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Article

Effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers at selected hospital, Puducherry

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Abstract: Background of the study: The origins of the term "Caesarean" are often associated with ancient Rome and the legendary birth of Julius Caesar through this surgical method. However, historical records suggest that the practice predates even this iconic moment, with references in ancient texts from diverse cultures around the world. In ancient times, the procedure was typically reserved for dire situations, when the life of the mother or child was at risk during a complicated delivery.
Aim of the study: The main aim of this study is to assess the effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers.
Methodology: A Pre-Experimental research design (One group Pretest – *Posttest design) was used in this study. 40 LSCS mothers were selected for BEAST (Breathing Exercise and Abdominal Strength Training) through non-probability convenience sampling technique. The demographic and clinical variables were collected and level of pain was evaluated by using Wong baker faces pain rating scale, activities of daily living was assessed by using Modified Barthel index scoring form before and after the intervention [BEAST (Breathing Exercise and Abdominal Strength Training)]. The intervention of BEAST was administered from 2nd postoperative day to 7th post operative day. The Posttest was conducted for the mothers with the same scale. The statistical analyses were done by using the descriptive and inferential statistics.*
Results: The result indicates that the comparison of mean and SD scores in pretest, the pain among post caesarean section mothers was 8.13 ± 0.853 and in posttest 2.95 ± 0.639. The calculated t value was 27.87, which is statistically significant at p<0.001. About activities of daily living the mean and SD scores in pretest was 18.75 ± 3.152 and in posttest was 86.13 ± 3.667. The calculated t value was 88.73 which is statistically significant at p<0.001.
Conclusion: The result of the study concluded that the BEAST was very effective in reducing pain and improve activities of daily living among post caesarean section mothers at selected hospital.
Keywords: BEAST (Breathing Exercise and Abdominal Strength Training), post caesarean section mothers, pain and activities of daily living.

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INTRODUCTION

Bringing new life into the world is a miraculous journey, and the methods through which childbirth occurs have evolved throughout history. One significant intervention that has become increasingly prevalent in contemporary obstetrics is the Caesarean section. As a surgical procedure designed to deliver a baby through incisions in the mother's abdominal and uterine walls.

The Caesarean section has witnessed a remarkable rise in global rates over the past few decades. This escalating trend prompts an urgent inquiry into the multifaceted aspects of Caesarean sections, their implications on maternal and neonatal health, and the broader sociocultural and medical contexts that shape the decision-making process.

Maternal recovery after a Caesarean section involves not only the healing of the surgical incision but also the restoration of respiratory function and abdominal strength, which can be impacted by anesthesia, surgical stress, and the altered biomechanics of the abdominal region. There is a growing recognition of the role that breathing exercises can play in enhancing respiratory function and overall well-being. These include improved oxygenation, stress reduction, and enhanced postoperative recovery.

According to World Health Organization (2021), Worldwide caesarean section rates have risen from around 7% in 1990 to 21% in 2021, and are projected to continue increasing over this current decade. If this trend continues, by 2030 the highest rates are likely to be in Eastern Asia (63%), Latin America and the Caribbean (54%), Western Asia (50%), Northern Africa (48%) Southern Europe (47%) and Australia and New Zealand (45%).[1]

According to Ministry of health and family welfare Government of India (2023), Telangana has clocked a record 100% institutional delivery rate in 2021-22. The State, however, had the highest percentage of Caesarean section deliveries in the country, 55.33% in 2020-21 and 54.09% in 2021-22. From the total C-sections performed in 2021-22, as much as 47.13% were at public health facilities and 61.08% at private centers.[2]

The prevalence of C-sections increased across India, TN and CG despite a decrease in pregnancy complications among the study participants. The odds of caesarean deliveries among overweight women were twice (OR = 2.11; 95% CI 1.95–2.29; NFHS-5) those for underweight women. Women aged 35–49 were also twice (OR = 2.10; 95% CI 1.92–2.29; NFHS-5) as likely as those aged 15–24 to have C-sections. In India, women delivering in private health facilities had nearly four times higher odds (OR = 3.90; 95% CI 3.74–4.06; NFHS-5) of having a C-section; in CG, the odds were nearly ten-fold (OR = 9.57; 95% CI:7.51,12.20; NFHS-5); and in TN, nearly three-fold (OR = 2.65; 95% CI-2.27-3.10; NFHS-5) compared to those delivering in public facilities. In public facilities, absolute inequality by wealth quintile in C-section prevalence across India and in CG increased in the five years until 2021, indicating that the rich increasingly delivered via C-sections. In private facilities, the gap in C-section prevalence between the poor (the bottom two quintiles) and the non-poor narrowed across India. In TN, the pattern was inverted in 2021, with an alarming 73% of the poor delivering via C-sections compared to 64% of those classified as non-poor.[3]

In Puducherry (2020-2021), C-section deliveries in private sector in urban 36.8%, in rural 68.9%.C-section deliveries in public sector in urban 40%, in rural 24.2%. Overall percentage of caesarean section is 36.3%.[4]

OBJECTIVES

- To assess the pretest and posttest level of pain and activities of daily living among post caesarean section mothers.
- To evaluate the effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers.
- To find out the association between the pretest level of pain and activities of daily living among post caesarean section mothers with the selected demographic variables.
- To find out the association between the pretest level of pain and activities of daily living among post caesarean section mothers with the selected clinical variables.

HYPOTHESIS

- **H1:** There is a significant difference in pain after implementation of BEAST among post caesarean section mothers.
- **H2:** There is a significant difference in activities of daily living after implementation of BEAST among post caesarean section mothers.
- **H3:** There is a significant association between the pretest level of pain among post caesarean section mothers with the selected demographic variables.
- **H4:** There is a significant association between the pretest level of pain among post caesarean section mothers with the selected clinical variables.
- **H5:** There is a significant association between the pretest level of activities of daily living among post caesarean section mothers with the selected demographic variables.
- **H6:** There is a significant association between the pretest level of activities of daily living among post caesarean section mothers with the selected clinical variables.

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MATERIALS AND METHODS

Study Design

A pre-experimental design (one group pretest -posttest design) was adopted for this research study.

Study Population

The accessible population of the study was post caesarean section mothers, admitted in SVMCH&RC, Ariyur.

Sample Size

The sample size was 40 post caesarean mother.

Sampling Technique

A non-probability convenience sampling technique was used for the study.

SAMPLING CRITERIA

Inclusion Criteria

Mothers who were in the age group of 18 to 35 years.
Mothers who were post caesarean section mothers.
Mothers who were in the 2nd post operative day to 7th post operative day.
Mothers who were present during the data collection period.

Exclusion Criteria

Mothers who were with comorbidities and high-risk during puerperium.
Mothers who were working as a health care professionals.
Mothers who were not willing to participate in the study.

Method Of Data Collection

The data collection was started after obtaining permission from the concerned authority and Institutional Review Committee (IRC NO: ICON IRC-2021-2022-004), The data was collected over a period of four weeks from 17.07.2023 to 31.08.2023. The investigator gave self-introduction and explanation about the study protocol to the samples. After this, informed consent was obtained from all the subjects. The design adopted for the study was a pre experimental one group pretest posttest design to assess the effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers. A convenient sampling technique was used to select 40 samples were in same group and selected in SVMCH&RC Ariyur, Puducherry. Pretest was done with a questionaries for demographic and clinical variables, modified Wong Baker faces rating scale was used to assess pain and modified Barthel scoring scale was used to assess activities of daily living. Post test was conducted after 7 days. The collected data were analysed based on the above mentioned objectives using descriptive and inferential statistics.

RESULTS

Table 1: Frequency and percentage wise distribution of demographic variables among post caesarean section mothers.

(N=40)

SL. NO	DEMOGRAPHIC VARIABLES	FREQUENCY (n)	PERCENTAGE (%)
1	**Age in years**		
	20- 25	17	42.5
	26- 30	**21**	**52.5**
	31- 35	2	5
2	**Educational level**		
	Illiterate	0	0
	Primary education	0	0
	Secondary education	12	30
	Graduate	**28**	**70**
3	**Occupation**		
	Employed	0	0
	Unemployed	**40**	**100**
4	**Income**		
	Below Rs.15000 /month	2	5
	Rs. 15001- 20,000 /month	4	10
	Above Rs.20, 000 /month	**34**	**85**

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5	**Religion**		
	Hindu	22	55
	Christian	**11**	**27.5**
	Muslim	7	17.5
	Others	0	0
6	**Type of family**		
	Nuclear family	**20**	**50**
	Joint family	**20**	**50**

The above table depicts that the frequency and Percentage wise distribution of demographic variables among post caesarean section mothers. Out of 40 samples 21 (52.5%) were in the age group of 26-30 years, 28 (70%) were graduated, 40 (100%) were unemployed, regarding income 34 (85%) were above Rs.20, 000/ month, 22 (55%) were Hindu, 20 (50%) were in both nuclear and joint family.

Table 2: Frequency and percentage wise distribution of clinical variables among post caesarean section mothers.

(N=40)

SL.NO	CLINICAL VARIABLES	FREQUENCY (n)	PERCENTAGE (%)
1	**Height in cm**		
	140 cm-145 cm	1	2.5
	146 cm-150 cm	0	0
	151 cm-155 cm	14	35
	>155cm	**25**	**62.5**
2	**Weight in kg**		
	<50kg	0	0
	50kg-55kg	1	2.5
	56kg-60kg	9	22.5
	>60kg	**30**	**75**
3	**History of hereditary diseases?**		
	Yes	0	0
	No	**40**	**100**
4	**History of communicable disease?**		
	Yes	0	0
	No	**40**	**100**
5	**Gravida**		
	1	15	37.5
	2	**22**	**55**
	3	3	7.5
	>3	0	0
6	**Gestational age at delivery**		
	<37 weeks	4	10
	37 weeks - 40 weeks	**36**	**90**
	>40 weeks	0	0
7	**Complication during pregnancy**		
	Anaemia	**15**	**37.5**
	PIH	3	7.5
	GDM	10	25
	None of the above	12	30
8	**Previous history of LSCS**		
	Yes	11	27.5
	No	**29**	**72.5**
9	**LSCS done under which anesthesia**		
	Spinal anesthesia	**36**	**90**
	General anesthesia	4	10
	Epidural anesthesia	0	0

The above table shows that the frequency and Percentage wise distribution of clinical variables among post caesarean section mothers. Out of 40 samples, 25(62.5%) were in the height of >155 cm, 30(75%) were in the weight of >60 kg, 40(100%) had no history of hereditary and communicable disease, 22 (55%) were in second gravida, 36(90%) were in 37weeks - 40weeks of gestational age at delivery, 15(37.5%) had anaemia during pregnancy, 29(72.5%) not had previous history of LSCS, 36(90%) were LSCS under spinal anesthesia.

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Table 3: Frequency and percentage wise distribution of pretest and posttest level of activities of daily living among post caesarean section mothers.

(N=40)

LEVEL OF ACTIVITIES OF DAILY LIVING	PRETEST		POSTTEST	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Total dependency	**36**	**90**	0	0
Severe dependency	4	10	0	0
Moderate dependency	0	0	**39**	**97.5**
Slight dependency	0	0	1	2.5

The above table shows that frequency and percentage wise distribution of pretest and posttest level of activities of daily living among post caesarean section mothers. In pretest, Majority of mothers 36(90%) had Total dependency and 4(10%) had Severe dependency. In posttest, majority of mothers 39(97.5%) had Moderate dependency and 1(2.5%) had slight dependency.

Table 4: Effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain among post caesarean section mothers.

(N=40)

	Test	Mean	Standard deviation	Mean difference	't' value Paired -t test	'p' value
WONG BAKER FACES PAIN RATING SCALE (LEVEL OF PAIN)	**Pretest**	8.13	0.853	5.175	27.87	**0.000** HS**
	Posttest	2.95	0.639			

**-p < 0.001 HS-Highly Significant, NS-Non-Significant.

The above table shows the level of pain: The mean score of effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain among post caesarean section mothers in the pretest was 8.13 ± 0.853 and the mean score in the post- test was 2.95 ± 0.639. The calculated paired 't' test value of t = 27.87 shows statistically highly significant difference of effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain among post caesarean section mothers. Hence the hypotheses H_1 was accepted.

Table 5: Effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on activities of daily living among post caesarean section mothers.

(N=40)

	Test	Mean	Standard deviation	Mean difference	't' value Paired -t test	'p' value
LEVEL OF MODIFIED BARTHEL INDEX SCORING FORM [ACTIVITIES OF DAILY LIVING]	**Pretest**	18.75	3.152	67.375	88.73	**0.000** HS**
	Posttest	86.13	3.667			

**-p < 0.001 HS-Highly Significant, NS-Non-Significant.

The above table represents that, level of modified Barthel index scoring form [activities of daily living]: The mean score of effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on activities of daily living among post caesarean section mothers in the pretest was 18. 75 ± 3.152 and the mean score in the post- test was 86.13 ± 3.667. The calculated paired 't' test value of t = 88.73 shows statistically highly significant difference of effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on activities of daily living among post caesarean section mothers. Hence the Hypotheses H_2 was accepted.

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Table 6: Association between the pretest level of pain among post caesarean section mothers with the selected demographic variables.

(N=40)

SL. NO	DEMOGRAPHIC VARIABLES	PRETEST LEVEL OF PAIN				Chi-square χ^2 and P-Value
		Moderate		Severe		
		n	%	n	%	
1	**Age in years**					χ^2=0.97 Df=2 p =0.615 NS
	20- 25	1	25	16	44.4	
	26- 30	3	75	18	50	
	31- 35	0	0	2	5.6	
2	**Educational level**					
	Illiterate	0	0	0	0	χ^2=0.847 Df=1 p =0.358 NS
	Primary education	0	0	0	0	
	Secondary education	2	50	10	27.8	
	Graduate	2	50	26	72.2	
3	**Occupation**					
	Employed	0	0	0	0	Constant
	Unemployed	4	100	36	100	
4	**Income**					χ^2=4.05 Df=2 p =0.132 NS
	Below Rs.15000 /month	1	25	1	2.8	
	Rs. 15001- 20,000 /month	0	0	4	11.1	
	Above Rs.20, 000 /month	3	75	31	86.1	
5	**Religion**					
	Hindu	4	100	18	50	χ^2=3.63 Df=2 p =0.162 NS
	Christian	0	0	11	30.6	
	Muslim	0	0	7	19.4	
	Others	0	0	0	0	
6	**Type of family**					χ^2=1.11 Df=1 p =0.292 NS
	Nuclear family	3	75	17	47.2	
	Joint family	1	25	19	52.8	

*-p < 0.05 S- significant, *-p < 0.001 HS-highly significant, NS-Non significant

The above table depicts that the demographic variables had not shown statistically significant association between the pretest level of pain among post caesarean section mothers with the selected demographic variables respectively. Hence the hypothese H_3 was rejected.

Table 7: Association between the pretest level of pain among post caesarean section mothers with the selected clinical variables.

(N=40)

SL. NO	CLINICAL VARIABLES	PRETEST LEVEL OF PAIN				Chi-square $\chi^2$and P-Value
		Moderate		Severe		
		n	%	n	%	
1	**Height in cm**					
	140 cm-145 cm	0	0	1	2.8	χ^2=0.34 Df=2 p =0.84 NS
	146 cm-150 cm	0	0	0	0	
	151 cm-155 cm	1	25	13	36.1	
	>155cm	3	75	22	61.1	

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2	**Weight in kg**					
	<50kg	0	0	0	0	χ^2=1.48 Df=2 p =0.477 NS
	50kg-55kg	0	0	1	2.8	
	56kg-60kg	0	0	9	25	
	>60kg	4	100	26	72.2	
3	**History of hereditary diseases?**					
	Yes	0	0	0	0	Constant
	No	4	100	36	100	
4	**History of communicable disease?**					
	Yes	0	0	0	0	Constant
	No	4	100	36	100	
5	**Gravida**					
	1	0	0	15	41.7	χ^2=3.63 Df=2 p =0.162 NS
	2	4	100	18	50	
	3	0	0	3	8.3	
	>3	0	0	0	0	
6	**Gestational age at delivery**					
	<37 weeks	0	0	4	11.1	χ^2=0.49 Df=1 p =0.482 NS
	37 weeks - 40 weeks	4	100	32	88.9	
	>40 weeks	0	0	0	0	
7	**Complication during pregnancy**					
	Anaemia	4	100	11	30.6	χ^2=7.407 Df=3 p =0.06 NS
	PIH	0	0	3	8.3	
	GDM	0	0	10	27.8	
	None of the above	0	0	12	33.3	
8	**Previous history of LSCS**					
	Yes	2	50	9	25	χ^2=1.12 Df=1 p =0.28 NS
	No	2	50	27	75	

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9	**LSCS done under which anaesthesia**					
	Spinal anaesthesia	4	100	32	88.9	χ^2=0.49 Df=1 p =0.48 NS
	General anaesthesia	0	0	4	11.1	
	Epidural anaesthesia	0	0	0	0	

*-p < 0.05 S- significant, *-p < 0.001 HS-Highly Significant, NS-Non significant

The above table depicts that the clinical variables had not shown statistically significant association between the pretest level of pain among post caesarean section mothers with the selected clinical variables respectively. Hence the hypotheses H_4 was rejected.

Table 8: Association between the pretest level of activities of daily living among post caesarean section mothers with the selected demographic variables.

(N=40)

SL. NO	DEMOGRAPHIC VARIABLES	PRETEST LEVEL OF ACTIVITIES OF DAILY LIVING				Chi-square $\chi^2$and P-Value
		Total dependency		Severe dependency		
		n	%	n	%	
1	**Age in years**					
	20- 25	16	44.4	1	25	χ^2=0.97 Df=2 p =0.61 NS
	26- 30	18	50	3	75	
	31- 35	2	5.6	0	0	
2	**Educational level**					
	Illiterate	0	0	0	0	χ^2=0.053 Df=1 p =0.818 NS
	Primary education	0	0	0	0	
	Secondary education	11	30.6	1	25	
	Graduate	25	69.4	3	75	
3	**Occupation**					Constant
	Employed	0	0	0	0	
	Unemployed	36	100	4	100	
4	**Income**					
	Below Rs.15000 /month	2	5.6	0	0	χ^2=1.27 Df=2 p =0.52 NS
	Rs. 15001- 20,000 /month	3	8.3	1	25	
	Above Rs.20, 000 /month	31	86.1	3	75	
5	**Religion**					
	Hindu	21	58.3	1	25	χ^2=5.15 Df=2 p =0.076 NS
	Christian	8	22.2	3	75	
	Muslim	7	19.5	0	0	
	Others	0	0	0	0	
6	**Type of family**					χ^2=1.11 Df=1
	Nuclear family	17	47.2	3	75	

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	Joint family	19	52.8	1	25	p =0.29 NS

*-p < 0.05 S-significant, *-p < 0.001 HS-highly significant, NS-Non significant

The above tables shows that the demographic variables did not show statistically significant association between the pretest level of activities of daily living among post caesarean section mothers with the selected demographic variables. Hence the hypotheses H_5 was rejected.

Table 9: Association between the pretest level of activities of daily living among post caesarean section mothers with the selected clinical variables.

(N=40)

SL. NO	CLINICAL VARIABLES	PRETEST LEVEL OF ACTIVITIES OF DAILY LIVING				Chi-square $\chi^2$and P-Value
		Total dependency		Severe dependency		
		n	%	n	%	
1	**Height in cm**					
	140 cm-145 cm	1	2.8	0	0	χ^2=0.34 Df=2 P=0.84 NS
	146 cm-150 cm	0	0	0	0	
	151 cm-155 cm	13	36.1	1	25	
	>155cm	22	61.1	3	75	
2	**Weight in kg**					
	<50kg	0	0	0	0	χ^2=1.97 Df=2 p =0.37 NS
	50kg-55kg	1	2.8	0	0	
	56kg-60kg	7	19.4	2	50	
	>60kg	28	77.8	2	50	
3	**History of hereditary diseases?**					
	Yes	0	0	0	0	Constant
	No	36	100	4	100	
4	**History of communicable disease?**					
	Yes	0	0	0	0	Constant
	No	36	100	4	100	
5	**Gravida**					
	1	14	38.9	1	25	χ^2=0.84 Df=2 p =0.65 NS
	2	19	52.8	3	75	
	3	3	8.3	0	0	
	>3	0	0	0	0	

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6	**Gestational age at delivery**					
	<37 weeks	2	5.6	2	50	**χ^2=7.9 Df=1 p =0.005 **S**
	37 weeks - 40 weeks	34	94.4	2	50	
	>40 weeks	0	0	0	0	
7	**Complication during pregnancy**					
	Anaemia	14	38.9	1	25	χ^2=1.66 Df=3 p =0.644 NS
	PIH	3	8.3	0	0	
	GDM	8	22.2	2	50	
	None of the above	11	30.6	1	25	
8	**Previous history of LSCS**					χ^2=0.014 Df=1 p =0.906 NS
	Yes	10	27.8	1	25	
	No	26	72.2	3	75	
9	**LSCS done under which anaesthesia**					
	Spinal anaesthesia	33	91.7	3	75	χ^2=1.11 Df=1 p =0.29 NS
	General anaesthesia	3	8.3	1	25	
	Epidural anaesthesia	0	0	0	0	

*-p < 0.05 S-significant, *-p < 0.001 HS-Highly Significant, NS-Non significant

The above tables shows that in the clinical variables, Gestational age at delivery had shown statistically significant association between the pretest level of activities of daily living among post caesarean section mothers. The other clinical variables had not shown statistically significant association between the pretest level of activities of daily living among post caesarean section mothers. Hence the hypotheses H_6 was accepted.

DISCUSSION

The first objective was to assess the pretest and posttest level of pain and activities of daily living among post caesarean section mothers.

In this study the result indicates that, in pretest 36(90%) had Severe pain and 4(10%) had Moderate level of pain. In posttest 33(82.5%) had Mild pain and 7(17.5%) had Moderate level of pain. Regarding activities of daily living in pretest 36(90%) had total dependency and 4(10%) had Severe dependency. In posttest 39(97.5%) had Moderate dependency and 1(2.5%) had Slight dependency.

Similarly, A study was conducted by Ibrahim Hussen et al., (2022) conducted a cross-sectional study on post-operative pain and associated factors after cesarean section at Hawassa university comprehensive specialized hospital, Hawassa, Ethiopia. The sample consists of 216 women. A convenience sampling technique was used in this study. The data were collected by structured questionnaire and checklist. The results show that the prevalence of moderate to severe postoperative pain following a caesarean section was 89.8% (95% confidence interval 84.7, 93.5).[5]

The second objective was to evaluate the effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers.

In this study the result indicates that, in pretest the mean and SD of pain among post caesarean section mothers was 8.13 ± 0.853 and in posttest 2.95 ± 0.639. The calculated paired 't' test value was 27.87, which is statistically significant at p<0.001. About activities of daily living the mean and SD in the pretest was 18.75 ± 3.152 and in posttest was 86.13 ± 3.667. The calculated paired 't' test value was 88.73 shows statistically significant at p<0.001. Hence the hypothesis H1 and H2 was accepted.

This finding is similar to the study conducted by Shaimaa M. Alia et al (2020) to assess effect of early post-cesarean section exercises on early resumption of women's functional activities and the researchers found that post- caesarean

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section exercises. The results shows that there were statistically significant differences between the study and control groups in terms of first flatus passage, ability to perform functional activities like getting out of bed and walking, ability to perform daily activities at home, and the occurrence of complaints like constipation and breast engorgement ($p \geq 0.001$).[6]

Wanxia Ju et al (2019) conducted a systematic review and meta-analysis on efficacy of relaxation therapy as an effective nursing intervention for post-operative pain relief in patients undergoing abdominal surgery in China. The sample consists of 12 studies. Random sampling technique was used in this study. The data were collected by using electronic data bases. The results showed that the included research used four relaxation techniques in total: jaw relaxation, Benson's relaxation, progressive muscle relaxation (PMR), and systematic relaxation. A meta-analysis of 422 patients in the relaxation group and 424 patients in the control group found that patients undergoing abdominal surgery had significantly greater pain relief following relaxation therapy than controls [random: standardized mean difference (SMD), -1.15; 95% CI, -2.04 to -0.26; P0.00001]. The study concluded that more robust randomized control trials (RCTs) utilizing standardized relaxation techniques are required to give additional evidence on this subject.[7]

The third objective was to find out the association between the pretest level of pain and activities of daily living among post caesarean section mothers with the selected demographic variables.

The result proved that the demographic variables had not shown statistically significant association between the pretest level of pain and activities of daily living among post caesarean section mothers. Hence the hypotheses H3 and H5 was rejected.

Similarly, a study was conducted by SP Namboothiri (2021) to assess trend in pain among postnatal mothers at a tertiary care hospital in south India. There was significant association found between back pain with age and parity. Pain following childbirth was a significant problem among mothers in the immediate postpartum period. Therefore, pain management strategies employed in maternity care units need to be strengthened.[8]

Amal M. Gamal et al (2019) conducted a Quasi experimental research design on effectiveness of post-operative nursing intervention on functional activities in the early post cesarean period, Egypt. The sample consists of 150 women. Random sampling technique was used in this study. The data were collected by using nursing intervention included, exercises for improving respiratory functions, blood circulation, intestinal activity, and training for improving posture and prevent possible postnatal musculoskeletal pain problems. The results showed that in terms of difficulty in everyday activities, the intervention group had lower mean scores on the delivery day, the first day after delivery, and the second day after delivery than the control group. The difference was statistically significant (P=0.000). The study concluded that the importance of nursing involvement in the early post-cesarean period for improving postnatal care quality and productivity, and hence promoting postnatal well-being.[9]

The fourth objective was to find out the association between the pretest level of pain and activities of daily living among post caesarean section mothers with the selected clinical variables.

The result proved that in clinical variables, had not shown statistically significant association between the pretest level of pain among post caesarean section mothers, the Gestational age at delivery had shown statistically significant association between the pretest level of activities of daily living among post caesarean section mothers. Hence the hypotheses H4 was rejected and H6 was accepted.

Similarly**, Rima Irwinda et al (2021)** was conducted a study of scoring system for pregnant women on Maternal and fetal characteristics to predict c-section delivery. The researcher found that a total of 7 maternal- fetal factors were found to be strongly associated with c-section delivery, including gestational age < 37, maternal underweight body mass index, previous uterine surgery, obstetrical complications, birthweight > 3500 g, history of vaginal delivery, and non-cephalic presentation. Using these factors, a prediction tool was developed and validated with good quality. [10]

CONCLUSION:

The study was aimed to assess the effectiveness of BEAST (Breathing Exercise and Abdominal Strength Training) on pain and activities of daily living among post caesarean section mothers at selected hospital, Puducherry. The calculated t value for pain and activities of daily living was 27.87 and 88.73 respectively which was greater than tabulated p value of <0.001. Hence the hypotheses H1 and H2 was accepted. There is no association found between pretest level of pain among post caesarean section mothers in the demographic variables and clinical variables. Hence the hypotheses H3 and H4 was rejected. There is no association found between pretest level of activities of daily living among post caesarean section mothers in the demographic variables. Hence the hypotheses H5 was rejected. Clinical factors revealed a statistically significant correlation between the pretest level of daily living activities among post-caesarean section women and their gestational age at birth. Thus, hypothesis H6 was approved. According to the study's findings, the BEAST was highly successful in lowering pain and enhancing post c-section moms' everyday life activities at a particular hospital.

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