A Study to Assess the Effectiveness of Progressive Muscle Relaxation Technique on Pain, Quality of Sleep and Anxiety among Women Undergone Cesarean Section at Sharda Hospital, Greater Noida, Uttar Pradesh

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Abstract:- **Pain, sleeplessness, and anxiety are the most often reported symptoms in women who have had cesarean sections. Aim: To assess the effectiveness of Progressive Muscle Relaxation technique on pain, quality of sleep and anxiety among women under gone cesarean section. Methodology: A quantitative research approach was applied, quasi-experimental pretest-posttest control group design was used. Women who had undergone cesarean sections were the target population. The sample size was 40. In this study, demographic performa and standardized tools were used to evaluate the pain levels, sleep quality and level of anxiety-Visual Analog Pain Scale (VAS), Groningen Sleep Quality Scale, and Hamilton Anxiety Rating Scale were used.**

Result: The study shows that the mean pretest of Visual Analog Pain Scale score in intervention group and control group were 3.9±0.30 and 3.85±0.50 respectively, and the post test in intervention group and control group were 1.70±0.47 and 2.90±0.30 respectively. The study demonstrates a statistically significant mean difference in Visual Analog Pain Scale score between the intervention and the control groups at the post test.

In the intervention group and control group, the mean pretest Groningen Sleep Quality scale scores were 2.90±0.30 and 2.85±0.36 respectively, while the mean post-test scores were 1.05±0.22 and 1.85±0.36 respectively. The study demonstrates a statistically significant mean difference in Groningen Sleep Quality score between the intervention and the control groups at the post test.

In the intervention group and controls, the mean pretest Hamilton Anxiety Rating scores were 2.75±0.44 and 2.80±0.41 respectively, while the mean post-test scores were 1.05±0.22 and 1.85±0.36 respectively. The study demonstrates a statistically significant mean difference in Hamilton Anxiety Rating scale scores between intervention group and the control groups at the post test.

Conclusion: The findings demonstrate that the intervention group and control group's scores were different. The pain level was reduced, there was an improvement in the quality of sleep, and there was a reduction of anxiety in the intervention group.

Keyword:- *Effectiveness, Progressive Muscle Relaxation, Women undergone caesarean section, Pain, Anxiety, Sleep.*

I. INTRODUCTION

Cesarean delivery is a surgical operation in which the incision is made in the abdomen and uterine to deliver a baby. Cesarean Section is preferred if there any complication or risk is involved in the normal delivery. The world's most popular surgical operation is a cesarean section. More than one in five (21%) of all deliveries world wide currently take place via cesarean section. Over the following decade, these number is anticipated to rise further. [1]

Women who gave birth surgically are more prone to experience loss anxiety, grief, negativity, and personal failure. Women frequently experience symptoms such as sadness, anxiousness, mood fluctuations, difficulties sleeping, problems focusing, and a general lack of self-awareness. Post-traumatic stress disorder can affect women who have a cesarean delivery, particularly if it wasn't expected.[2]

Effective treatment for these symptoms is Progressive Muscle Relaxation. when the person contract and release the group of muscle gradually all over the body, the body changes from a state of stress to a relaxation state. The stress hormones are less secreted and the heart rate, blood pressure decreases and relax the entire body. [3,4]

With this context, the researcher sought to evaluate the effectiveness of Progressive Muscle Relaxation on pain, sleep quality, and anxiety in women who had undergone caesarean section.

➢ *Objectives*
- To assess the effectiveness of Progressive Muscle Relaxation technique on pain among women undergone caesarean section.
- To assess the effectiveness of Progressive Muscle Relaxation technique on quality of sleep among women undergone caesarean section.
- To assess the effectiveness of Progressive Muscle Relaxation technique on anxiety among women undergone caesarean section.
- To find out the association between pain, quality of sleep and anxiety scores with selected demographic variables of women under gone cesarean section.

➢ *Research Hypotheses:*
- H_1: Post cesarean women who practice Progressive Muscle Relaxation have lower pain intensity than those who do not practice it.
- H_2: Post cesarean women who practice Progressive Muscle Relaxation have higher quality of sleep than those who do not practice it.
- H_3: Post cesarean women who practice Progressive Muscle Relaxation have lower level of anxiety than those who do not practice it.
- H_4: There will be a significant association found between pre-test and post-test pain, quality of sleep and anxiety scores among women in interventional group with the selected demographic variables.
- H_5: There will be a significant association found between pre-test and post-test pain, quality of sleep and anxiety scores among women in control group with the selected demographic variables.

II. METHODOLOGY

A quasi-experimental pretest-posttest control group design was used to assess the effects of Progressive Muscle Relaxation on pain, sleep quality, and anxiety in women who had undergone caesarean sections. Women who had undergone caesarean sections at Sharda Hospital were included in the study population. This research was conducted in 2022 between May and June. The sample size was 40 (independent t-test formula were used) and the purposive sampling approach was employed.

➢ *Ethical Consideration:*
The ethical clearance was obtained from
- Institutional Ethical committee of Sharda University
- Dean of concerned schools, Sharda University
- Chief Medical Officer, Sharda Hospital, Greater Noida
- Head of Department, Obstetrics and Gynecology, Sharda Hospital

- Informed consent from the participants of the study

➢ *Inclusive Criteria:*
- The women who had undergone cesarean section.
- Post cesarean women available at the time of data collection.

➢ *Exclusive Criteria:*
- Women who experienced any post-operative complications following a cesarean.
- Post cesarean women who are not willing to participate in the study.

➢ To collect data for the study, the following tool was used:
Demographic Performa and Standardized tools have been used to gather the data.
Tool 1: Demographic Performa
Tool 2: Visual Analog Pain Scale (VAS)
Tool 3: Groningen Sleep Quality Scale
Tool 4: Hamilton Anxiety Rating Scale

➢ *Statistical Analysis*
To evaluate the data, inferential and descriptive statistics were employed in accordance with the objectives and hypotheses using the statistical application EZR-Version 2.4.

III. RESULTS

Section I: Baseline characteristics and baseline outcome measures of women undergone cesarean section in intervention group and control group.

The present study shows that majority of women undergone cesarean section were 26-30 years i.e., 40% and 31-35 years i.e., 40% in intervention group and 26-30 years i.e., 75% in control group. Majority of women were having secondary education i.e., 75% in intervention group and 75% in control group. Majority are non-working women i.e., 90% in intervention group and 95% in control group. Majority of them had 1-4 antenatal visit i.e., 80% in intervention group and 85% in control group. Majority of the women were having two children i.e., 70% in intervention group and 65% in control group. Majority of the women had gestational age more than 37 weeks i.e., 90% in intervention group and 85% in control group. Majority of women had previous cesarean section i.e., 70% in intervention group and 65% in control group. Both groups were similar in their baseline characteristic (were homogenous). (P>0.05).

To evaluate the outcome measures' homogeneity (Visual Analog Pain Scale, Groningen Sleep Quality Scale and Hamilton Anxiety Rating Scale) at baseline, independent t-test was employed, it was discovered that both groups' measure of baseline was similar. (Were homogenous) (p>0.05).

Section II: Effectiveness of Progressive Muscle Relaxation techniques on pain among women undergone caesarean section.

Table 1: Comparison of Mean and Standard Deviation between Pre- and Post-Test of visual Analog pain scale scores among women undergone cesarean section in intervention group and control group. (N=40)

Visual Analog painScale score	Groups						Mean Difference	t-test & pvalue
	Intervention			Control				
	n	Mean	SD	n	Mean	SD		
Pre-test(N=40)	20	3.9	0.30	20	3.85	0.36	0.50	t=.46 p=.35 (NS)
Post- test(N=40)	20	1.70	0.47	20	2.90	0.30	1.20	t=9.55 p= 0.01(S)

(p<0.05 significant level) S: Significant & NS: Non-Significant

The data in Table 1. showed that the post-test scores on the Visual Analogue Pain Scale between the intervention group and control group have a statistically significant mean difference. To determine the significant mean difference, an independent t-test was employed. This demonstrates that the progressive muscle relaxation approach is a successful intervention for lowering pain among women undergone caesarean section. Hence the researcher accepted research hypotheses (H1).

Section III: Effectiveness of Progressive Muscle Relaxation techniques on quality of sleep among women undergone caesarean section.

Table 2: Comparison of Mean and Standard Deviation between Pre- and Post-Test of Groningen sleep quality scale scores among women undergone cesarean section in intervention group and control group.   (N=40)

Groningen Sleep Quality Scale score	Group						Mean Difference	Independentt-test, p Value
	Intervention			Control				
	n	Mean	SD	n	Mean	SD		
Pre-test(N=40)	20	2.90	0.30	20	2.85	0.36	0.05	t=0.46 p=0.35 (NS)
Post test(N=40)	20	1.05	0.22	20	1.85	0.36	0.80	t=8.33 p=0.03 (S)

(*p*<0.05 significant level) S: Significant & NS: Non-Significant

The data in Table 2. showed that the post-test scores on the Groningen Sleep Quality Scale between the intervention group and control group have a statistically significant mean difference. To determine the significant mean difference, an independent t-test was employed. This demonstrates that the Progressive Muscle Relaxation approach is a successful intervention for improving sleep quality among women undergone caesarean section. Hence the researcher accepted research hypotheses (H2).

Section IV: Effectiveness of Progressive Muscle Relaxation techniques on anxiety among women undergone caesarean section.

Table 3: Comparison of Mean and Standard Deviation between Pre- and Post-Test of Hamilton Anxiety Rating Scale scores among women undergone cesarean section in intervention group and control group**.**
(N=40)

Hamilton Anxiety Rating Scale Score	Group						Mean Difference	Independentt-test & p value
	Intervention			control				
	n	mean	SD	n	mean	SD		
Pre-test(N=40)	20	2.75	0.44	20	2.80	0.41	0.05	t=0.37 p=0.46 (NS)
Post-test(N=40)	20	1.05	0.22	20	1.85	0.36	0.80	t=8.33 p=0.03 (S)

(p<0.05 significant level) S: Significant & NS: Non-Significant

The data in Table 3. showed that the post-test scores on the Hamilton Anxiety Rating Scale scores between the intervention group and control group have a statistically significant mean difference. To determine the significant mean difference, an independent t-test was employed. This demonstrates that the Progressive Muscle Relaxation approach is a successful intervention for reducing anxiety among women undergone caesarean section. Hence the researcher accepted research hypothesis (H3).

Section V: Association between pre-test and post-test on pain, quality of sleep and anxiety scores among women undergone cesarean section in intervention group with the selected demographic variables.

To find out the association between pretest and post-test of Visual Analog Pain Scale scores, Groningen Sleep Quality scale scores, Hamilton Anxiety Rating scale scores of intervention group with demographic variable of the participants a one-way ANOVA was applied. It shows that, there was no statistically significant association (p>0.05) found. except for education in post-test Hamilton Anxiety Rating Scale scores. Hence researcher failed to accept research hypothesis (H4).

Section VI: Association between pre-test and post-test on pain, quality of sleep and anxiety scores among women undergone cesarean section in control group with the selected demographic variables.

To find out the association between pretest and post-test of Visual Analog Pain Scale scores, Groningen Sleep Quality scale scores, Hamilton Anxiety Rating scale scores of control group with demographic variable of the participants, a one-way ANOVA was applied. It shows that, there were no statistically significant association (p>0.05) found. Except for education in Post-test Groningen sleep quality scale scores. Hence researcher failed to accept research hypothesis (H5).

IV. DISCUSSION

➢ *First objective of the study was to assess the effectiveness of Progressive Muscle Relaxation techniques on pain among women undergone cesarean section.*

According to the study the mean pretest of Visual Analog pain Scale score among women undergone cesarean section in intervention group and control group were 3.9±0.30 and 3.85±0.50 respectively. The mean post-test of visual analog pain scale score among women undergone cesarean section in intervention group and control group were 1.70±0.47 and 2.90±0.30 respectively. The study shows that a statistically significant mean difference has been observed in Visual Analog pain Scale scores, at post-test between intervention group and control group. In order to identify the significant mean difference, an independent t-test was applied (t=9.55, p=0.01). This demonstrates that the progressive muscle relaxation approach is a successful intervention for lowering pain among women undergone cesarean section. In support of the study, a different study

conducted by Nagrale et al. The outcome demonstrates that the controlled group's mean before the intervention was 7.38 and decrease to 5.08 after the intervention. In the experimental group, the mean value before the intervention was 7.76 and decreased to 3.29 after the intervention. The results of the study demonstrate a substantial difference in the mean VAS pain scores between the experimental and the control groups.[5]

➢ *Second objective of the study was to assess the effectiveness of Progressive Muscle Relaxation techniques on quality of sleep among women undergone caesarean section.*

According to the study the mean pretest of Groningen Sleep Quality scale score among women undergone cesarean section in intervention group and control group were 2.90±0.30 and 2.85±0.36 respectively. The mean post-test of Groningen Sleep Quality scale score among women undergone cesarean section in intervention group and control group were 1.05±0.22 and 1.85±0.36 respectively. According to the study, there is a statistically significant mean difference between the intervention group and control group's Groningen Sleep Quality Scale scores at the post-test. In order to identify the significant mean difference, an independent t-test was applied. (t=8.33, p=0.03). This demonstrates that the Progressive Muscle Relaxation approach is a successful intervention for improving sleep quality among women undergone caesarean section. Support for the study was given by another study conducted by Ibrahim et al. The findings demonstrated that JPRT enhanced sleeping quality as evidenced by the fact that the intervention group's mean sleeping quality score fell significantly when compared to the control group (F1=361.49, p0.001). A significant improvement in sleeping quality was observed following JPRT, with 12% of the improvement attributable to the intervention, according to ANCOVA results using pre-test data as a baseline.[6]

➢ *Third objective of the study was to assess the effectiveness of Progressive Muscle Relaxation techniques on anxiety among women undergone caesarean section.*

According to the study the mean pretest Hamilton Anxiety Rating scale score among women undergone cesarean section in intervention group and control group were 2.75±0.44 and 2.80±0.41 respectively. The mean post-test of Hamilton anxiety rating scale score among women undergone cesarean section in intervention group and control group were 1.05±0.22 and 1.85±0.36 respectively. According to the study, there is a statistically significant mean difference between the intervention group and control group's Hamilton Anxiety Rating Scale scores at the post-test. In order to identify the significant mean difference, an independent t-test was applied. (t=8.33, p=0.03). This demonstrates that the Progressive Muscle Relaxation approach is a successful intervention for reducing anxiety among women undergone caesarean section. Essa et al.'s additional research supported the study's findings by showing that there was a difference of statistical significance between the two groups (p .0000). Whereas, 5% of the study group and 35% of the control group both still had significant

anxiety. Additionally, one fifth (20%) of the study group had entirely lost their anxiety, as opposed to no one in the control group (0.00%). The study group saw a statistically significant decline at the same period (p =.000).[7]

➢ *Fourth objective of the study was to find out the association between pain, quality of sleep and anxiety scores with selected demographic variables of women under gone cesarean section.*

The results of the current study demonstrated that there was no statistically significant correlation (p>0.05) between the pain, quality of sleep and anxiety scores with selected demographic variables of women under gone cesarean section.

V. CONCLUSION

According to findings, the study reveals that women who had undergone cesarean sections identify that using the Progressive Muscle Relaxation technique it was effective in reducing pain, improving quality of sleep and reducing anxiety level. Progressive Muscle Relaxation technique is an effective intervention for managing pain, quality of sleep and anxiety among women undergone cesarean section. Progressive Muscle Relaxation technique should be implemented as part of routine nursing care for the women undergone cesarean section.

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