal of Integrative Medicine*. 2018;23:50-6.
10. Campolong K, Jenkins S, Clark MM, Borowski K, Nelson N, Moore KM, et al. The association of exercise during pregnancy with trimester-specific and postpartum quality of life and depressive symptoms in a cohort of healthy pregnant women. *Archives of women's mental health*. 2018;21(2):215-24.
11. Robledo-Colonia AF, Sandoval-Restrepo N, Mosquera-Valderrama YF, Escobar-Hurtado C, Ramírez-Vélez R. Aerobic exercise training during pregnancy reduces depressive symptoms in nulliparous women: a randomised trial. *Journal of physiotherapy*. 2012;58(1):9-15.
12. Bastani F, Hidarnia A, Kazemnejad A, Vafaei M, Kashanian M. A randomized controlled trial of the effects of applied relaxation training on reducing anxiety and perceived stress in pregnant women. *Journal of midwifery & women's health*. 2005;50(4):e36-e40.