

Preparing Primigravid Women for Childbirth: Behavioral Responses to Labour Pain and Outcome of Labour

An evaluative study to determine the effectiveness of childbirth preparation class in terms of behavioural responses during first stage of labour and outcome of labour among primigravid women in selected hospitals of South India.

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Abstract

Objective: To determine the effectiveness of childbirth preparation class in terms of behavioural responses during first stage of labour and outcome of labour in terms of maternal and neonatal outcome, among primigravid women in selected hospitals of Udupi district, Karnataka. **Methods:** An evaluative approach using a quasi experimental non equivalent group post test only design was used. The test group consisted of 60 healthy primigravidas of whom 30 participated in the childbirth preparation class and another 30 made up the control group. The effectiveness was assessed by means of Student's 't' test and Chi-square test. **Results:** Statistically significant differences between the groups were found in behavioural responses in first stage of labour, nature of delivery and neonatal outcome. Statistically significant differences in duration of labour were not observed. **Conclusion:** Childbirth preparation class for pregnant women focuses on preventive and promotive care and creates a childbirth experience that is safer, positive and satisfying for the childbearing women.

Introduction

Childbirth is a normal life event, yet women are exposed to a significant amount of stress. Many mothers may also experience unnecessary distress and anxiety simply because they did not anticipate or did not know about the normal physical and psychological upheavals that are integral to the childbearing process. Many maternity providers, including public health departments, hospitals, private agencies and charities, and some obstetricians' and midwives' practices, are reported to provide antenatal education.

In India, antenatal preparation is still less of a formality and knowledge of the birth experience and care of children is passed from mothers to daughters or from traditional birth attendants to those in their care. Living arrangements in which several generations share common space also lend themselves to active participation in the experience of birth and consequently there may be no defined need for structured antenatal education. The existence of structured education in preparation for childbirth and parenthood has come about as traditional methods of information sharing have declined. Pregnant women in general, and first-time mothers in particular require a vast amount of information. Many women, especially first-time mothers, attend antenatal classes which prepare them for labour and delivery. Antenatal education aims to help prospective mothers prepare for childbirth and parenthood.

Prospective mothers often look to antenatal education to provide important information on issues such as decision making about and during labour, skills for labour, pain relief, infant and postnatal care, breastfeeding and parenting skills.

There are few studies on the effect of antenatal classes on birth outcomes. A study was done to investigate whether "prepared-childbirth" courses offer measurable physical advantages. The labor and delivery characteristics of 129 primiparas who had completed ante-partum Lamaze-training psychoprophylaxis classes with an equal number of matched controls who had not, were compared. The former were given narcotics less frequently during labor ($P < 0.001$), received conduction anesthesia less often ($P < 0.001$), and had a higher frequency of spontaneous vaginal deliveries ($P < 0.001$) than the controls.¹

The purpose in conducting further studies is not to replace these successful processes and their outcomes, but to consider whether there is more that could be achieved through the unique educational opportunity represented by childbirth education. It explores the extent to which childbirth education is engaging women in understanding factors influencing successful childbirth and their capacity to navigate the early period of parenthood successfully. There are general beliefs in health care practice that childbirth preparation classes help in better fetal and maternal outcome. But there is no empirical evidence available with the researcher for the effectiveness of childbirth preparation classes on behavioural responses in labor. This observation has made the researcher interested in exploring further and determining the effectiveness of childbirth preparation class on behavioral responses in labor and the outcome of labor.

The aim of this study was to determine the effectiveness of childbirth preparation class in terms of behavioural responses during first stage of labour and outcome of labour in terms of maternal and neonatal outcome among primigravid women.

Methods

An evaluative research using a quasi experimental non equivalent group post test only design was used. The study was conducted in Government Hospital, Udipi and Dr. TMA Pai Hospital, Udupi. The population in this study comprised of primigravid women who met the inclusion criteria who were in the first stage of labour. Sample consisted of 30 primigravid women each in experimental and control groups. The sampling technique selected for the study was purposive sampling method. Selection of subjects were done according to the sample criteria.

Data collection tools consisted of Baseline Proforma, Behavioural Response Observation Checklist and Outcome of Labour Record. The tools were given to seven experts for content validity. Two items were deleted from observation checklist and three items were deleted from outcome of labour record according to experts' suggestions. An item on hospital number of the antenatal mother was added in the baseline proforma so that it will be easier to trace back the records for documenting the outcome of labour.

Reliability of behavioural response observation checklist and outcome of labour record was obtained by inter rater reliability. The tools were tested on 20 primigravid women in the first stage of labour. The reliability coefficient was 0.94 and 1 for behavioural response observation checklist and outcome of labour record respectively.

Pilot study was conducted by taking five primigravid women each in the experimental and the control group. The purpose was to find out the feasibility of the study especially to determine the availability of primigravid women and their cooperation in attending the childbirth preparation class.

Childbirth preparation class included content on parts of a female reproductive systems, signs of beginning of labour, stages of labor, indications for progress of labor, procedures to be undergone after admission in the labour room, nature of contractions, labor positions, breathing techniques to cope with labor pain, premature labor and its signs and symptoms and indications for inducing labor. Primigravid women in the experimental group were given childbirth preparation class in the OPD and antenatal wards. The primigravid women were observed for their behavioural responses for any two hours during first stage of labour with the cervical dilatation ranging between 3-7 cm. Behavioural responses was recorded on a basis of five observations in a period of two hours with a gap of 30 minutes between each observation. The investigator motivated and emphasized the mothers in the experimental group, to implement the breathing and relaxation techniques they learned in the childbirth preparation class. Outcome of labour record was completed by referring the patient case record and the parturition register maintained in the labour theatre.

Data were analyzed by using descriptive and inferential statistics. Sample characteristics, nature of delivery and neonatal outcome are presented in frequency and percentage of occurrence. The data on behavioural responses score and duration of labour (in

hours) are summarized in mean standard deviation. Null hypothesis were formulated based on the objectives.

In order to find out the significance of difference for behavioural response scores and total duration of labour between experimental and control groups, independent 't'test was used. Chi-square statistics was used to compare the groups against nature of delivery and neonatal outcome.

Results

Sample characteristics

The study observed that majority of the women in the experimental group were aged between 26-30 years (60%) and in the control group majority were aged 21-25 (46.7%) and 26-30 (46.7%). Majority of women both in experimental (43.3%) and control groups (53.3%) had completed primary education. Majority of the women both in experimental (86.7%) and control groups (83.3%) were housewives. Majority of the women both in experimental (90%) and control groups (90%) belonged to Hindu religion. Majority of the women in the experimental group (40%) were at 38 weeks of gestation and in control group majority of the women (36.7%) were at 39 weeks of gestation. Majority of the primigravid women in the experimental group (43%) had contractions lasting for 31-35 seconds and majority of the primigravid women in control group (49%) had contractions lasting for 36-40 seconds. Majority of the primigravid women in both experimental group (63.30%) and control group (83.35%) had a cervical dilatation of 5-6 cm.

Behavioral responses during first stage of labour

The mean behavioural response scores in experimental group (31.882) were higher than that of the control group (18.82). The standard deviation in the experimental group was 4.765 while in the control group was 3.7. The 't' value computed for behavioural responses of the experimental and control group was significantly higher. [$t_{(58)} = 11.858, p < 0.05$]. Hence, H_{01} was rejected i.e., there was a significant difference in the occurrence of behavioural responses between the experimental and control groups at 0.05 level of significance. (Table 1)

Thus, it implied that more women in the experimental group who had attended childbirth preparation class exhibited positive responses during first stage of labour, than the mothers who had not attended childbirth preparation class.

Duration of labour

The mean duration of labour in experimental group (i.e 7.5446 hours) was lower than that of the control group (i.e 9.0043 hours). The mean difference was 1.2597. The 't' value computed for duration of labour (in hours) of the experimental and control group was not significant. [$t_{(49)} = 1.566, p > 0.05$]. Hence, the null hypothesis H_{O2} was accepted i.e., there is no significant difference in the mean duration of labour (in hours) between the experimental and control groups at 0.05 level of significance.(Table 2) Thus, it implied that childbirth preparation class did not have any effect on the duration of labour of the women.

Nature of delivery

Out of 30 women, 26 (86.7%) of experimental group had normal vaginal delivery with episiotomy while 19 (63.3%) in control group had the same. One woman in the control group (3.3%) had normal vaginal delivery with episiotomy with first degree perennial tear, whereas 2 women in the experimental group (6.7%) had the same. In the experimental group none of the women had forceps delivery, whereas in the control group (10%) 3 of them underwent forceps delivery. None of the women had vacuum delivery in both the groups. In experimental group 6.7% had caesarean section whereas 23.3% in control group had caesarean section. Thus it was observed that out of 30 women in the experimental group, 26 had normal delivery whereas only 19 had normal delivery in the control group.(Table 3) Chi square was computed to test H_{O3} and the value was found to be highly significant. $\chi^2_{1df} = 4.356 P < 0.05$. H_{O3} was rejected. Thus, the study found an association between nature of delivery and childbirth preparation class. (Table 4).

Neonatal outcome

With regard to neonatal outcome, 93.3% in the experimental group did not have caput succedaneum or birth abnormalities while 73.3% did not have birth trauma in the control group. Chi square computed was found to be significant. $\chi^2_{1df} = 4.320 P < 0.05$. Hence, H_{O4} was rejected i.e., there is association between neonatal outcome and childbirth preparation class. (Table 5).

Discussion

The findings of the study have been discussed with reference to the objectives and hypotheses of the study.

Behavior responses during labour

The findings of the present study indicated that more women in the experimental group who had attended childbirth preparation class exhibited positive responses during first stage of labour and the pain intensity was more in the mothers who had not attended childbirth preparation class. A study was done to assess the effectiveness of antenatal exercises on behavioral responses during first stage of labour and outcome of labour in a selected hospital at Karkala. The study found that there was significant difference in behavior responses, nature of delivery and neonatal outcome between the experimental and control groups.² The findings of the study are consistent with the findings of the present study.

Duration of labor

The findings of the present study concluded that there is no significant difference in the mean duration of labour (in hours) between the experimental and control groups at 0.05 level of significance. Thus, it implied that childbirth preparation class did not have any effect on the duration of labour of the women.

A similar study was conducted in New Zealand among 196 primigravid women who attended antenatal education classes. The mothers who did not attend antenatal classes had a significantly longer second stage in labour and required more forceps assistance during delivery compared to attenders.³ These findings contradicted the findings of the present study.

Nature of delivery

A similar study was conducted to determine the relationship between childbirth education classes and the outcome of labor and delivery among 207 primigravid patients in Australia. There were significant trends toward longer second stage of labor, increased use of forceps or vacuum assistance at delivery and increased use of medication in the group that attended prenatal classes.⁴ The findings of the study goes hand in hand with findings of the present study.

The present study is also supported by another cross-sectional study from a register of 847 Mexican women who attended prenatal classes was done to assess the association between non-clinical factors and the incidence of caesarean section to estimate the effect of a prenatal instructor's presence during childbirth birth outcome. Odds of having a caesarean section

were higher among women who were not supported by a prenatal instructor during childbirth.⁵

Neonatal outcome

A study was conducted to determine the effects of participating in training program for childbirth on the duration of labor and fetal oxygen saturation (FSpO₂) Neonatal outcome was analysed in terms of umbilical arterial blood pH and 5 min Apgar score. Statistically significant differences between the groups were found in duration the second stage of labour, experimental group being shorter.⁶ But there was no difference in neonatal outcome and this contradicted the findings of the present study.

A study was done to assess the effectiveness of antenatal exercises on behavioral responses during first stage of labour and outcome of labour in a selected hospital at Karkala. The study found that there was significant difference in behavior responses, nature of delivery and neonatal outcome between the experimental and control groups.⁷ The findings of the study are consistent with the findings of the present study.

Conclusion

Childbirth preparation classes prepare the primigravid women for the process of labour and conditions the primigravid women to breathe and relax during contraction to cope with labour pain. As observed from the findings of the study, more women in the experimental group who had attended childbirth preparation class exhibited more of positive responses during first stage of labour, than the mothers who had not attended childbirth preparation class.

Practice of breathing and relaxation techniques taught during the childbirth preparation class and knowledge regarding the physiological changes in labour shortens the duration of labour when compared with primigravid women who did not attend childbirth preparation class.

The need for operative interferences and perineal trauma is much more reduced in the women who are prepared for the process of labour during their antenatal period. Deep breathing and relaxation techniques practiced during labour and bearing down at the right time aids in the progress of labour. Occurrence of caput succedaneum can be avoided by early bearing down which is aided by deep breathing and relaxation techniques.

Therefore, regular childbirth preparation classes in the antenatal wards and clinics are effective in bringing about positive behavioural responses and helps the parturients to cope

up with labour pains. The information provided also reduces women's fear of unknown and they are able to participate positively in the process of labour.

Limitations

The study used non probability purposive sampling method and was limited to only two hospitals of Udupi district, so the generalizability of the study is limited to the sample. The observation and recording of behavioural responses were limited to certain time period. Outcome of labour was based on recorded information so it was limited to what was documented, there was no control over the authenticity of information.




Recommendations





A qualitative study can be conducted to illuminate antenatal women's perceptions of childbirth and childbirth education before and after birth. An evaluative study can be done to determine the effectiveness of a musical environment in the delivery unit on the behavioural responses and perception of pain during the first stage of labour among primigravid women. A study can be conducted to determine the physiological and psychological effects of continuous one-to-one professional support of an intranatal instructor on labor outcomes.

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Table 1: Comparison of mean behaviour responses of women in experimental and control groups

	N	Mean	Mean difference	't' value	df	P value
Experimental	30	31.882	13.062	11.858*	58	0.001
Control	30	18.82				

* Significant at 0.05 level

Table 2: Comparison of mean duration of labour (in hours) of women in experimental and control groups

	N	Mean	Mean difference	't' value	df	P value
Experimental	28	7.7446	1.2597	1.566	49	0.124
Control	23	9.0043				

Table 3: Frequency and percentage distribution of subjects with regard to nature of delivery in the experimental and control groups.

Nature of delivery	Experimental (N= 30)		Control (N=30)	
	F	%	F	%
Normal				
• Normal vaginal delivery with episiotomy	26	86.7	19	63.3
Abnormal				
• Normal vaginal delivery with episiotomy with perineal tear	2	6.7	1	3.3
• Forceps delivery	0	0	3	10
• Vaccum delivery	0	0	0	0
• Caesarean section	2	6.7	7	23.3

Table 4: Chi-square test in the nature of delivery both in the experimental and control group.

N= (30+30)=60

Nature of delivery	Experimental		Control		df	χ^2	P value
	F	%	F	%			
Normal	26	86.7	19	63.3	1	4.356	0.037
Abnormal	4	13.3	11	36.7			

* Significant at 0.05 level

Table 5: Chi-square test in the neonatal outcome both in the experimental and control group.

N= (30+30)=60

Neonatal outcome	Experimental		Control		df	χ^2	P value
	F	%	F	%			
Normal	28	93.3	22	73.3	1	4.320	0.038*
Abnormal	2	6.7	8	26.7			

* Significant at 0.05 level