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Original Research Article

Anxiety prior to delivery and birth satisfaction, in primigravidas given an individualised introduction to labour after 37 weeks of gestation: A randomised control trial

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ABSTRACT

Background and Aims: A randomised Controlled trial to assess the role of an individualised introduction to labour given after 37 weeks of gestation in allaying anxiety prior to delivery and birth satisfaction, in primi-gravidas

Materials and Methods: After obtaining approval from ethics committee, antenatal mothers, booked for delivery in this hospital, who gave written informed consent, were randomized to Group A (Interventional group) and Group B (comparator group). The Anxiety Assessment Scale for Pregnant Woman in Labour (AASPWL) was administered to all participants at first contact in the antenatal clinic, after 37 weeks of gestation by the investigator. The post-intervention AASPWL questionnaire was administered to all participants in the first stage of labour by a blinded assessor. The birth satisfaction of all participants was assessed after delivery using the Birth Satisfaction Scale (BSS) by a blinded assessor in the ward.

Results: The difference in mean anxiety score measured in the first stage of labour and during antenatal visit (>37 weeks of gestation) in Group A and Group B was analysed. It was found that the two groups were homogenous, but the increase in anxiety during labour was less in group A compared to group B, however the difference was not statistically significant. The Birth Satisfaction Scale score in the intervention group was significantly higher compared to the comparator group ($p<0.001$).

Conclusion: An individualised structured introduction to labour reduced the AASPWL scores in first-time parturient mothers who received the intervention, compared to mothers who did not receive the intervention. This reduction, however, was not statistically significant. We also found that the individualised structured introduction to labour enhanced the birth satisfaction of first-time parturient mothers, measured by the Birth Satisfaction Scale (BSS) significantly and resulted in higher scores in the subdomains of the BSS.

1. Introduction

The nulliparous status and lack of proper knowledge account for increased anxiety and adverse labor outcomes.[1] Thus comprehensive counselling about labor events and familiarizing the patient with the labor room could be a window to reduce pregnancy related anxiety and enhance better pregnancy outcomes.[2] Hence we did this study with the research question in mind, "Will an individualized structured introduction to the labor room in the last trimester of pregnancy help in allaying anxiety and increasing birth satisfaction during labor.

Mild anxiety is considered normal for women during labour and birth. However excessive anxiety and fear increases catecholamine secretion, resulting in more pelvic pain. The stimuli reaching the brain in turn magnifies pain

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perception. As anxiety heightens, muscle tension increases. This decreases the effectiveness of uterine contraction and intensifies the discomfort. Thus a cycle of increased fear and anxiety begins, ultimately this cycle will slow down the process of labour.[3]

Various studies have been conducted to assess whether prenatal education helps in allaying anxiety. Beneficial effects identified include shorter delivery time, better detection of labour, fewer interventions, a reduced need for anaesthesia, lower levels of anxiety and greater satisfaction.[4–6]

Previous studies on pregnancy anxiety from different parts of the world have reported a high and wide-ranging prevalence rate of 14–54%. However, it is likely there is a higher prevalence of childbirth anxiety, even as high as 90-94%, due to poor perceived knowledge and inadequate childbirth preparation for nulliparous pregnant women of our state.[7] Over 90% of prenatal stress and anxiety is related to the process of childbirth. Firouzbhakt et al showed from their study, that prenatal education and psychological support are beneficial for mothers during pregnancy and labour and reduce anxiety and stress. They recommend educating all pregnant women in the antenatal period to allay fear and anxiety and proposed a three-part education program for antenatal mothers.[6] The first part of the education included teaching about the physical and anatomical changes during pregnancy, psychological health, warning symptoms during pregnancy, the pros and cons of vaginal and Caesarean deliveries, the stages of delivery, breastfeeding, and also some family planning issues. The second part included consultations in the form of questions and answers and the part covered mental and muscular exercises, training proper positions during labour and delivery, proper breathing during pregnancy, labour and delivery.[6]

Madhavaprabhakaran et al used the Associated Factors State Trait Anxiety Inventory (STAI) and Pregnancy-Specific Anxiety Inventory (PSAI) and found a high prevalence of pregnancy -specific anxiety especially in the third trimester of pregnancy, in nulliparous pregnant women, women of younger age group and women belonging to a nuclear family. This study emphasises the need to empower nulliparous women through planned childbirth education to reduce their childbirth anxiety.[7]

Durat et al developed a 9-item, statistically valid and reliable tool called Anxiety Assessment Scale for Pregnant Woman in Labour (AASPWL). The AASPWL has two conceptual sub-dimensions to measure anxiety during labour. The first sub-dimension with six items covered anxiety related to the birth process, called “birth process anxiety” and the second with three items, covered anxiety related to motherhood, called “motherhood constellation anxiety·

The Birth Satisfaction score is a 30-item psychometrically valid and reliable tool developed by developed by Hollins Martin and Fleming, designed to assess individual women’s experience of birth.[8] It has three overarching themes recognized as representing birth satisfaction – quality of care, women’s attributes and stress experience.

1. **Quality of Care** (QC) (8-items) explores the quality of care provided, assessment, birth environment, adequate support and relationships with health care professionals
2. i**Women’s Attributes** (WA) (8-items) surveys personal attributes such as ability to cope during labour, feeling in control, preparation for childbirth and relationship with baby.
3. **Stress Experienced** (SE) (14-items) looks at the stress experienced during labour including distress experienced during labour, obstetric injuries, perception of having received adequate medical care, having to experience an obstetric intervention, pain experienced, long labour and the health of baby.[8]

The quantitative data is extremely useful in exploring woman’s birth experiences, this has been demonstrated by the validation of the 30-item-BSS.[8,9]

Information is still scarce on the birthing experience of women who participate in antenatal systematic education programs.[10] We wanted to assess the parturient women’s satisfaction with the birth environment, relationships and care provided by the health professionals in the quality of care aspect of the BSS, the ability of the woman to maintain control during labour and the relationship with the baby in the Women’s attributes section of the BSS and also the Stress experienced as assessed by the BSS.

Thus, we undertook this study to find out if a guided tour of the labour room and the educational input about the birthing experience given to the mother after 37 weeks of gestation have a role to play in i. reducing anxiety during labour and ii. improving satisfaction regarding the birth experience.

2. Objectives

To assess the effectiveness of an individualised structured introduction to labour in first-time parturient mothers, after 37 weeks of gestation, in

1. Allaying anxiety of using the Anxiety Assessment Scale for Pregnant Women in Labour (AASPWL)[11] and
2. Enhancing birth satisfaction, using the Birth Satisfaction Scale (BSS)[8]

3. Materials and Methods

After permission was received from the institution and approval from the Ethics committee, this randomised controlled trial was conducted. Written informed consent was obtained from patients visiting the antenatal clinic who fulfilled the inclusion criteria, before recruiting a patient to the study. Study participants were randomised into two groups - Group A where participants were given a structured introduction to labour room and pre-delivery education while participants in Group B received standard care/. The anxiety status of each participant was assessed using the Anxiety Assessment Scale for Pregnant Women in Labour (AASPWL). Anxiety was again assessed, using the same AASPWL scale during the first stage of labour in both groups. Birth satisfaction was assessed after delivery by a blinded assessor using Hollins-Martin Birth Satisfaction Scale (BSS) scale.

The sample size calculated for a power of 80% and an alpha error of 5% was found to be 64 primigravidas in the two groups**.** The sample size was calculated using nMaster computer soft ware. All uncomplicated primigravidas awaiting normal delivery in 37-40 weeks of gestation in the age group 18-30 years who had earlier attended at least one antenatal class conducted by the department of Obstetrics and Gynecology in this institution were considered eligible to participate in this study and patients who gave written informed consent were recruited consecutively to the study from the antenatal clinic. Mothers undergoing elective Caesarean Section and mothers with multiple pregnancy were excluded. After recruitment if the patient had an unplanned Caesarean section, that patient was also excluded from the study. The women enrolled were randomised into two groups by permuted block randomisation with allocation concealment from investigator by using opaque envelopes, to be opened only after the participant has been recruited.[12]

Of the 70 participants enrolled in the study 64 completed the study. Group A was the interventional group and of the 33 participants recruited, three had to be excluded because they were taken for Caesarean section while one was lost to follow-up. Thus Group A had 29 participants. Thirty-seven participants were recruited to Group B, the comparator group. Of these two were excluded because they were taken for Caesarean section and so Group B had 35 participants. All participants allocated to group A received the individualised, guided tour with explanation and introduction to staff of the labour room. They were familiarised with the process and the details of labour. A hand-out was given to explain the details more clearly. All communication was done using good counselling techniques such as empathy, eye contact, body language with the focus of setting the patient at ease and allaying her fears. The participants allocated to Group B will receive standard care.

The pre-intervention (AASPWL) anxiety questionnaire was administered to all participants at first contact in the antenatal clinic, after 37 weeks of gestation by the investigator. The post-intervention (AASPWL) anxiety questionnaire was administered to all participants in the first stage of labour by a blinded assessor. The birth satisfaction of both groups was assessed using the Birth Satisfaction Scale (BSS) after delivery by a blinded assessor in the antenatal ward. The data was entered in an Excel spread sheet. The total ASPWL scores were obtained and the scores in the two sub-categories of the AASPWL i.e. Anxiety about the Birth Process (6 items) and Anxiety about Motherhood constellation (3 items). The difference in AASPWL scores between the initial assessment at 37-week gestation and during first stage of labour was obtained. Total Birth satisfaction scores (total-BSS) were obtained and scores were calculated for the three categories - Quality of Care (QC) (8-items), Women's Attributes (WA) (8-items) and Stress Experienced (SE) (14-items). The study flow chart using CONSORT guidelines is given in Figure 1.

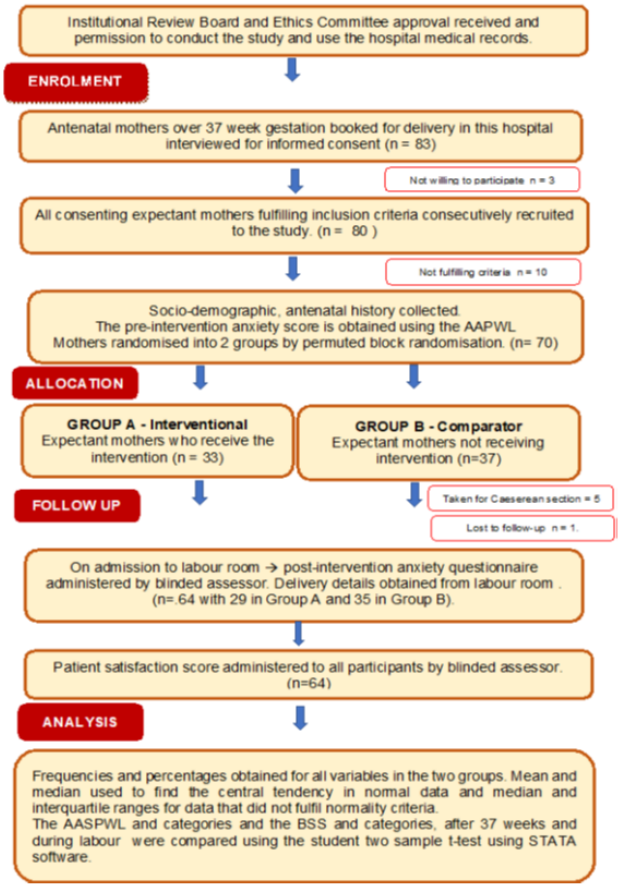

Fig. 1: Flow diagram (following consort guidelines

4. Results

Altogether 64 pregnant women were enrolled into the study. Most of the participants were over the age of 20 years and most came from rural areas around this hospital. The baseline characteristics of the mothers who participated is given in Table 1.

Of the 70 participants, 63(90%) were over the age of 20 years. Sixty percent of these [42(60%)] received all the preparation for birth from family sources – either the mother or a close relative. Twenty-five mothers had attended more than one antenatal class while 45(64.3%) mothers had attended only one antenatal class. Regarding education, over 65% of the mothers had attended college and were either graduates or post-graduates and several had other professional qualifications. Less than half the mothers [33(47.1%)] had professional or semi-professional employment and 28(40%) were housewives and not employed outside the house. Most participants [35(50%)] belonged to the middle-income group. All mothers who had vaginal delivery were retained in the study while those who were taken for Caesarean section [5(7.1%)], for any indication, were excluded from the study.

Of the 70 participants recruited to the study five were taken for Caesarean section and one participant was lost to follow-up as she had her baby elsewhere. Thus, there were 29 participants in Group A and 35 participants in Group B.

The clinical details are given in Figure 2.

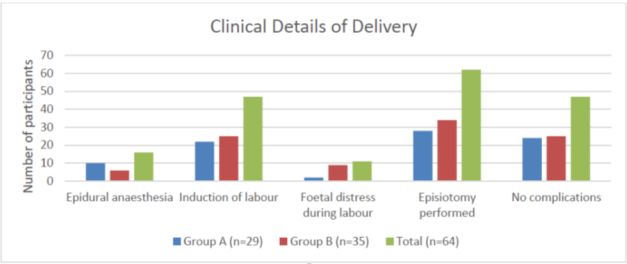

Fig. 2: The number of male and female babies born were equal (32 males and 32 females). 15 babies needed admission to the Neonatal intensive care and nine babies cried excessively after birth

The outcome measure to assess anxiety after 37 weeks and in the first stage of labour was the Anxiety Assessment Scale for Pregnant Women in Labour (AASPWL). The mean scores for participants in Group A and Group B for anxiety during the antenatal period and during labour are detailed in Table 2.

Table 2 shows the mean difference between the AASPWL scores (total scores and sub-domain scores) obtained at 37 weeks and during first stage of labour. The p values obtained with the two-sample student t-test showed that the reduction in anxiety scores in GroupA (intervention group) was not significantly different from Group B, (comparator group).

In the Birth Satisfaction Scale there was a significant difference in the mean score obtained in Group A compared to Group B indicating that the educational intervention may have played a part in increasing birth satisfaction. The BSS scores are given in Figure 3.

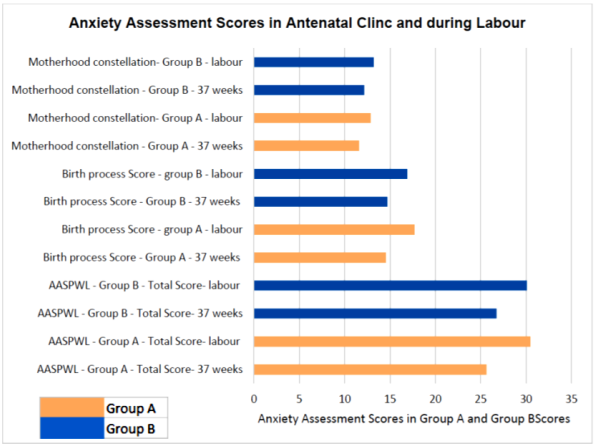

Fig. 3: Anxiety assessment scores in antenatal clinc and during labour The maximum scores were higher in the total BSS score and in the quality of care and stress experienced domains in group A compared to group B. However, the scores in the women's attributes were comparable in the two groups

5. Discussion

In our study most of the women were in the age group 21 to 25 years, most were educated and over 60% were graduates and employed. In the study by Devilata et al most of the women were in the age group of 18 to 21 years. Most of the women in both study-groups received their information about labour from the family members and not from health personnel or literature, though 18% of women in our study accessed the internet for their information about labour.[4]

The study by Devilata et al. found predelivery preparation made a significant difference on anxiety among primigravida mothers.[4] In our study we found the introduction to the labour room and prenatal education reduced the anxiety scores compared to the group that did not have the intervention, however this reduction was not statistically significant. However, when we look at the Birth Satisfaction Scale we find the scores were significantly higher both in the total score and in the three components of the BSS, i,e quality of care score, woman's attributes score and the stress experienced score.

In a study conducted on the effectiveness of prenatal intervention on Pain and Anxiety during the process of childbirth in Northern Iran. Among 195 women, the anxiety level in case group who received education was 14.7 and in control group it was 16.[6] In our study the anxiety level measured by AASPWL in the intervention group was 30.1±

Table 1: Baseline characteristics of participants

	Group A (n=33)	Group B (n=37)	Total (n=70)
Age group			
18-20 years	4 (12.12%)	3 (8.11%)	7 (10.00%)
21-25 years	17 (51.52%)	30 (81.08%)	47 (67.14%)
26-30 years	12 (36.36%)	4 (10.81%)	16 (22.86%)
Source of information			
Antenatal classes	3 (9.09%)	7 (18.92%)	10 (14.29%)
Mother/close relatives	21 (63.64%)	21 (56.76%)	42 (60.0%)
Books/magazines	3 (9.09%)	2 (5.41%)	5 (7.14%)
Internet	6 (18.18%)	7 (18.92%)	13 (18.57%)
Antenatal Classes			
Attended 1 class	22 (66.67%)	23 (62.16%)	45 (64.29%)
Attended 2/more classes	11 (33.33%)	14 (37.84%)	25 (35.72%)
Mother's Education			
Professional/grad /post grad.	22 (66.67%)	25 (67.57%)	47 (67.14%)
Passed 12^{th} std./high school	11 (33.33%)	12 (32.43%)	23 (32.86%)
Mother's Occupation			
Professional/ semi-professional	18 (54.55%)	15 (40.54%)	33 (47.14%)
Skilled/semi-skilled	7 (21.21%)	2 (5.41%)	9 (12.86%)
Housewife/Unemployed	8 (24.24%)	20 (54.05%)	28 (40.00%)
Socioeconomic Status			
Higher income group	10 (30.30%)	8 (21.62%)	18 (25.71%)
Middle income group	19 (57.58%)	16 (43.24%)	35 (50.00%)
Lower income group	4 (12.12%)	13 (35.14%)	17 (24.29%)
Type of delivery			
Vaginal	29 (87.88%)	35 (94.49%)	64 (91.43%)
Caesarean	3 (9.09%)	2 (4.41%)	5 (7.14%)
Delivered elsewhere	1 (3.03%)	0	1 (3.03%)

Table 2: Statistical significance of mean difference in scores

Score	Difference in mean scores (SD)	95% Confidence Interval	Significance (p Value)
Anxiety Assessment Scale for Pregnant Woman in Labour			
A. AASPWL - Total score			
Group A (n=29)	-3.31 (6.31)	-5-71 -0.91	0.48
Group B (n=35)	-4.63 (8.19)	-7.44 -1.82	
B. AASPWL - Birth process			
Group A (n=29)	-2.28 (4.99)	-4.17 -0.38	0.52
Group B (n=35)	-3.14 (5.75)	-5.12 -1.17	
C. AASPWL - Motherhood Constellation			
Group A (n=29)	-1.03 (2.98)	-2.17 -0.10	0.78
Group B (n=35)	-1.26 (3.53)	-2.47 -0.05	
Birth Satisfaction Score			
Group A (n=29)	111.00 (12.38)	106.29 115.71	0.0012
Group B (n=35)	101.63 (9.74)	98.28 104.98	

4.8. and in comparator group it was 30.49 ± 5.6.

The Anxiety Assessment Scale for Pregnant Woman in Labour (AASPWL) is a self-report questionnaire where parturient mothers grade the level of their fear and anxiety on a scale from 1 to 5. Out a maximum possible score of 45 in the total AASPWL, the mean score during labour for 64 participants was 30.31 ± 5.2. Out of a total score 30 in the "birth process anxiety" our participants during labour had a mean score of 17.31 ± 4.5 and out of a possible score in the "maternal constellation anxiety" of 15, our participants had a mean score of 13 ± 2.3. This reveals the high level of anxiety experienced by the participants during labour.[11]

In this study, the difference between the mean score after 37 weeks of gestation and mean score during the first stage of labour in the two groups, will reflect if the intervention has affected anxiety. There was more reduction in the expected increase in anxiety as measured by the total AASPWL score in the interventional group than in the comparator group, however the reduction was not statistically significant. There was also a similar reduction in the "AASPWL - birth process anxiety score" and the AASPWL "motherhood constellation anxiety score". This may be because there are so many other factors which increase anxiety during the birth process.

Birth satisfaction is complex in meaning and includes a multifaceted, imprecise collage of components. The BSS is an attempt to capture the generalised meaning of the concept and incorporate it into an evidence-based measuring tool. Women will have different constructs of what comprises a rewarding birth experience.[8] Besides the actual experience this is directed by personal beliefs, reactions, emotions and reflections, mood, humour, disposition, frame of mind and company kept. Nevertheless, health care professionals can use the BSS to diagnose women's satisfaction /dissatisfaction with their birth experience. Scores will provide measures of the women's perception of quality of care they received during labour.[8,9]

In our study we were able to capture the satisfaction of the mothers in the total score and in the three domains with mean scores in participants who received the educational intervention and the guided tour of the labour room compared to the comparator group. The total BSS scores were significantly higher in the participants who received the intervention with maximum scores as high as 136 out of a possible total of 150. The maximum scores in the BSS categories in Group A were 38 out of a possible score of 40 in the quality of care domain, 37 out of a possible score of 40 in the women's attributes domain and 67 out of a maximum 70 in the stress experienced domain.

A cochrane review showed that Women allocated to continuous support were more likely to have a spontaneous vaginal birth and less likely to report dissatisfaction. They concluded that continuous support was most effective when provided by a woman who was neither part of the hospital staff nor the woman's social network.[13]

6. Conclusion

We conclude that the individualised structured introduction to labour significantly enhanced the birth satisfaction of first-time parturient mothers, measured by the Birth Satisfaction Scale (BSS) and resulted in higher scores in all the three subdomains of the BSS as well. We also found it has a role in reducing anxiety, as measured by the AASPWL, even though the reduction was not statistically significant.

7. Source of Funding

None.

8. Conflict of Interest

None.

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