EFFECTIVENESS OF SELECTED MIND BODY INTERVENTIONS ON CORTISOL LEVEL AMONG ANTEMNATAL WOMEN WITH ANXIETY RELATED TO CHILDBIRTH

A.Jebra Kiruba Mary 1*, Fathima Latheef 2, S.J. Nalini 3
1Scholar, Saveetha University, Chennai, India
2Principal, Columbia College of Nursing, Bangalore, India
3Professor cum Vice Principal, Faculty of Nursing, Sri Ramachandra University, Porur, Chennai, India

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*Corresponding author
E-mail: jebamugeash@gmail.com

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ABSTRACT

Anxiety is prevalent during pregnancy, which have an adverse impact on the fetus and neonate. During anxiety stress hormone triggers the release of glucocorticoid stress hormones, cortisol. Cortisol is secreted in higher levels during the body’s stress response and is responsible for several stress-related changes in the body. Mind body interventions are an effective and simple method to reduce the cortisol secretion. The aim of this study was to assess the effectiveness of selected mind body interventions on cortisol level among antenatal women with anxiety on childbirth. Participants were 30 primiparous women (15 experimental and 15 control groups) at 32-33 weeks of gestation. In pretest cortisol level was checked for both groups. On the day of pretest selected mind body interventions were demonstrated to participants of experimental group but control group received only standard hospital routine care. After 4 weeks of intervention i.e. at 36-37 weeks of gestation cortisol level was checked for both groups. There was a significant difference in mean scores of cortisol level between control experimental groups and there was also a significant difference between the pre and post tests of experimental group (p<0.001). The results of the study showed that the selected mind body interventions reduce the cortisol level among antenatal women with anxiety related to childbirth.

Key words: Antenatal women, anxiety, childbirth, cortisol, mind body interventions

INTRODUCTION

Pregnancy period is one of the wonderful phases of a woman's life. Pregnant women will face a lot of emotional issues, mainly due to hormonal changes. This will result in unusual mood swings. Childbirth is one of the most marvelous and memorable segment in a woman’s life. The fear and anxiety about childbirth often prevents most women from this experience. Fear of childbirth is an anxiety disorder which may manifest itself in nightmares, difficulties in concentrating on work or, physical complaints, and often in an increased request for a cesarean section as the mode of delivery. Childbirth fear is more common in primigravid women than multiparous women. Prevalence of anxiety disorder during pregnancy, in developed and developing countries are 10% and 25% respectively. High levels of anxiety, during pregnancy, have an adverse effect on mother and baby. Anxiety, in early pregnancy, results in loss of fetus, decrease in birth weight and increased activity of the Hypothalamus – Hypophysis-Adrenal axis. Mother’s anxiety, during pregnancy, is also associated with poor maternal-child interaction. Moderate-to-severe anxiety, during pregnancy, has a significant effect on children’s psychiatric disorders, which are, sometimes, stable and seriously endanger the health of children. Fear, stress and anxiety all have marked effects on labour progression and pain perception. When a mother has stress and anxiety during her pregnancy, especially in the last trimester leads to an increased chance of prolonged duration of active labour, greater use of pain relief, higher rate of emergency caesarean sections, more negative personal experiences. Animal and human studies support that maternal stress and anxiety during pregnancy will have both immediate and long-term effects on her offspring. This results in the secretion of cortisol, into the bloodstream. During stress, cortisol triggers the “flight or fight” response of an individual. Prenatal maternal stress leads to an increased secretion in the cortisol level which has a direct effect on the fetus. There is a relationship between maternal and fetal cortisol levels. Even if there is a little increase in the level of maternal cortisol will equal to large increases in fetal cortisol level. Stress during pregnancy will influence the developing structures of the fetus and will determine the physical, cognitive or behavioural outcome. During prenatal period the strength of effect from stress was stronger at 32 weeks of gestation than 18 weeks of gestation which results in hyperactivity, emotional and conduct disorders in double the level for the child. Altered brain structure and its function are associated with prenatal stress. It has been found that changes in brain development will leads to changes in the child’s fingerprint pattern.

Mind body medicine will influence one’s own health by using the inner power of thoughts and emotions. As Hippocrates wrote, “The natural healing force within each one of us is the greatest force in getting well”. Mind–body interventions are pseudo medical interventions based on the concept of mind influences the physical body. Common mind-body techniques to foster mind-body processes are relaxation, hypnosis, visual imagery, meditation, yoga, positive affirmation, biofeedback, tai chi, qi gong, cognitive-behavioral therapies, group support, autogenic training and spirituality.

MATERIALS AND METHODS

Objective: (i) To evaluate the effectiveness of selected mind body interventions on serum cortisol among antenatal women between control and experimental groups.

109
Hypotheses: There will be a significant difference in cortisol level among antenatal women between control and experimental groups.

Research approach: An experimental Quantitative approach was used.

Design: True experimental design - pretest post test with control group design was adopted for this study.

Study setting: Study was conducted at selected Hospitals, Bengaluru.

Sampling technique: Simple random sampling technique was used to select the samples.

Sample Size: 30 Antenatal women who fulfilled the inclusion criteria were randomly selected in each group. (Control group = 15, Experimental group= 15)

Inclusion criteria

- Primi singleton normal pregnancy who were mentally, physically healthy at 32-33 weeks of gestation and categorized as low risk pregnant women as per the national standard.
- Antenatal women those who were attending regular antenatal checkup on study settings without prior experience of practicing mind body interventions were included.

Exclusion criteria

- High risk pregnancies like maternal age below 20 or above 35, twins or triplets, bad obstetrics history, anemia (<10 grams/dl), chronic renal, hepatic, or heart disease, seizure disorders, and structural abnormalities in the reproductive system.
- Non-attendance at training sessions, no exercise at home and getting into major psychological problems were excluded from study.

Ethical consideration

The study was initiated after getting permission from

- Institutional Human Ethics Committee of Saveetha University (010/01/2015/IEC/SU; dated on 20-01-2015),
- Authorities of selected Hospitals, Bengaluru.
- Informed consent from the participants.

Method of data Collection: Pretest data collection: After allocation of participants in the control and experimental groups, demographic variables were collected by using semi structured interview schedule and their anxiety level were assessed by using the standard tool like Wijma delivery expectancy/experience questionnaire (W-DEQ-version A) and Beck anxiety inventory (BAI). Serum cortisol level was analyzed by bidirectional interfaced chemi luminescent immuno assay.

Intervention: On the day of pretest, selected mind body interventions (simple breathing for relaxation, meditation with gyan mudra, yogic breathing including nadi shodhana pranayama, bhramari pranayama, active visualization with birth affirmations and modified shavasana.) were demonstrated to the participants. Participants were practiced these interventions for 45minutes two times (morning and evening) a day for 4 weeks. Supervision was made every alternate day. To ensure compliance with the research protocol telephone calls were made to the participants. Participants in the control group received only the standard routine hospital care. Selected mind body interventions were not practiced by the control group. Post test data collection was conducted at 36-37 weeks of gestation (4th week after pretest) for both the groups by using the same tools.

Statistical Analysis

Descriptive statistics were used for all variables to know the percentage. Parametric tests (Paired ‘t’test, Independent t-test) were used for the comparison of means between control and experimental groups. A probability of 0.05 or less was taken as statistically significant. The analysis and plotting of graphs were carried out using Sigmmaplot 13 (Systat Software Inc. USA)

RESULTS

Description of mothers according to their demographic variables

With regard to the age majority of control group (60%), experimental group (67%) belongs to the age group of 24 to 29 years. Regarding religion, most of them were Hindu in both groups. Regarding the educational status 22% participants from experimental group had completed the post graduate education and 38% participants had completed the high school education. With regard to the place of residence 40% of control group and 53% of experimental group were from suburban. With regard to occupational status of the antenatal women in experimental group, 40% of participants were semiskilled worker and skilled worker respectively. In control group 60% of the primi antenatal women were from nuclear family and 73% of participants were from joint family in the experimental group. No participants of both groups had family history of mental illness and diagnosed as a case of mental illness.

Effectiveness of selected mind body interventions on serum cortisol

Table 1: Effectiveness of selected mind body interventions on serum cortisol by using parametric tests

| Group                  | Mean±SE | Con - pre test | Exp - post test | Con - pre test | Exp - post test | Con - pre test | Exp - post test | Con - pre test | Exp - post test |
|------------------------|---------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Control pre test       | 22.68±1.05 | t=1.22       |               |               |               |               |               |               |               |
| Control post           | 23.03±0.97  |               | p=0.241      |               |               |               |               |               |               |
| Experimental pre test  | 23.11±1.33  |               |               |               |               |               |               |               |               |
| Experimental post test | 18.83±1.03  |               |               |               |               |               |               |               |               |

A.Jebarna Kiruba Mary et al / Int. J. Res. Ayurveda Pharm. 8 (3), 2017
DISCUSSION

The study was consistent with the following findings: Jacobs, Saron and their colleagues used a questionnaire to measure aspects of mindfulness among a group of volunteers before and after an intensive, three-month meditation retreat. They also measured cortisol levels in the participant’s saliva. Participants were trained attention skills as mindfulness of breathing, observing mental events and observing the nature of consciousness. Participants also practiced cultivating benevolent mental states, including loving kindness, compassion, empathic joy and equanimity. They found that there was a correlation between a high score for mindfulness and a low score in cortisol both before and after the retreat. Individuals whose mindfulness score increased after the retreat showed a decrease in cortisol. The study was conducted to assess the effects of prenatal Hatha yoga on cortisol, affect and depressive symptoms among 51 women. Tools were used twice (before and after a 90-min prenatal Hatha yoga session) to assess the level of salivary cortisol, affect and symptoms of depression. Yoga group participants showed less ante partum and postpartum (p < .05) symptoms of depression than control group participants. Findings indicate that prenatal Hatha yoga provides a positive affect during pregnancy, decrease in the level of cortisol and improved maternal postpartum well-being. The study was conducted to determine the effects of IBMT on basal cortisol level among the college students. Selected 34 participants were randomly selected into two groups that is integrative body–mind training (IBMT Meditation-experimental group) and relaxation training (control) group. Duration of intervention was about 4 weeks. Participants were compared with a control group. The results showed that basal cortisol level was decreased significantly in the IBMT group but not in relaxation group even after 2 and 4 weeks of training. Thirthalli et.al conducted a study to assess the role of yoga as an antidepressant and its effect on serum cortisol level. Sample size were 54 divided into 3 groups like antidepressant medication alone (n=16), yoga-alone (n=19) or a combination of both (n=19). Yoga was taught for a month and participants were practiced at home daily. Hamilton Depression Rating Scale (HDRS) and serum cortisol level were used to assess the data. The findings of the study proved that yoga has an effect of antidepressant and reduction in the level of cortisol.

CONCLUSION

The present study focus on the selected mind body interventions on cortisol level among antenatal women with anxiety related to childbirth. The finding of the study shows that the selected mind body interventions were found effective in reducing the level of cortisol among antenatal women with childbirth anxiety. Nurses and midwives should teach and demonstrate the mind body interventions to antenatal women who has anxiety related to childbirth anxiety.
childbirth in all community centers, antenatal clinics etc. Mind body interventions are complimentary medicinal practices which are practiced to use the mind to promote overall health and well being

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