



**EFFECTIVENESS OF FOOT REFLEXOLOGY VS BACK MASSAGE ON  
QUALITY OF SLEEP AMONG POST CESAREAN MOTHERS**

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**ABSTRACT**

This study was intended to evaluate the effectiveness of the foot reflexology, back massage in improving the quality of sleep among the post cesarean mothers. The quality of sleep was assessed on 30 post cesarean mothers with 10 samples in each group of control, foot reflexology and back massage. The quality of sleep was assessed using the Modified Pittsburg Sleep Quality Index Scale. After the pretest, foot reflexology and back massage was given for three consecutive days in the evening for the respective mothers. In the pretest the quality of sleep was less in all the three groups. The results revealed that the post test mean score of quality of sleep of foot reflexology group 15.24(SD 3.01) was lower than of a back massage group 27.14 (SD 4.52) and control group 50.95(SD 4.52). The effect of foot reflexology and the back massage on the quality of sleep was statistically significant at  $p < 0.001$ . Though, both the therapies were effective, the foot reflexology was found to be more effective than the back massage in improving the quality of sleep which is vital in healing the body and to promote the wellbeing of the mother.

**KEYWORDS:** Quality of sleep, Foot reflexology, Back massage, Effectiveness, Post Cesarean.



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## INTRODUCTION

Childbirth is one of the happiest events in every woman's life. Though it is the greatest moment, the childbirth process is painful. Cesarean section is a common method of delivery with incidence of 32% of all birth in the United States. It is stated that one in every two births in China is delivered by cesarean section; the rate is around two in five in Thailand and Vietnam and nearly one in five in India. In south India 32.6% is documented with cesarean section deliveries<sup>1</sup>. Women have unique and varied immediate responses after giving birth. Some feel excited, uplifted, and energetic<sup>2</sup>. Others are exhausted and want to sleep. Sleep is a basic human need. In humans regular sleep is essential for survival. A person's need for rest and sleep changes throughout life<sup>3</sup>. Postpartum mothers have identified sleep as the primary stressor during the early post partum period<sup>4</sup>. Postpartum women experience altered sleep patterns that may lead to sleep disturbances. The most common reasons for sleep disturbances are related to newborn sleep and feeding patterns<sup>5</sup>. The concept of comfort is central to the art of nursing. Touch has always been a part of nursing mandate. Back massage and Reflexology has become a part of this reach out to patients. Back massage is a traditional method of promoting relaxation to the patients. Back massage is effective in producing physical and mental relaxation<sup>6</sup>. The three main physical effects of therapeutic massage are release of muscle tension, increased blood circulation and initiation of relaxation response<sup>7</sup>. Currently people started using the complementary therapies for their health problems and wellbeing. Reflexology is a type of complementary physical therapy used to promote healing throughout the body. Also known as zone therapy or reflex therapy, Foot reflexology is the practice of applying pressure to specific areas of the feet to produce benefits in different parts of the body<sup>8</sup>. The aim of foot reflexology is to unify mind, body and spirit in a state of relaxation and healing<sup>9</sup>. It is also said that many new mothers underestimate the effect of disrupted sleep on their emotional health and would benefit from guidance on the impact of sleep deprivation, strategies for gaining more sleep in the postnatal period and early training in sleep strategies for themselves and their infants<sup>10</sup>. The aim of the present study is to assess the quality of sleep of post cesarean mothers and to study the effect of foot reflexology, back massage on the quality of sleep of post cesarean mothers.

## MATERIALS AND METHODS

True experimental-repeated measures design was used for this study. This study was conducted among post cesarean mothers after getting the institutional ethical committee approval. Informed consent was obtained from the mothers for their participation in the study. The total sample consists of thirty post cesarean mothers. Using the simple random sampling method the samples were divided in to two experimental and one control group (10

in each group). The Inclusion criteria for samples were mothers with stable vital signs and without post operative complications. Post cesarean mothers who were having post operative complications, infections, injuries to the foot, bleeding disorders were excluded. The tool consists of item related to demographic profile of the post cesarean mother and baby. The tool used for this study was Modified Pittsburg Sleep Quality Index scale to assess the quality of sleep. The Modified PSQI consist of components such as sleep efficacy, sleep duration, sleep latency, sleep disturbances, sleep medication, daytime sleep and subjective sleep quality. The individual scores obtained for each of the seven components were combined. The total score is 21 and the scores are interpreted as no difficulty in sleep, mild difficulty, moderate difficulty and severe difficulty in sleep. In pretest data was collected for all the three groups using Modified PSQI Scale in the morning on the first post-operative day among post cesarean mothers who had slept the whole night after cesarean section. In the Foot reflexology group, the post cesarean mother was made to lie down in a comfortable supine position. The feet's were cleaned with warm water. After drying it, cream was applied as lubricant. In the beginning and at the end, relaxation techniques were applied to the foot. The areas of foot - brain, spine, circulatory, reproductive and insomnia point were stimulated using the thumb and finger walking technique. They received a single 15 minute foot reflexology session each evening for three consecutive days. After 3 days of treatment the quality of sleep was assessed by Modified PSQI Scale. In the Back massage group, the post cesarean mother was made to lie in a comfortable side lying position with the help of pillow below the abdomen and between legs. Warm water was used to clean the back. After drying, powder was used to facilitate smooth strokes. Effleurage - stroking technique was used starting from the iliac crest till supra clavicle region. Intervention was continued for single 15 minutes each evening for three consecutive days. After the three days of intervention on the fourth day morning using the Modified PSQI Scale post test was assessed. The analysis was carried out using SPSS Package (version 17.0)

## RESULTS AND DISCUSSION

The data analysis was done using the descriptive (Mean, Standard deviation) and inferential statistics (Student t' test). Figure 1 shows comparison of quality of sleep among post cesarean mothers in pretest and post test of the study groups. In control group in pretest the post cesarean mothers had 80% moderate difficulty in sleep and remaining in mild difficulty with (SD 7.26). In the post test it was reduced to 60% and 40% respectively (SD 4.52). In the pretest of foot reflexology group majority of mothers 80% had mild difficulty and 20% had moderate difficulty in sleep with (SD 12.59) where as in the post test all the mothers 100% had no difficulty in sleep (SD 3.01). The back massage group mothers in the pretest had 70% mild difficulty, 20% moderate difficulty and 10% no difficulty in sleep with (SD 10.78). In the post test the

mothers had 40% no difficulty and 60% mild difficulty in sleep (SD 4.52). Table 1 reveals the comparison of mean scores and standard deviation of quality of sleep in the pretest and posttest among post cesarean mothers in control, foot reflexology and back massage group. In the control group the mean score in the pretest was 57.62 (SD 7.26) as compared to 50.95 (SD 4.52) in the post test. The mean value in the pretest of the foot reflexology group was 38.57(SD 12.59) as compared to 15.24(SD 3.01) in the post test. The difference in the mean values was statistically significant (t=6.52) at (p<0.001). This showed that the application of Foot reflexology among the post cesarean mothers had a significant effect on the quality of sleep. Similarly, the difference in the mean values of pretest and post test (41.23, SD 10.78 vs. 27.14, SD 4.52) in Back massage was also statistically significant (t=4.88) at (p=0.001) indicating that Back massage improved the quality of sleep significantly. Table 2 shows the comparison of post test mean score, standard deviation and unpaired 't' value of quality of sleep between foot reflexology and control group. The mean values for the foot reflexology and control groups were 15.24 and 50.95 respectively. The test of significance showed a value of t=20.8 (p<0.001). This indicated that Foot reflexology was effective in improving

the quality of sleep. The similar findings were supported by a study conducted by Li CY.et al. (2011) observed that foot reflexology has significantly improved the quality of sleep among normal delivery mothers with standard error=0.38, at p<0.001<sup>11</sup>. JipiV.et al. (2014) study results proved that foot reflexology showed significant pain relief and improved quality of sleep among post cesarean mothers with mean score 7.65, t=-10.627 at p<0.001<sup>12</sup>. Table 3 depicts that the mean post scores of quality of sleep among post cesarean mothers in back massage and control groups were 27.14 and 50.95 respectively with t=11.79 statistically significant at (P<0.001). This showed that the Back massage was effective in improving the quality of sleep among post cesarean mothers. Ko YL, Lee HJ (2013), concluded in their study that back massage in the postnatal period among the normal delivery mothers significantly improved the quality of sleep with standard error = 0.43, at (p<0.001).<sup>13</sup> Table 4 reveals the post test mean score comparison between Foot reflexology and Back massage groups. The mean value of 15.24 (SD 3.01) in Foot reflexology was significantly lower compared to 27.14 (SD 4.52) of Back massage with t= 6.93 at (P<0.001). This indicates that Foot Reflexology was more effective in improving the quality of sleep than the Back Massage.

Figure 1

Comparison of Quality of sleep among post cesarean mothers in pretest and post test of the study groups

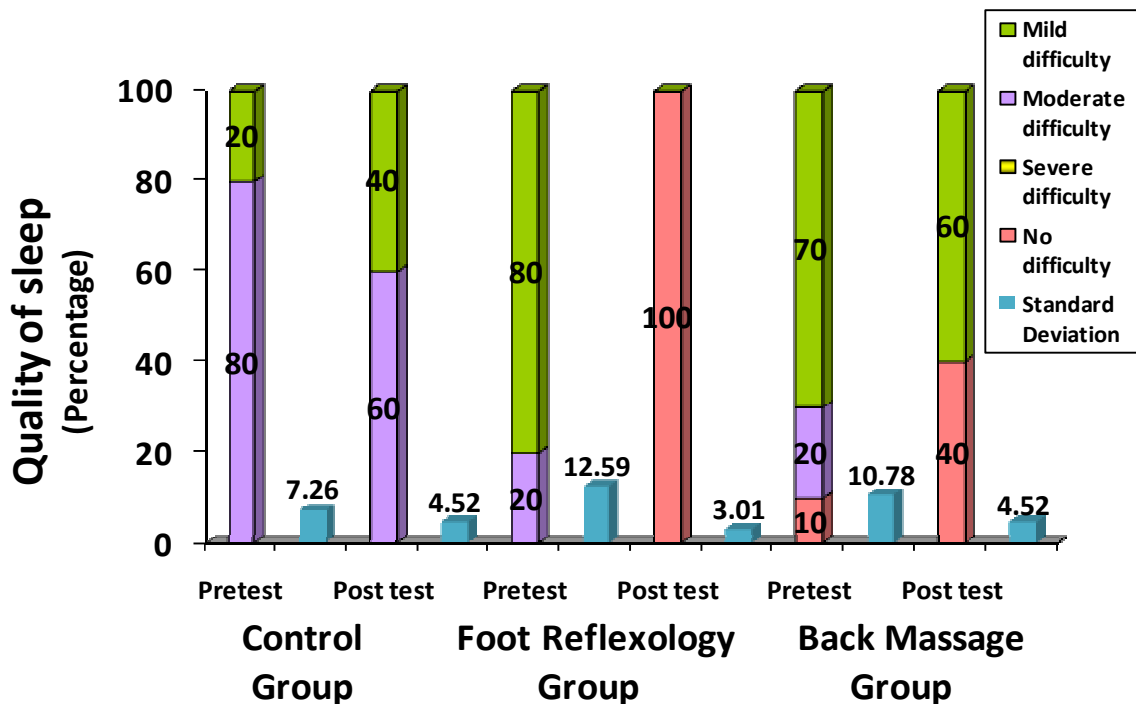


Table 1

**Comparison of mean score, standard deviation, mean difference and paired 't' of Pre and Post test Quality of sleep among post cesarean mothers in study groups. N=30**

Groups	Mean (%)	SD	Mean difference	Paired 't' value	P- value
Control Pretest	57.62	7.26	6.66	2.09 (df=9)	0.07
Control posttest	50.95	4.52			(Non Significant)
Foot Reflexology Pretest	38.57	12.59	23.33	6.52 (df=9)	<0.001**
Foot Reflexology Posttest	15.24	3.01			(Significant)
Back Massage Pretest	41.23	10.78	14.29	4.88 (df=9)	0.001*
Back Massage Posttest	27.14	4.52			(Significant)

Table 2

**Comparison of mean score, standard deviation, mean difference and Unpaired 't' of Post test Quality of sleep among post cesarean mothers in Control and Foot Reflexology group.**

Groups	Mean (%)	SD	Mean difference	Unpaired 't' value	P value
Control	50.95	4.52	35.71	20.80 (df=18)	<0.001*
Foot Reflexology	15.24	3.01			(Significant)

Table 3

**Comparison of mean score, standard deviation, mean difference and Unpaired 't' of Post test Quality of sleep among post cesarean mothers in Control and Back Massage group.**

Groups	Mean (%)	SD	Mean difference	Unpaired 't' value	P value
Control	50.95	4.52	23.81	11.79 (df=18)	<0.001*
Back Massage	27.14	4.52			(Significant)

Table 4

**Comparison of mean score, standard deviation, mean difference and Unpaired 't' of Post test Quality of sleep among post cesarean mothers in Foot Reflexology vs Back Massage group.**

Groups	Mean (%)	SD	Mean difference	Unpaired 't' value	P value
Foot Reflexology	15.24	3.01	11.90	6.93 (df=18)	<0.001*
Back Massage	27.14	4.52			(Significant)

## CONCLUSION

The present study shows that the post cesarean mothers have sleep disturbances during the immediate postpartum period. The foot reflexology and back massage were found effective in improving the quality of sleep among the post cesarean mothers. Though, both the therapies were effective, the foot reflexology was found as more effective than the back massage in improving the quality of sleep which is vital during the postpartum period to prevent the postpartum depression.

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## ACKNOWLEDGEMENT

The authors are thankful to the authorities of Sri Sathya Sai General Hospital, Bangalore for giving permission to carry out the study.

## CONFLICT OF INTEREST

Conflict of interest declared none.

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