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Evaluate the effectiveness of reverse pressure softening technique on level of breast engorgement and breast feeding among post-operative mothers at PBM hospital Bikaner, Rajasthan

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Abstract

Background: "Breast Milk is Nature's Protection for the Baby". One million infant lives can be saved by just breast feeding in the first hour following the birth of the child. Breast engorgement is seen in 2% of lactating mothers on the second and third days after birth, lymphatic ponding in the breast tissue, edema around the milk ducts, and more milk production in the alveoli occur. The most serious effect of breast engorgement is that it prevents the child from maintaining the nipple and areola in his or her mouth, therefore stopping effective breast milk flow. Reverse Pressure Softening is performed for a shorter duration of 5-10 minutes, RPS technique performed by moving from mild or firmer swelling away from under the areola, slightly backward into breast for shorter duration of 5-10 minutes. This allows areola to change shape easily and makes latching easier as the softened areola helps your nipple extend more deeply into your baby's mouth.

Aim: To Evaluate the effectiveness of reverse pressure softening technique on level of breast engorgement and breast feeding among post-operative mothers at PBM hospital Bikaner, Rajasthan.

Methods: The research approach adopted for this study was Quantitative research approach. The research design adopted for the study was Quasi-Experimental-Pre-test – Post- test control group Design. for Evaluate the effectiveness of reverse pressure softening technique on level of breast engorgement and breast feeding among post-operative mothers at PBM hospital Bikaner, Rajasthan.

The Non probability sampling technique was utilized for the selection of post operative mothers. This include 25 samples for experimental group and 25 samples for control group of post operative mothers selected for the study. Data was collected by using an interview schedule, 6-point Breast engorgement scale and LATCHES Breast feeding assessment tool.

Results: The findings with regard to level of breast engorgement the study findings revealed that there is significant difference in the mean pre-test and post-test values by the obtained t-value1.69 and 26.93 respectively which is statistically significant at $p<0.05$ level. Hence the hypothesis $H_1$is accepted.

With regard to level of breastfeeding the study findings revealed that there is significant difference in the mean pre-test and post-test values by the obtained t- value0.43 and 3.22 respectively which is statistically significant at $p<0.05$ level. Hence the hypothesis H_2 is accepted.

The experimental group the Mean post-test score of level of breast engorgement was 1.64 with standard deviation 0.62 and in control group the mean post-test score was 4.24 with the standard deviation 0.76. The Mean difference was 2.6. The obtained 't' value is 26.93 significant at $p< 0.05$ level. Hence the stated hypothesis, H_3 was accepted.

The experimental group who had received reverse pressure softening technique a mean post-test score was 32.36 and standard deviation 1.9 while the control group had mean post-test score of 16.68 and standard deviation 3.45. The mean difference is 15.68. the obtained 't'-value is 3.22 significant a tp< 0.05 level. Hence the stated hypothesis, H_4 was accepted.

Keywords: Post Operative Mothers, Level of Breast Engorgement, Breast Feeding, Reverse Pressure Softening Technique.

Introduction

Baby-Friendly Hospital Initiative was once launched via UNICEF/WHO in 1991 WHO encouraged that, globally over one million new born babies could be saved every year by initiating breast feeding with in the first hour of life. Breast engorgement is described as the development of hard, swollen, and painful breasts when too much breast milk accumulates in the milk ducts. Engorged breasts can become very large, tight, lumpy, and tender. The swelling may additionally go all the way up into your armpit, and the veins on the surface of breasts can also become more seen or even stick out. The factors which may place a mother at a higher risk of engorgement are failure to prevent or resolve milk stasis resulting from infrequent or inadequate drainage of the breasts. It found that applying pressure to a one to two-inch area around the base of the nipple, around the areola area, will in effect, push fluid back inside, upward and backward, which can enable the nipple to protrude better reverse pressure softening is performed for a shorter duration of 5-10 minutes, RPS technique performed by moving from mild or firmer swelling away from under the areola, slightly backward into breast for shorter duration of 5-10 minutes. This study related to Evaluate the effectiveness of reverse pressure softening technique on level of breast engorgement and breast feeding among post-operative mothers

Need for the study

It has been identified by the investigator that, being a midwifery nurse during her clinical experience came across many postnatal mothers had an issues of breast engorgement during postpartum period. So, the investigator was interested in treating breast engorgement by using non pharmacological measures and it was found that reverse pressure softening

technique plays an important role in reducing breast engorgement. Therefore the researcher interested to evaluate the effectiveness of reverse pressure softening technique on reduction of breast engorgement among postnatal mothers .Therefore, the objectives of current study was to assess the pretest level of breast engorgement among postpartum mothers in both experimental and control group, to determine the effectiveness of reverse pressure softening technique on the level of breast engorgement in the experimental group, to compare the posttest level of breast engorgement among postpartum mothers both in experimental and control group and to find out the association between the posttest levels of breast engorgement among postpartum mothers with their demographical variables.

Review of literature

Pooja J. Mise.et., (2017) in Katnataka conducted a Study of breast feeding practices and problems among 112 lactating mothers. Majority of subjects 86 (76.7%) were in the age group 21- 30 years. About 43 (38.4%) lactating mother initiated breast feeding practices within 1 hour after the delivery. 63.4% of the infants received exclusive breast feeding. Lactation failure 40% and unsatisfactory growth of baby 50% were the main reasons for early weaning.

Anandhi R, et.al. (Puducherry, 2017), conducted a Quantitative study using posttest control group only design, to compare the lukewarm water compress among postnatal mothers. A total of 226 samples were selected and the experimental group was given lukewarm water compress thrice a day on 3rdand 4thpost natal day. The study concluded the lukewarm water compress was effective as there was a significant difference between the post test scores of nipple pain (p=0.001**) and breast engorgement (p=0.001**) among the post natal mothers after intervention.

Dowson, E.K (2014) conducted a cross sectional study to find out the prevalence of breast engorgement and breast feeding among postnatal mothers and reported that breast engorgement is caused by an imbalance between milk supply and infant demand. It often occurs in women who decide not to breastfeed. Breast engorgement can occur due to four main factors such as a suddenly increased milk production that is common during the first days after the baby is delivered or when the baby suddenly stops breast feeding either because it is starting to eat solid foods or it is ill and has a poor appetite.

Stutte, P.C., G.Y.Morman (2014) conducted an interventional studies on effectiveness of breast massage for breast engorgement. They concluded while nursing Gentle breast compressions and massage during the nursing session can reduce engorgement. After nursing for a few minutes to soften the breast, it may be possible to obtain a better latch by removing baby from the breast and re-latching.

Materials and Methods

The research approach adopted for this study was Quantitative research approach. The research design adopted for the study was Quasi-Experimental-Pre-test – Post- test control group Design. for Evaluate the effectiveness of reverse pressure softening technique on level of breast engorgement and breast feeding among post-operative mothers at PBM hospital Bikaner, Rajasthan. The target population was post-operative mothers, and Non probability sampling technique was utilized for the selection of post operative mothers. This include 25 samples for experimental group and 25 samples for control group

of post operative mothers selected for the study. The tool used for the study consists of three parts.

Part I: Interview Schedule

It consists of components to obtain demographic data such as age, area of living, educational qualification, type of family, monthly income, dietary pattern, social support, parity and indications of caesarean section.

Part II: Six Point Breast Engorgement Scale

It is a standardized tool to assess the level of breast engorgement, developed by Dr. Hill P.D. The tool was explained to mother and scoring was done both by self-reporting and observation.

Part III: LATCHES Breast Feeding Assessment Tool

This tool was adapted from Jensen Deborah, Shiela, Wallance and Patricia Kelly. The tool helps in assessing the efficiency of breast feeding. The tool has 7 components which are related to mother and newborn.

Scoring and Interpretation

Total Score is 6 and is used to interpret the level of breast engorgement as follows:

1. Soft, no change in breasts
2. Slight firmness in breasts
3. Firm, no tenderness in breast
4. Firm, mild tenderness in breasts
5. Firm, tender
6. Very firm, very tender

Latches Breastfeeding Assessment Tool

The tool had 7 components, few contributing to the maternal factors and few to the newborn factors. Scoring is modified for the convenience of analysis.

L- Latch, A- Audible Swallowing T – Type of nipple C – Comfort level of mother, H – Hold positioning, E – Elimination, S – Satiation.

The total score is 36. Score value ranged from1 to 3for each component. The efficiency of breast feeding is scored as:

Up to 12–Poor, 13 to 24– Fair, 25 to36– Good

The tools were validated by experts from nursing and a pilot study with 20 antenatal mothers confirmed feasibility. The reliability of the scales was established by inter rater method. The correlation co-efficient was calculated by Karl Pearsons method. The obtained 'r' value for 6-point breast engorgement scale was 0.91, which confirmed that there was high positive correlation at $r \leq 0.01$. The reliability of LATCHES Breast Feeding assessment scale was also assessed using inter rater method and 'r' value obtained was 0.928 emphasizing a strong positive correlation at 'r' ≤ 0.01.

Data was collected from 15.11.23 to 23.11.23, with informed consent and ethical approvals obtained. The data collection tools took approximately 30–40 minutes per participant. The data were analyzed using descriptive and inferential statistics, including paired t Test and un paired t Test.

Results

Table 1: Frequency and Percentage Distribution of Postoperative Mothers in relation to their Demographic Variables

N=50

Sn.	Demographic Variables	Experimental Group		Control Group	
		n = 25		n = 25	
		f	%	f	%
1	Age				

	a) 20-23 years	0	0	0	0
	b) 24-27 years	13	52	16	64
	c) 28 -31 years	12	48	9	36
2	Area of living				
	a) Rural area	15	60	15	60
	b) Urban area	10	40	10	40
3	Educational status				
	a. Illiterate	0	0	0	0
	b. Primary	0	0	0	0
	c. Secondary	15	60	17	68
	d. Graduate	10	40	8	32
4	Type of family				
	a. Nuclear family	9	36	12	48
	b. Joint family	16	64	13	52
5	Monthly Income:				
	a. <Rs.5000	0	0	0	0
	b. Rs.5001- 10000	9	36	6	24
	c. >Rs.10,001	16	64	19	76
6	Dietary Pattern:				
	a. Vegetarian	7	28	8	32
	b. Non-Vegetarian	18	72	17	68
7	Social Support:				
	a. Mother	9	36	6	24
	b. In-Laws	16	64	17	68
	c. Husband	0	0	2	8
	d. Friends	0	0	0	0
8	Parity:				
	a. P1	15	60	11	44
	b. P2	6	24	10	40
	c. Above P2	4	16	4	16
9	Indications for Caesarean Section:				
	a. Maternal	17	68	17	68
	b. Fetal	8	32	8	32

Table 1 reveals that in experimental group 13(52%) mothers and in control group 16 (64%) mothers belong to the age group 24-27years. In experimental group 12(48%) mothers and in control group 9(36%) mothers belong to age group 28-31 years.

Regarding area of living**,** both experimental and control group 15(60%) of mothers were living in rural area and rest of the mothers 10(40%) were living in urban area.

Regarding educational status,15(60%) mothers from experimental group and 17(68%) mothers from control group are having secondary education. 10(40%) from experimental group and 8(32%) mothers from control group are graduates.

Regarding type of family in experimental group 9(36%) and 12(48%) mothers from control group are from nuclear family and the rest 16(64%) and 13(52%) mothers in experimental and control group are from joint family.

Regarding monthly income, in experimental group 9(36%) and control group 6(24%) monthly income is between Rs.5000–Rs. 10,000. 16(64%) from experimental and 19(76%) from control group have monthly income more than Rs. 10,001.

Regarding dietary pattern,7(28%) mothers from experimental and 8(32%) mothers from control group are vegetarians 18(72%) mothers in experimental and 17(68%) mothers from control group are non-vegetarians.

Regarding social support, 9(36%) in experimental and 6(24%) mothers in control group received support from their mothers. 16(24%) in experimental and 17(68%) mothers in control group received support from their In-laws. Rest 2(8%) mothers from control group received support from their husband.

Regarding parity, in experimental group 15(60%) and in control group 11(44%) are primi parous. 6(24%) in experimental and 10(40%) in control group are secondary parous. Rest 4(16%) in both groups are multi parous.

Regarding indications of caesarean section, 17(68%) mothers from each group had caesarean section due to maternal factors and 8(32%) mothers from each group had undergone caesarean section due to fetal factors.

Table 2: Frequency and Percentage Distribution of Level of Breast Engorgement among post operative mothers in experimental group and control group.

Sn.	Level of Breast Engorgement	Experimental group				Control group			
		n=25				n=25			
		Pretest		Posttest		Pretest		Posttest	
		F	%	F	%	f	%	f	%
1	No	0	0	0	0	0	0	0	0
2	Mild	11	44	14	56	1	4	3	12
3	Moderate	11	44	9	36	15	60	16	64
4	Severe	3	12	2	8	9	36	6	24

The above table 2 shows the pre-test score 11(44%) and 15(60%) are having moderate engorgement and 3(12%) and 9(36%) had severe breast engorgement in experimental group and control group respectively. Whereas the post-test score

shows 9(36%) and 14(56%) had moderate and mild engorgement in experimental and 16(64%) showed moderate engorgement in control group.

It is inferred that majority of the post operative mothers in experimental group had marked reduction in the level of breast engorgement from moderate to mild while the post operative mothers in control group showed moderate engorgement.

Table 3: Mean, Standard deviation, Mean Difference and 't' value of pre-test and post-level of breast engorgement of experimental group and control group

Sn.	Observation	Experimental group n= 25		Control group n= 25		MD	t- value df=49
		Mean	SD	Mean	SD		
1	Pre-test	5.04	0.77	5.4	0.6	0.36	1.69 NS
2	Post-test	1.64	0.62	4.24	0.76	2.6	26.93*

*Significant at p<0.05levels NS Non-Significant Table Value=2.02

Table 3 reveals that among experimental group the mean pre-test score was 5.04 with Standard deviation 0.77 and in control group the mean pre-test value was 5.4 with Standard deviation 0.6. The obtained t-value is 1.69 (table value=2-02) and is non-significant.

In experimental group the mean post-test score was 1.64 with Standard deviation 0.62and the control group mean post-test value was 4.24 with Standard deviation 0.76. The obtained t-value is 1.69 (table value=2-02) and is significant.

In pre-test the mean difference between the groups was 0.36, which was not significant and in the post-test it was raised to 2.6 with a significant t-value2.6 at p<0.05 level. Hence the hypothesis H1is accepted.

Table 4: Pre-test and Post-test over all Mean Score of Breast Engorgement and Standard deviation of experimental and control group day wise and level of significance, N=50

Days	Observation	Experimental group			Control Group			MD	t-value P≤ 0.05 df=48
		Mean	%	SD	Mean	%	SD		
2nd Day	Pre-test	5.04	84	0.79	5.4	90	0.71	0.36	1.71NS
	Post-test	4.94	82.3	0.76	5.4	90	0.71	0.46	2.25*
3rd Day	Pre-test	3.88	64.66	0.83	5.28	88	0.73	1.4	6.33*
	Post-test	3.2	53.33	0.86	4.92	82	0.86	1.72	7.06*
4th Day	Pre-test	2.6	43.33	0.65	4.56	76	0.77	1.96	9.88*
	Post-test	1.64	27.33	0.63	4.24	70.66	0.78	2.6	13.11*

Maximum Score=6 *Significant Table Value= 2.02

Table 4: Presents the pre-test and post-test overall mean score of breast engorgement and standard deviation of experimental and control group day wise and its of level of significance.

The mean pre-test score of breast engorgement during the first observation on 2nd day in experimental group was 5.04 and in control group was 5.4. There was reduction in the mean post-test breast feeding score from the 2nd to 4th day in the

experimental group from 4.94to 1.64, where as in the control group the mean post- test breast engorgement score ranged from 5.4to 4.24.

The post-test values on the 2nd day (t =2.25) on 3rd day (t = 7.06) and on4th day (t =13.11) are significant(df=38) P<0.05. This table concluded that there was a significant reduction in the mean post- test breast engorgement score in the experimental group compared to control group.

Data on level of breast feeding among post operative mothers.

Table 5: Frequency and Percentage Distribution of Level of Breast feeding among post operative mothers in experimental group and control group. N =50

Sn.	Level of Breast Feeding	Experimental group				Control group			
		n=25				n=25			
		Pretest		Posttest		Pretest		Posttest	
		f	%	f	%	f	%	f	%
1	Poor	18	72	0	0	23	92	0	0
2	Fair	7	28	0	0	2	8	24	96
3	Good	0	0	25	100	0	0	1	4

Table 5 shows the Percentage and frequency distribution of level of breastfeeding among post operative mothers in experimental group and control group. The pre-test score showed poor breastfeeding 6(24%) and 14(56%) in experimental group and control group. Whereas the post-test score shows good breastfeeding 8(32%) and only 1(4%) in experimental and control group respectively. It is inferred that majority of the post operative mothers in experimental group showed good breastfeeding when compared to post operative mothers in control group where majority of them showed fair breast feeding.

Table 6: Mean, Standard deviation, Mean Difference and 't' value of pre-test and post-level of breastfeeding of experimental group and control group. N =50

Sn.	Observation	Experimental group n= 25		Control group n = 25		MD	t-value df=49
		Mean	SD	Mean	SD		
1	Pre-test	11.8	0.97	10.8	1.29	1	0.43NS
2	Post-test	32.36	1.9	16.68	3.45	15.68	3.22*
*Significant at p <0.05levels		NS Non-Significant				Table Value=2.02	

Table 6: reveals that among experimental group the mean pre-test score was 11.8 with Standard deviation 0.97 and in control group the mean pre-test value was 10.8 with Standard deviation 1.29. The obtained t-value is 0.43 (table value=2-02) and is non-significant. In experimental group the mean post-test score was 32.36 with Standard deviation 1.9 and the control group mean post-test value was 16.68 with Standard deviation 3.45.

In pre-test the mean difference between the groups was 1, which was not significant and in the post-test it was raised to 15.68 with a significantt-value3.22at p<0.05 level. Hence the hypothesis H2is accepted.

Table 7: Pre-test and Post-test over all Mean Score of Breast feeding and Standard deviation of experimental and control group day wise and level of significance. N =50

Days	Observation	Experimental group			Control Group			MD	t-value P≤0.05 df=48
		Mean	%	SD	Mean	%	SD		
2nd Day	Pre-test	11.84	32.88	0.96	10.8	30	1.41	1.04	3.01*
	Post-test	13.08	36.33	1.65	10.36	28.77	1.39	2.72	6.19*
3rd Day	Pre-test	16.64	46.22	2.96	11.8	32.77	1.87	4.84	6.91*
	Post-test	19.84	55.11	3.49	13.4	37.22	2.35	6.44	7.62*
4th Day	Pre-test	27.52	76.44	2.42	15	41.66	2.6	12.52	17.33*
	Post-test	32.36	89.88	1.93	16.68	46.33	3.52	15.68	19.49*

Maximum Score=36 *Significant Table Value= 2.02

Table 7: Presents the pre-test and post-test overall mean score of breast feeding and standard deviation of experimental and control group day wise and its of level of significance.

The mean pre-test score of breast feeding during the first observation on 2nd day in experimental group was 11.84 and in control group was 10.8. There was increase in the mean post-test breast feeding score from the 2nd to 4th day in the experimental group from13.08 to32.36, where as in the control group the mean post- test breastfeeding score ranged from 10.36 to 16.68. The post-test values on the 2nd day (t =6.19), on 3rd day (t =7.62) and on4th day (t =19.49) are significant (df=38) P<0.05.

This table concluded that there was a significant improvement in the mean post-test breast feeding score in the experimental group compared to control group.

Data on effectiveness of reverse pressure softening technique on level of breast engorgement and breastfeeding among post operative mothers.

Table 8: Mean, Standard deviation, Mean Difference and 't' value of post-test level of breast engorgement among post operative mothers of experimental group and control group. N =50

Sn.	Group	Mean	SD	MD	t-value
1	Experimental group	1.64	0.62	2.6	26.93* df=49
2	Control group	4.24	0.76		
*Significant at p<0.05 levels Table Value=2.02					

Table 8: Reveals that, among experimental group the mean post-test score of level of breast engorgement was 1.64 with standard deviation 0.62 and in control group the mean post-test score was 4.24 with the standard deviation 0.76. The mean difference was 2.6. The obtained 't' value is 26.93 significant at $p< 0.05$ level.

Hence the stated hypothesis, H3 was accepted. It was inferred that reverse pressure softening technique was effective in reducing the level of breast engorgement among postnatal mothers in the experimental group.

Table 9: Mean, Standard deviation, Mean Difference and 't' value of post-test level of breast feeding among post operative mothers of experimental group and control group.

Sn.	Group	Mean	SD	MD	t-value
1	Experimental group	32.36	1.9	15.68	3.22*
2	Control group	16.68	3.45		df=49
*Significant at p<0.05levels		Table Value=2.02			

Table 9: Reveals that, among the experimental group who had received reverse pressure softening technique a mean post-test score was 32.36 and standard deviation 1.9 while the control group had mean post-test score of 16.68 and standard deviation 3.45. The mean difference is 15.68. the obtained 't'-value is 3.22 significant at $p< 0.05$ level.

Hence the stated hypothesis, H_4 was accepted. It was inferred that reverse pressure softening technique was effective in improving the level of breastfeeding among post operative mothers in the experimental group.

Major findings of the study

The frequency and percentage distribution of demographic variables among post operative mothers of hospital revealed the following:

- Highest frequency and percentage 13 (52%) of the subjects were in between 24-27 years of age group in experiment group and 16 (64%) of the subjects were in between 24-27 years of age group in control group.
- Majority of frequency and percentage 15 (60%) of the subjects were in between rural area in experiment group and control group.
- Maximum of the subjects 15 (60%) were studied up to secondary class in experiment group and 17 (68%) were studied up to secondary class in control group.
- Highest frequency and percentage 16 (64%) of the subjects were in joint family in experiment group and 13 (52%) of the subjects were in joint family in control group.
- Majority of frequency and percentage 16 (64%) in experiment group and 19 (76%) in control group of the subjects were income more than 10001.
- Highest of frequency and percentage 18 (72%) in experiment group and 17 (68%) in control group of the subjects were non vegetarian.
- Maximum of frequency and percentage 16 (64%) in experiment group and 17 (68%) in control group of the subjects were in laws social support.
- Highest of frequency and percentage 15 (60%) in experiment group and 11 (44%) in control group of the subjects were parity P_1.
- Majority of frequency and percentage 17 (68%) in experiment group and in control group of the subjects were indication of caesarean section related to maternal.

With regard to level of breast engorgement the study findings revealed that there is significant difference in

the mean pre-test and post-test values by the obtained t-value1.69 and 26.93 respectively which is statistically significant at $p<0.05$ level. Hence the hypothesis $H_1$is accepted.

With regard to level of breastfeeding the study findings revealed that there is significant difference in the mean pre-test and post-test values by the obtained t- value 0.43 and 3.22 respectively which is statistically significant at $p<0.05$ level. Hence the hypothesis H_2 is accepted.

The experimental group the Mean post-test score of level of breast engorgement was 1.64 with standard deviation 0.62 and in control group the mean post-test score was 4.24 with the standard deviation 0.76. The Mean difference was 2.6. The obtained 't' value is 26.93 significant at $p< 0.05$ level. Hence the stated hypothesis, H_3 was accepted.

The experimental group who had received reverse pressure softening technique a mean post-test score was 32.36 and standard deviation 1.9 while the control group had mean post-test score of 16.68 and standard deviation 3.45. The mean difference is 15.68. the obtained 't'-value is 3.22 significant at $p< 0.05$ level. Hence the stated hypothesis, H_4 was accepted.

Conclusion

The main conclusion from the findings of the study revealed most of the post operative mothers having moderate breast engorgement in pre-test reported reduction to mild breast engorgement post-test among the post operative mothers of experimental group. The pre-test level of breastfeeding was fair and had increased to good in the post-test among the experimental group. The control group also showed slight reduction in the breast engorgement which might be due to the routine hospital care. Thus the study concluded that the Reverse Pressure Softening (RPS) technique was effective in reducing the level of breast engorgement and improving breastfeeding among the post operative mothers who undergone caesarean section.

Recommendations

- A comparative study can be conducted to assess the effect of reverse pressure softening technique on breast engorgement among post operative mothers who have underwent caesarean section and normal delivery.
- The study can be more intensified and include other complications of breast engorgement such as mastitis, infection rather just reduction of pain.
- A similar study can be conducted using other research design such as time series to obtain more specific results related to breast feeding.
- A comparative study can be conducted to assess the effect of reverse pressure softening technique and other alternative therapies on breast engorgement.

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