



Short Term Effect Of Relaxation Techniques On Sleep And Fatigue In Early Post-Partum Period:- An Experimental Study

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Abstract: Postpartum fatigue is the most common issue among post natal women it could seriously affect the health of mothers. Postpartum fatigue and sleep has been defined rather variably and generally includes a decreased capacity for physical and mental activity after childbirth, impairments in concentration and attention not easily relieved by rest. Relaxation technique in the form of progressive relaxation technique (PMR), meditation and diaphragmatic breathing is known to bring the positive effect on sleep and fatigue in early postpartum period.

I. INTRODUCTION

Postpartum fatigue is described as overwhelming feelings of exhaustion, and decreases in physical and mental capacity. Negative psychological symptoms (e.g., depression, anxiety and stress), sleep problems and less effective parenting behaviours are closely associated with the severity of postpartum fatigue. Postpartum fatigue is the most common issue among postnatal women and it could not only seriously affect the health of mothers but also bring about adverse impacts on their offspring. ⁽¹⁾ Postpartum sleep and fatigue are two of the most pressing and persistent issues mothers struggle with daily in the months after childbirth. ⁽²⁾ The health effects of poor subjective sleep, and postpartum fatigue on mothers and their families are numerous, including depression, early weaning from breastfeeding, poor functional status, and impaired infant development, and are often overlooked by health care providers. ⁽¹⁾ Postpartum fatigue (PPF) has been defined rather variably and generally includes a decreased capacity for physical and mental activity after childbirth, a persistent lack of energy, impairments in concentration and attention not easily relieved by rest or sleep. ⁽³⁾ PMR is a technique that utilizes a cycle of muscle tension Release combined with breathing regulation. The reason PMR can provide benefits for the health of pregnant women the main activity of PMR is the relaxation of muscle tension involving sympathetic and parasympathetic nerve fibres. ⁽⁸⁾ The parasympathetic nervous system dominates the performance of decreasing heart rate, breathing rate, blood

pressure, reducing anxiety, and increasing relaxation. This response to relaxation can alleviate pain by reducing tissue oxygen demand, reducing the level of chemicals such as lactic acid, and releasing endorphins. Therefore, reducing anxiety using PMR, results in decreased pain perception, reduces fatigue. ⁽⁸⁾

Practicing relaxation techniques will also help to calm your mind and reduce stress. When your body is calm it reduces the amount of stress hormones (called catecholamine's) released into your blood stream. High levels of stress hormones, also referred to as our fight or flight response, can decrease the efficiency of the uterine contractions and slow labour down and increase pain. Breathing and conscious relaxation distracts the mind and allows you to be more focused and present in the moment. ⁽³⁾

A relaxation technique (also known as relaxation training) is any method, process, procedure, or activity that helps a person to relax; to attain a state of increased calmness; or otherwise reduce levels of anxiety, stress or anger. Relaxation techniques are often employed as one element of a wider stress management program and can decrease muscle tension, lower the blood pressure and slow heart and breath rates, among other health benefits. People respond to stress in different ways, namely, by becoming overwhelmed, depressed or both, other techniques that include deep breathing tend to calm people who are overwhelmed by stress, while rhythmic exercise improves the mental and physical health of those who are depressed. Meditation was among the first relaxation techniques shown to have a measurable effect on stress reduction. Meditating for ten minutes per day can significantly reduce stress and anxiety. ⁽⁴⁾

Progressive Muscle Relaxation (PMR) therapy involves sequential tensing and relaxation of major skeletal muscle groups and aims to reduce feelings of tension, to lower perceived stress, and to induce relaxation. PMR is purported

to decrease the arousal of the autonomic and central nervous system and to increase parasympathetic activity. PMR sessions commonly last for 20 to 30 minutes, but are not standardized and may therefore vary in duration, frequency and the number of involved muscle groups, and may also include deep breathing techniques.

Meditation, a form of mental training that has been shown to increase mental focus and reduce stress, has become an increasingly used tool in both the medical and clinical psychology arena. It is considered a family of techniques, which have in common a conscious attempt to focus attention, e.g., by observing the breath and avoiding every day thoughts.

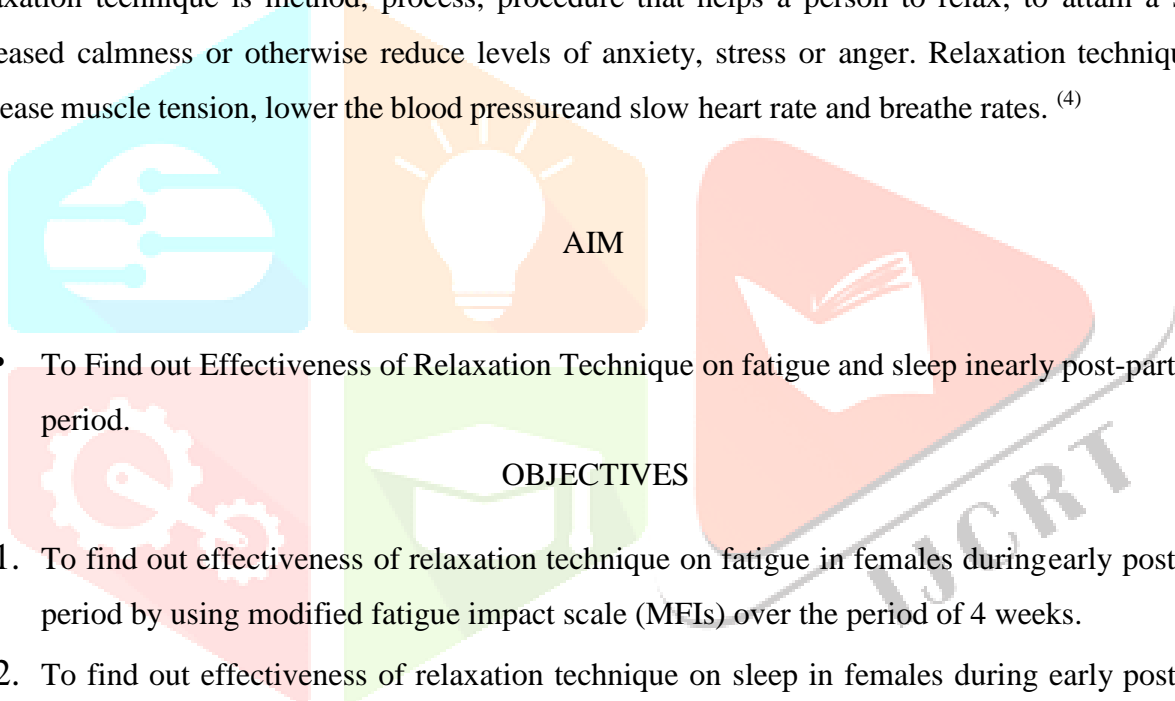
Diaphragmatic breathing, or abdominal or belly or deep breathing is marked by expansion of the abdomen rather than the chest when breathing is defined as a manipulation of breath movement, contributing to a physiologic response characterized by (a) the presence of decreased oxygen consumption, decreased heart rate and blood pressure, and (b) increased theta wave amplitude in EEG recordings, increased parasympathetic activity accompanied by the experience of alertness and invigorating. ⁽⁴⁾

NEED OF STUDY

Post-partum fatigue is highest in days after giving birth Which may disturb approximately 64% of mothers in their postpartum stage. It was reported that 38.8, and 11.4% of women perceived fatigue at 10 days, 1 month and 3 months after delivery, respectively, which indicates that the influence of postpartum fatigue on puerperia is general and persistent. Postpartum fatigue is the most common issue among postnatal women and it could not only seriously affect the health of mothers but also bring about adverse impactson their offspring. ⁽¹⁾

Experiences of fatigue could negatively affect breastmilk production, maternal-infant attachment and interaction, thereby delaying the development of babies. ⁽²⁾ 87.55% of postpartum women experience sleep problem such as poor sleep quality and sleep disturbances. ⁽⁵⁾

Relaxation technique is method, process, procedure that helps a person to relax; to attain a state of increased calmness or otherwise reduce levels of anxiety, stress or anger. Relaxation techniques can decrease muscle tension, lower the blood pressure and slow heart rate and breathe rates. ⁽⁴⁾



- To Find out Effectiveness of Relaxation Technique on fatigue and sleep in early post-partum period.

1. To find out effectiveness of relaxation technique on fatigue in females during early postpartum period by using modified fatigue impact scale (MFIs) over the period of 4 weeks.
2. To find out effectiveness of relaxation technique on sleep in females during early postpartum period by sleep quality scale over the period of 4 weeks.

HYPOTHESIS

- Null Hypothesis(H01) – There will not be any effect in MFIs (modified fatigue impact scale) in females between the age group 18-35 years in early post-partum period receiving relaxation techniques over the period 4 weeks
- Null Hypothesis(H02) – There will not be any effect in sleep quality index in females between the age group 18-35 years in early post-partum period receiving relaxation techniques over the period 4 weeks
- Alternative Hypothesis (H1) – There will be effect MFIs (modified fatigue impact scale) in

females between the age group 18-35 years in early post- partum period receiving relaxation Techniques over the period of 4 weeks.

- Alternative Hypothesis(H2) – There will be effect sleep quality index in females between the age group 18-35 years in early post-partum period receiving relaxation Techniques over the period of 4 weeks.

METHODOLOGY

- Study design: - Experimental study (pre& post)
- Sample size: - 55 ⁽⁸⁾
- Study population: - 18-35 years of age
- Study duration: - 6 months
- Sample method: - convenient sample
- Study settings: - Hospitals in and around Pune
- Duration of intervention: (45 mins per day / 3times in a week/ 4 weeks)⁽⁴⁾

STUDY CRITERIA

➤ Inclusion Criteria

- Have completed a minimum education level of elementary school
- Prim-parous women
- Women aged 18 years or above who had a healthy pregnancy withoutpostnatal complications
- Female undergone full term normal delivery
- Full term normal delivery without episiotomy ⁽³⁾
- Females in early post-partum period i.e., POD 1 to 7

➤ EXCLUSION CRITERIA

- Women who will deliver a baby with caesarean section, premature birthand babies with APGAR score less than 7
- Women with neurological, endocrinal, cardiovascular and musculoskeletalconditions.
- Females with diagnosed postpartum depression (Edinburgh score >11)
- Complications during pregnancy or females with delayed labour

MATERIAL USE

- Smart Phones
- Computers
- Laptop
- Scales: - MFIs, sleep quality index

REVIEW OF LITERATURE

1. Jialu Qian, shiwen sun, xiayanyu et.al in their study “Effectiveness of non- pharmacological interventions for reducing post-partum fatigue: - a meta- analysis” states that, the study revealed that the prevalence of PPF ‘it was reported that 38.8,27.1 and 11.4% of women perceived fatigue at 10 days,1 month and 3 months after delivery.

(Biomed central journal -sept2021)

2. Yuan Yang, Wen Li, e.al in their study "Prevalence of Poor Sleep Quality in Perinatal and Postnatal Women: A Comprehensive Meta-Analysis of Observational Studies" states that '87.5 % of postpartum women experience sleep problem such as poor sleep quality and sleep disturbance'.

(PMCjournal-March2020)

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PROCEDURE

THE STUDY WAS STARTED WITH A PRESENTATION TO THE ETHICAL COMMITTEE OF P.E.S MODERN COLLEGE OF PHYSIOTHERAPY PUNE-05

THE PARTICIPANTS WERE SELECTED ACCORDING TO THE INCLUSION AND EXCLUSION CRITERIA

PURPOSE WAS EXPLAINED TO THE PARTICIPANTS AND WRITTEN CONSENT WAS TAKEN

PRE TREATMENT AND POST TREATMENT ASSESSMENT WAS DONE BY USING MODIFIED FATIGUE IMPACT SCALE AND SLEEP QUALITY INDEX

PARTICIPANTS RECEIVED RELAXATION TECHNIQUES FOR 4 WEEKS SUPERVISED (3TIME/WEEK) AND FEMALES HAD PERFORMED RELAXATION TECHNIQUES STARTING WITH MEDITATION FOR 15 MINUTES EVERYDAY AND THEY HAD MAINTAIN EXERCISE DIARY FOR ALTERNATE DAY.

DATA WAS COLLECTED AND STATISTICAL ANALYSIS WAS DONE

Before starting the first treatment session, each patient was instructed briefly about the treatment procedure and how to make it as a home routine, which was explained carefully to her to gain her confidence and co-operation. The woman was asked to evacuate her bladder before treatment session to be relaxed, restricted clothed was removed, she was sitting in a relaxed fully supported half lying position in a quite warm comfortable place with her hands supported beside her body

During the whole treatment the sleep diary was given to maintain

➤ Meditation: -

- Meditation will be done for 15 minutes as the following
- The woman is asked to bring her attention to her breathing, [notice if it's shallow breathing, or short and quick breaths. Then, begin to picture an object in her mind for 5 minutes. This object should be simple and pleasurable to her. It could be her new born, the sky or the moon etc. It could be her favourite sound, such as music. Whichever you choose, try to visualize the object, word, or something to represent the sound].
- Then the woman is asked to close her eyes and takes a deep breath from her nose and makes her abdomen as a balloon fully and slowly to a count of four and fills her abdomen, expire the air from her mouth then contract her abdomen. If there is any interruption occurs to the woman, she was asked to bring her attention back to her breathing as the mind interruption is normal.
- This procedure is repeated four times deep breaths to a count of four and expires to a count of four for 5 minutes. Then the woman was asked to take a 4-count deep breath. Hold it for a count of four. And expire for a count of four.
- Then repeat four times the pattern of deep breath, holding, and expire to a count of four each, bring your breaths down to a calm and rhythmic pattern for 5 minutes. ⁽⁴⁾

Physical relaxation:

➤ Step 1: Tense-relax:

- This technique involves testing a set of muscles, noting the tension and then releasing the muscle work and noting the absence of tension.
- Each movement will be repeated for three times and relax for five counts for about 12 minutes.
- The woman is positioned in a fully supported half lying position, she is asked to flex her toes and feel tension and its site, then she switches off activity and feels the difference or feels the

absence of tension, then extend her toes and feel tension and its site, then she switches off activity and feels the absence of tension for 2 minutes.

- The same movement is repeated with the ankle, she is asked to dorsiflex her ankle and feel the tension then relax, then plantar flex her ankle and feel the tension then relax for 2 minutes.
- Then the woman is asked to make inversion to the subtalar joint and feel the tension and its site, then relax for five counts then make eversion to the subtalar joint and feel the tension then relax for 2 minutes.
- For the upper limb, the woman is asked to flex the fingers and feel tension and its site then she switches off and extend her fingers and feel the tension for 2 minutes.
- Then she is asked to flex her wrist and feel tension then relax and extend her wrist and feel the tension then relax for 2 minutes.
- Finally, she was asked to make ulnar deviation her wrist and feel the tension then switches off and radial deviation and feel the tension then switches off for 2 minutes. ⁽⁴⁾

➤ **STEP 2: - Relaxation training (contrast method)**

- It is a form of relaxation training with breathing control where the contraction or increasing tension in one group of muscle is accompanied by inspiration and the release of contraction and absence of tension is accompanied by expiration, it is started at 2nd week of treatment for about 8 minutes.
- The woman is asked to bend her toes up with inspiration and down slowly and feel the tension, with expiration let the toes go loose and feel the absence of tension for 1 minute.
- With inspiration she abducted her toes and then adducted her toes and feels the tension, with expiration let them relax for 1 minute.
- With inspiration she is asked to dorsiflex her ankle and plantar flex her ankle and feel the tension, with expiration let them slack and feel absence of tension for 1 minute.
- With inspiration she is asked to invert the subtalar joint and evert the subtalar joint, with expiration let their feet relax for 1 minute.
- With inspiration, she is asked to flex her fingers and extend her fingers, with expiration let them relax for 1 minute.
- With inspiration she is asked to abduct her fingers and adduct them, with expiration relax them for 1 minute.
- With inspiration she is asked to flex her wrist and extend her wrist, with expiration relax her wrist and feel absence of tension for 1 minute.
- With inspiration she is asked to make ulnar deviation to her wrist and make radial deviation, with expiration relax her wrist for 1 minute. ⁽⁴⁾

➤ STEP 3: - Relaxation training (No bending – No stretching)

- At this stage of training, the woman will be able to be aware of tension even without apparent movement. She has passed the initial stage of relaxation training and can appreciate the difference between a contracted and relaxed muscle, this technique was started at the 3rd week of the treatment program for 10 minutes.
- The woman is asked to do regular, easy, low-level breathing, then she is asked to listen to the natural rhythm of her breathing for 2 minutes.
- She is asked to concentrate on her toes, but do not move them and feel if there is tension, with expiration let them go loose and feel the absence of tension for 2 minutes.
- Then she is asked to think and concentrate at the site of her ankles with inspiration then relax and feel the absence of tension with expiration for 2 minutes.
- With inspiration she is asked to concentrate on her fingers but don't move them and feel if there is tension then let them go loose and feel absence of tension with expiration for 2 minutes.
- With inspiration she is asked to concentrate at the site of her wrists and feel absence of tension with expiration for 2 minutes.

Diaphragmatic breathing exercise:

This technique was performed as a home routine during stressful conditions for 5 minutes about 5 repetitions and relax in between.

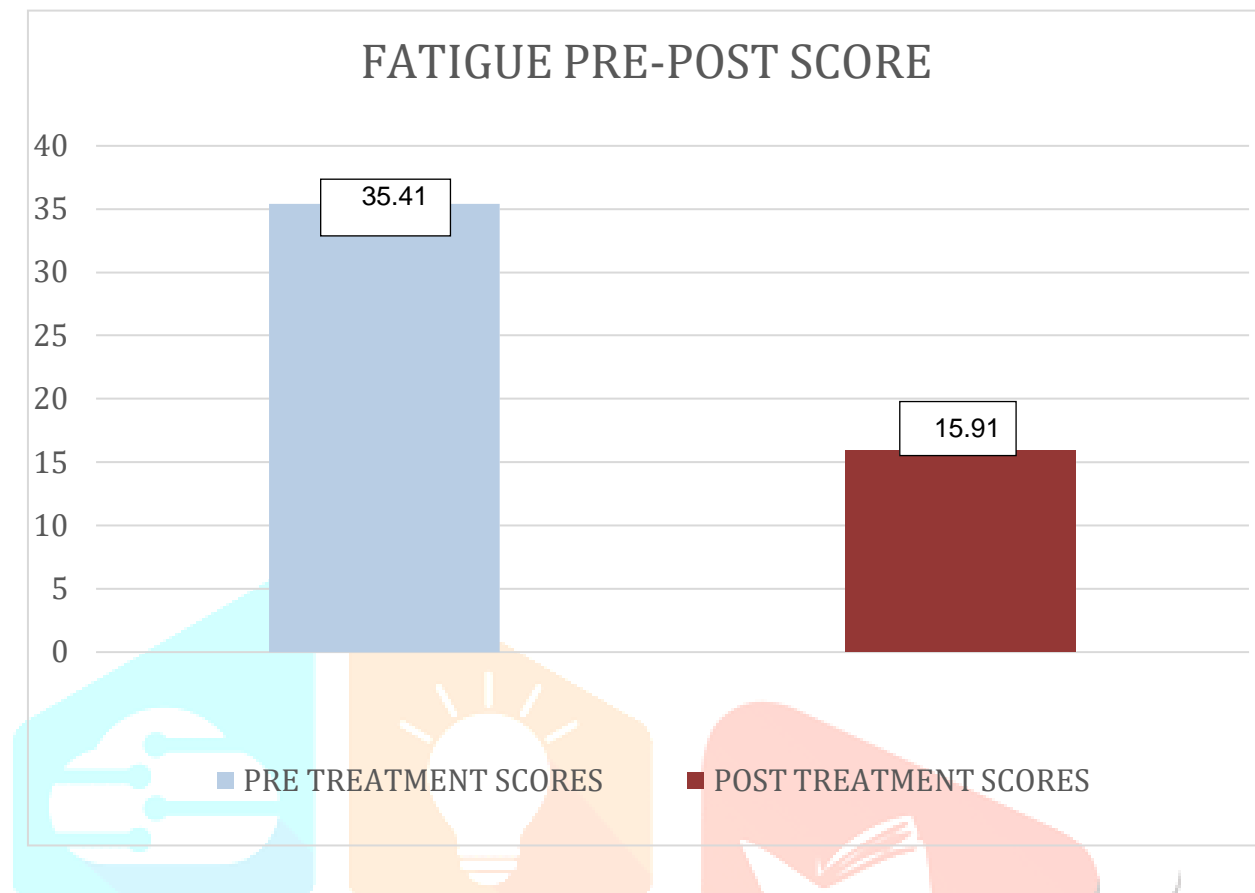
The woman was asked to assume a relaxed comfortable position e.g. crocklying, sitting or standing position. She should breathe in slowly and deeply, keeping her shoulders relaxed and upper chest quiet.

She was asked to take deep inspiration from her nose, make her abdomen like a balloon then expire the air from her mouth with a sigh. ⁽⁴⁾

DATA ANALYSIS

Table 1: Comparison of pre and post treatment score on functional outcome modified fatigue impact scale in females with early post-partum period.

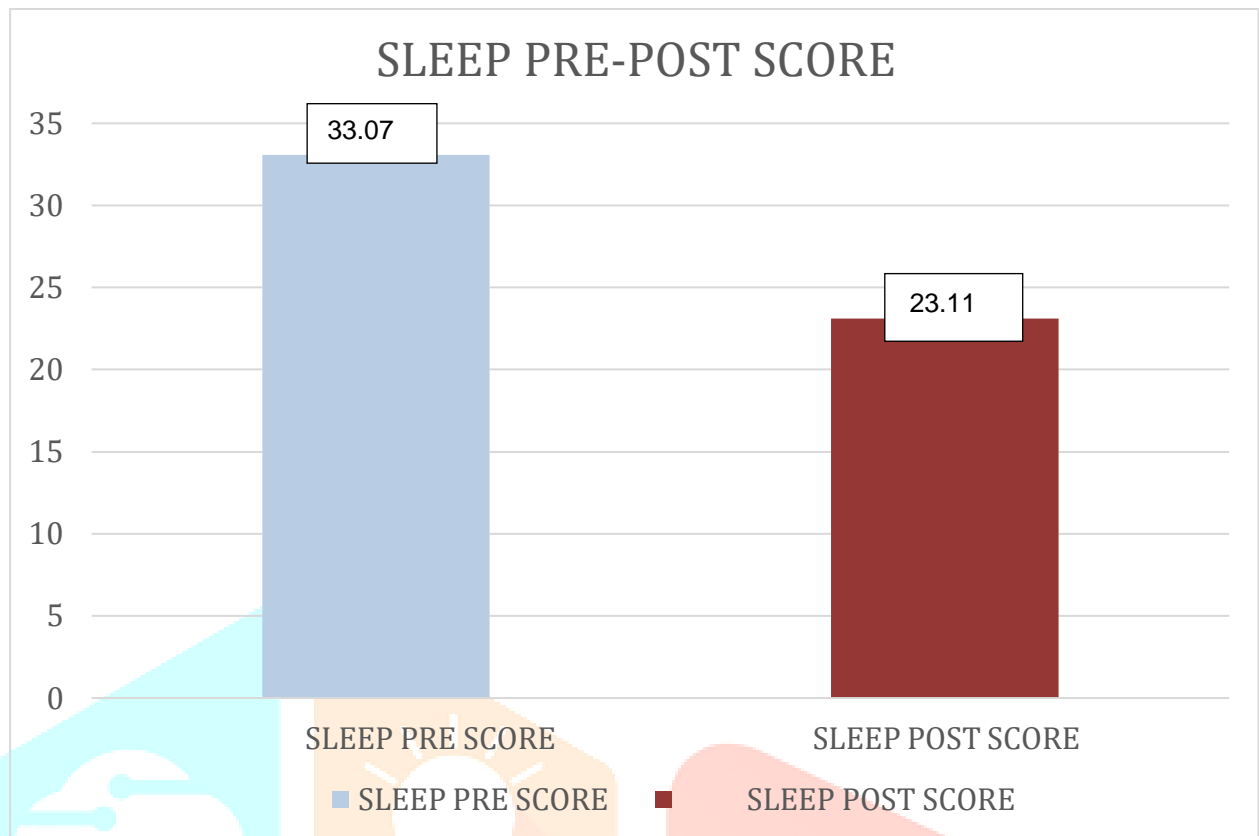
Modified fatigue impact scale	Pre treatment mean score + SD	Post treatment mean score + SD	t value	p value	Results
	35.41 + 4.36	15.91+3.17	24.1358	<0.0001	EXTREMELY SIGNIFICANT



There were significant difference ($p < 0.0001, t = 24.1358$) between mean difference of pre treatment score ($35.41 + 4.36$) and post treatment score ($15.91 + 3.17$) of modified fatigue impact scale.

Table 2. Comparison of pre and post treatment score on functional outcome sleep quality scales in females with early post-partum period.

+++ Sleep quality scale	Pre treatment mean score + SD	Post treatment mean score + SD	t value	p value	Results
	33.07 + 6.08	23.11 + 5.1	15.5209	<0.0001	EXTREMELY SIGNIFICANT



There were significant difference ($p < 0.0001, t = 15.5209$) between mean difference of pre treatment score ($33.07 + 6.08$) and post treatment score ($23.11 + 5.1$) of sleep quality scale.

DISCUSSION

Fatigue and sleep commonly affects females in early post partum period. The present study was undertaken with the intention to compare the effectiveness of relaxation techniques after pre treatment assessment and post treatment assessment by using scales (Modified Fatigue Impact Scale and Sleep Impact Scale). In this study 55 females in their early postpartum period were included with age between 18 to 35 year old.

Relaxation technique involves meditation for 15 minutes with breathing control followed by physical relaxation in which tense-relax and contrast method was given followed by diaphragmatic breathing exercises under stressful conditions.

Postpartum fatigue (PPF) has been defined rather variably and generally includes a decreased capacity for physical and mental activity after childbirth, a persistent lack of energy, impairments in concentration and attention not easily relieved by rest or sleep.⁽³⁾

Hence, it is significant to deliberately avert and relieve fatigue during the postpartum period via effective approaches. In fact, interventions for reducing postpartum fatigue have particular advantages. They are not only important to puerperae' physical relief but also have potential benefits on the improvement of maternal mental health.⁽¹⁾

the results of this study indicate that relaxation techniques is useful in overcoming fatigue after pregnancy by improving the balance between anterior and posterior hypothalamus, reduces sympathetic activity, reduces muscle tension, B.P and heart rate and regulates breathing.⁽⁵⁾

Through relaxation, individuals can relax all of their muscles one by one ,so they can reduce their anxiety and stress.

relaxation techniques also stops the stress response ,such as fatigue.⁽⁴⁾

PMR, deep breathing, and guided imagery—for stress relaxation, confirming past research indicating their benefits for promoting both psychological and physiological states of relaxation and offering a head-to-head comparison of stress-reduction strategies.⁽⁸⁾

The present study found the multidimensional assessment of fatigue with MFIS to be a reliable and valid instrument in SLE. The MFIS might provide more detailed information about fatigue in future studies.⁽⁹⁾

The results of this study supported with those of Lolak et al., (2008)²², who found that relaxation training is effective in reducing anxiety and depression level in chronic lung patients, there was an overall significant improvement within each group over time. ⁽⁴⁾

The study “effectiveness of progressive muscle relaxation and aromatherapy on fatigue in pregnant mothers” by tetet kartilah, sofia februanti in their study states that ‘muscle relaxation technique are proven effective in reducing fatigue in pregnant women can be use as alternative non-pharmacological effort to overcome fatigue in pregnancy.⁽⁸⁾

Thus, this study provides evidence that relaxation techniques are effective in reducing early post-partum fatigue and sleep disturbances.

CONCLUSION

In this study, pre treatment assessment and post treatment assessment showed significant results on both outcome measures (modified fatigue impact scale and sleep quality scale) while treating females with fatigue and disturbed sleep in early post-partum period.

The exercises proved to be effective while treating females with fatigue and sleep disturbances in early post partum period over a period of 4 weeks.

Hence, we are accepting alternate hypothesis which states that There was effect MFIs (modified fatigue impact scale) and sleep quality scale in females between theage group 18-35 years in early post-partum period receiving relaxation Techniques over the period of 4 weeks.

LIMITATIONS

- females with anxiety issues were not included in study.
- In present study duration of intervention was short.

FUTURE SCOPE

- Similar study can be done in Multiparous women & females who have delivered by caesarean section.
- Similar samples can be reassessed to see long lasting effect of an intervention.

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