

Effect Structured Teaching Program Regarding Childbirth Preparation on Anxiety and Maternal Outcome among Primigravida Women

¹Eman Galal Mohamed Kahlil, ²Nadia Abdalla Mohamed A., ³Nagat Salah Shaaby,
⁴Entisar Mohammed Mahmoud Abu Salem, ⁵Fatma El Emam Hafez, ⁶Manal Mohamed
Ahmed Ayed, ⁷Hanan Kheir Abd Ellatif Elmowafi

¹Lecturer of Police Authority Institute of Nursing, Lecturer of Obstetrics Nursing

²Obstetrics and Gynecology Nursing, Faculty of Nursing, South Valley University and

Program Nursing, Department Nursing, Batterjee Medical College, Jeddah 21442, Saudi Arabia

³Professor of Maternity, Gynecology and Obstetrics nursing, Faculty of Nursing - Port said University, Egypt

⁴Assistant Professor of Psychiatric Mental Health Nursing, Faculty of Nursing, Beni-Suef University, Egypt,
Badr University in Cairo

⁵Professor of Family and Community Health Nursing, Faculty of Nursing, El Mansoura University, Egypt

⁶Assistant Professor of Pediatric Nursing, Faculty of Nursing, Sohag University, Egypt

⁷Lecturer of Community Health Nursing- Faculty of Nursing – Mansoura University, Egypt

Abstract

Background: Childbirth education is an essential component of prenatal care. Preparing for childbirth helps women cope with their pregnancies and improves pregnancy outcomes.

Aim: To determine the effect of a structured teaching program regarding childbirth preparation on anxiety and maternal outcomes among primigravida women.

Subjects and method: Design: A quasi-experimental design was applied.

Setting: The study was conducted at antenatal care clinics and labor room at Mansoura University Hospital.

Subjects: Purposive sample, the sample consisted of 68 primigravida women who attended the research setting and were included in this study.

Tools of data collection: (I) The Structured interview questionnaire, (II) Primigravida women's knowledge about the labor process and childbirth preparation, (III) Anxiety Rating Scale, (IV) Observation checklist to assess compliance during labor, and Tool (V): Modified WHO Partograph for monitoring the duration of labor.

Results: Women's ages ranged from 25- 35 years. The studied sample demonstrated a significantly higher level of childbirth preparation knowledge ($P < 0.001$), with a high reported satisfactory knowledge level (75.8%) of childbirth preparation in post-intervention than the pre-intervention (20%). The findings revealed that there was a significant ($p < 0.05$) difference in the mode of delivery ($p < 0.05$), anxiety level ($p < 0.05$), and knowledge level ($p < 0.05$). There was a significant improvement in a primigravida woman's knowledge, anxiety, and maternal outcome about childbirth preparation after the implementation of the structured teaching program.

Conclusion: The findings concluded that structured teaching programs regarding childbirth preparation had a positive effect on anxiety and maternal outcomes among primigravida women.

Recommendations: Continuous childbirth teaching programs for pregnant women in different antenatal care settings are highly recommended.

Keywords: *Anxiety, Childbirth Preparation, Maternal Outcome, Primigravida Women.*

Introduction

Pregnancy is a normal physiological process. Pregnant women go through significant physiological changes during this time to nourish and host the developing fetus and prepare for labor. Pregnancy is a critical period that includes the antenatal, natal, and postnatal periods, all of which increase the needs of pregnant women in different ways. The most important goal of any pregnancy is a healthy newborn, and nurses play a significant role in assisting the pregnant woman, her husband, and her family to achieve this goal (Oats, Abraham, & Llewellyn, 2017).

Every minute, A woman dies in pregnancy or labor. According to the Millennium Development Goals (MDGs) and the International Conference on Population and Development (ICPD), "complications related to pregnancy and childbirth are among the leading causes of mortality for women of reproductive age in many parts of the developing world, killing approximately half a million women each year, 99 percent of whom are in developing countries." (WHO, UNICEF, and UNFPA, 2018) Egypt was on the verge of meeting MDG 5 targets, as the maternal mortality ratio (the number of women dying during pregnancy and childbirth per 100,000 live births) had significantly decreased (WHO, UNICEF, UNFPA, World Bank Group & United Nations Population Division, 2019).

Antenatal Care (ANC) must emphasize birth preparation and expected complication readiness This strategy is critical for reducing prenatal and/or post-natal illnesses, both of which can be fatal (Alatawil, Faheem, & Alabdulaziz, 2020). Regular ANC visits provide numerous benefits, including enhanced nutritional condition and health, increased chances of detecting gestational risks, psychological and counseling support to pregnant women and their families, and increased opportunities for a safe

Every woman has a unique experience with pregnancy and childbirth. Her life now has purpose and fulfillment because of this novel experience. Every woman will be nervous because it's a new experience, and she might even feel scared or anxious. If she is ready to handle the situation, the woman will exude confidence. A life-changing experience in childbirth. It entails creating a new life and evolving into a different role: parent. Everything in the lives of new parents is changed by the birth of a child. Their external and inner environments alter over time, and these changes are permanent (Annamma Jacob, 2019).

The connection between pain and discomfort during childbirth and this physiological process is one of its distinctive features. Pain during labor, however, is not just a reflection of parturition's physiological processes. Instead, a woman's unique interpretation of labor stimuli is the outcome of a complex and subjective interaction between several physiologic and psychological factors (Collingwood, 2018).

Anxiety increases in even the most composed mother as the time of delivery draws near. Partly it is a time of anticipation, excitement, and sheer terror of the unknown, but it's also when some reasonable worries surface. Even the most composed women find it somewhat overwhelming (Jaya Bharathi, 2020).

One of the most significant life events that a woman goes through is labor. This event's unfavorable results have a detrimental psychological impact on the woman and her family. Most women do not currently accept natural vaginal delivery because they are afraid of labor pain. Active labor participation by the mother can reduce the number of cesarean sections performed and the length of labor without hurting the mother or the fetus. Lack of knowledge or incorrect information about labor are common causes of fear and anxiety. Furthermore, reducing anxiety promotes motivation to build positive relationships between mothers and children in addition to resulting in satisfactory labor (Suekim et al. 2019).

Pregnancy education programs are widely available worldwide and aid in women's labor readiness. The purpose of childbirth education is to assist parents in assuming the responsibilities and roles of new parents after giving

birth, as opposed to just being expectant parents. magnificently Some women give birth with less pain, according to observations made by obstetrician Dick-Read in the early 20th century. In his first book, *Natural Childbirth*, published in 1933, he developed his theory of a painless, fearless birth. Three of the childbirth education models currently in use—Lamaze, the Bradley Method, and Hypnobirthing—were founded on the theories of Dick-Read, a pioneer whose ideas had a significant influence on the field.⁵ Preparing for childbirth enhances the mother's involvement in the labor process and is linked to a higher percentage of vaginal deliveries and less stressful labor when assisted by skilled birth attendants; these advantages, in turn, lower the risk of maternal and fetal deaths (Tadele, & Lamaro, 2017). To improve mothers' and babies' health and prevent their deaths, one of the main strategies is to provide health care during and after pregnancy (Doaltabadi et al. 2021).

Participation in childbirth classes has the potential to increase women's knowledge about childbirth while also reducing anxiety and fear about the childbirth experience. Nurses and midwives can help pregnant women by providing prenatal education and encouraging them to attend these classes. As healthcare professionals, they can provide pregnant women with childbirth education as well as prenatal care. They can help pregnant women learn more about pregnancy and delivery by teaching them about physiological changes during pregnancy, fetal development, labor, and childbirth, warning signs, dealing with common pregnancy problems, and non-pharmacological painrelief techniques in labor (Hassanzadeh et al., 2019).

Significance of the study:

To create positive experiences for women during pregnancy and childbirth, one of the World Health Organization's top priorities is to provide integrated, high-quality care services (WHO, 2020). It is possible to predict the majority of deaths that occur during pregnancy or childbirth, making pregnancy one of the most sensitive times in a woman's life (Doaltabadi et al. 2021). There is evidence linking psychological issues, such as feelings of fear, anxiety, and depression, to pregnancy. Fear during pregnancy can be attributed to concerns about fetal abnormalities, spontaneous abortion, and not being a good mother. The fear and agony of childbirth are the main causes of fear in late pregnant women (Hassanzadeh et al. 2020).

A woman's pregnancy and delivery are incredibly memorable times in her life. They represent two halves of a coin. Most pregnant women find that labor and delivery can be both exhilarating and overwhelming. To gain knowledge and reduce their anxiety, a lot of women and their partners decide to take childbirth classes.⁶ Since the 1960s, birthing education has been organized formally to prepare women for labor and delivery with an emphasis on "natural" birth. Prenatal preparation for pregnancy, labor, and delivery is the fundamental goal of the classes, which have continued to change over time (Doaltabadi et al. 2021). According to a prospective study on the impact of psychological variables and sleep on obstetric interventions, delivery mode, and neonatal outcomes in low-risk British Columbian women, effective interventions to lower the risk of cesarean section for women need to pay close attention to the causes of their fear of childbirth. According to the Canadian Institute of Health Information (2010), the rate of cesarean surgery among nulliparas who did not take part in childbirth education classes was almost twice as high as the average primary cesarean surgery rate in Canada, at almost 50% (Ricchi et al., 2019). So the investigator was interested in conducting a study to determine the effect of a structured teaching program regarding childbirth preparation on anxiety and maternal outcomes among primigravida women.

Aim of the study

This study aimed to determine the effect of structured teaching program regarding childbirth preparation on anxiety and maternal outcome among primigravida women through:

- Assessing knowledge level among primigravida women.
- Identifying anxiety level among primigravida women.
- Assessing maternal outcome among primigravida women.
- Designing and implementing the structured teaching program among primigravida women according to their actual needs.

- Evaluating the effect of structured teaching program regarding childbirth preparation on anxiety and maternal outcome among primigravida women.

Research hypothesis:

H1: There will be a statistically significant difference in improvement in primigravida women's knowledge and maternal outcome with a reduction in the anxiety levels in the experimental group as compared to the control group.

H2: Among primigravid women in the control and experimental groups, there is a statistically significant difference in the mean score of labor duration.

H3: The mean anxiety score of primigravid women in the control and experimental groups differs significantly.

H4: Among primigravid women in the control and experimental groups, there is a statistically significant difference in the mean compliance score.

Subjects and Methods:

Research design:

To achieve the current study's aim, a quasi-experimental design was applied.

Setting :

The study was conducted at antenatal care clinics and labour room at Mansoura University Hospital. This hospital is one of the largest public teaching hospitals in the Egypt region, with a large number of patients from various socioeconomic and educational levels coming from all over regions to receive health care.

Subjects:

A non-probability purposive sampling technique was utilized to choose a sample of 68 primigravid women who were assigned to two groups, 34 in the control group and next 34 primigravida women were assigned to the experimental group 34 for the experimental group (who received a structured teaching program) and 34 for the control group (who received the routine care only). They were split into two equal groups based on their hospitalization admission code number.

Sample size calculation:

Based on data from the literature (El-Kurdy et al., 2017), considering a level of significance of 5%, and power of study of 80%, the sample size was calculated using the following formula:

$$n = [(Z\alpha/2 + Z\beta)^2 \times \{2(SD)^2\}] / (\text{mean difference between the two groups})^2$$
where

SD = standard deviation

Z $\alpha/2$: This depends on the level of significance, for 5% this is 1.96
Z β : This depends on power, for 80% this is 0.84
Therefore,

$$n = [(1.96 + 0.84)^2 \times \{2(15.68)^2\}] / (5)^2 = 67.90$$

Based on the above formula, the sample size was 68.

Inclusion criteria:

- Primigravida women, their age from 20 to 35 years old
- Primigravida women from 35 to 37 weeks of gestation
- Agreed to take part in our study
- Able to read and write
- With no medical or psychological problems.

Exclusion criteria:

Primigravida women have other chronic or mental diseases and primigravida women disagreed to participate in the study.

Tools of data collection:

Five tools were used in the current study as follows:

Tool (I): A structured interview questionnaire: Was developed by the researchers after reviewing related literature (Danielewicz et al., 2017; Lim, Wong & Soon, 2018; Podder, 2015). It was composed of two parts:

Part (1): It included demographic data which involved four items related to age, occupation, educational level, and residence.

Part (2): It included present obstetric history such as Gestational weeks, antenatal care, and antenatal care visits.

Tool (II): Primigravida women's knowledge about the labor process and childbirth preparation (pre and post-intervention)

It was developed by the researchers after reviewing related literature (Danielewicz et al., 2017; Lim, Wong & Soon, 2018; Podder, 2015). Knowledge of women about the labor process, symptoms that indicate the beginning of labor, preparation, and actions to take once labor has begun, orientation to the labor room, and explanation of the location, intensity, and frequency of pain during various stages of labor, and instruction in pushing and breathing exercises. Talk about the episiotomy and how to take care of it, how to handle a newborn and breastfeed, what's in a labor bag, how much pain is experienced during labor, how to exercise during the second stage of labor, and how to bear down correctly.-Women`s knowledge regarding exercise: It contains 3 items such as; the importance of exercises, types of exercise in the last trimester.

Scoring system: True or false questions were mixed in with multiple-choice questions. The "correct answer" took a one, while the "incorrect answer" received a zero. The scores for each domain's items and the total domain were totaled, divided by the number of items, and converted into percent scores. The women's knowledge level was considered satisfactory if it was 60% or higher, and unsatisfactory if it was 60% or less.

Tool (III): Anxiety Rating Scale: This was created by Bloch (2009) to gauge the anxiety levels of primigravida women. The extreme limits of the sensation to be measured, from 0 (balanced mood) to 10 (out of control), are defined as the ends of a straight line. The six main parts of the anxiety rating scale were as follows: the first part, graded 0 (indicating balanced mood); the second, graded 1-2 (indicating slight anxiety and worry); the third, grade 4 (indicating mild anxiety); the fourth, grade 5 (indicating moderate anxiety); the fifth, graded 6-7 (indicating strong agitation); and the sixth, graded 8-10 (indicating out-of-control behavior).



Tool (IV): A checklist of observations to evaluate labor compliance

Tool (V): Modified WHO Partograph for monitoring the duration of labor

Preparatory phase:

The researcher used books, articles, internet journals, and magazines to develop data collection tools based on relevant literature reviews and theoretical knowledge of many aspects of research, and it created a handout for childbirth preparation that contains all of the above covering points. The program had been completed.

Validity and Reliability of the tools:

The content validity of the tools and the instructional guideline, their clarity, comprehensiveness, appropriateness, and relevance were reviewed by five expert professors: in the Obstetrics, Gynecological Nursing, Psychiatric, and Community Health Nursing Field. No modifications were made according to the panel judgment to ensure sentence clarity and content appropriateness.

The reliability of tools was tested by using Cronbach's alpha coefficient test, which revealed that the tools consisted of relatively homogenous items as shown by the moderate to high reliability of each tool. The test-retest reliability coefficient of tool I was 0.88, tool II was 0.90, tool III has been demonstrated as $r = 0.86$, tool IV was 0.78, and tool V was 0.80.

Pilot study:

A pilot study was conducted on 10% (10 patients) of the entire sample. To produce the final form of the tools, no modifications were made. Patients involved in the pilot were excluded from the study.

Ethical considerations:

The study was approved by ethics. Before beginning the study, the researchers met with the medical and nursing directors of the chosen setting to explain the study's aim and gain their agreement. Primigravida women's written agreement was obtained to gain their cooperation. To secure authorization for data collection, the purpose of the study was stated, as well as the expected outcomes from its implementation. The study's aim was presented to the participants. The primigravida women were informed that participation in the study was voluntary, and they were free to withdraw from the study at any time, without giving any reason. Primigravida women were told that their information would be kept private and utilized for research purposes only.

Field Work

Data was collected three days a week (Saturday, Monday, and Thursday). The current study fieldwork lasted three months, the data collection period was from the beginning of July 2023 to the beginning of September 2023. The work was divided into four stages (assessment, planning, implementation, and evaluation).

Phase I: Assessment (Pre-intervention phase):

Data collection commenced following the pilot study's presentation and approval. The researcher gave a brief introduction of herself and the study. Women who were primigravidas and met the selection criteria were chosen. The first 34 primigravida women were chosen to be the control group, and the remaining 34 were chosen to be the experimental group. Once they were at ease, consent was acquired and privacy and confidentiality were guaranteed. The participant's answers to a structured interview sheet about labor and delivery preparation were then given by the researcher to them as part of a pre-intervention assessment.

Phase II: Planning

The researcher created an Arabic version of the childbirth preparation handbook and was required to submit it to the study group. It contains the following details: explaining the location, intensity, and frequency of pain during the various stages of labor; teaching about pushing and breathing exercises; orienting the labor room; signs indicating the onset of labor; preparation and actions to take once labor has begun. Additionally, the handling of the newborn, nursing, episiotomy, the necessary care and breastfeeding, different stages of childbirth and adaptation to it, and the use of non-pharmacological methods to overcome pain. The handbook was divided into theoretical and practical parts. Also, it was supplemented by photos for more illustration and to help the women understand the content. Each participant was given a handbook that summarized the content of childbirth preparation sessions to guide them in self-practice at their home. Animation videos and slide presentations were used in the sessions.

Phase (III): Health education sessions implementation

The researchers gave each member of the experimental group a customized curriculum on labor process education and labor preparation. The chosen primigravida women's personal and obstetric data were gathered this was carried out in the antenatal care outpatient clinic by the Obstetrics, Gynecological nurses, and Community Health nurses, then they followed the primigravida women through phone calls until the day of delivery.

Next, Using an anxiety scale, the level of anxiety was determined when labor pains started. To monitor labor progress, a WHO partograph was kept up to date. To find the degree of compliance, the observation checklist was used to evaluate the primigravid women's behavior responses. The degree of compliance was measured three times during the first stage of labor following a four-centimeter cervical dilatation, with an hour elapsed between each observation. The client was moved into the second stage of labor when the dilatation reached 10 cm. Once labor began, the mode of delivery was also noted. The WHO partograph was used to compute the labor duration.

The experimental group of primigravid women is given a structured education program that includes information on the onset of labor, signs that indicate it is about to begin, preparation for labor, what to do once it begins, orientation to the labor room, information on the location, intensity, and frequency of pain during various stages of labor, and instruction in pushing and breathing exercises. And regarding the episiotomy and the necessary precautions, newborn care, and nursing. The same anxiety scale was used to administer a post-test to the experimental and control groups following the labor stages. Primigravida women were appointed to childbirth preparation and labor process sessions in the experimental group. They were given the structured teaching program was divided into five sessions of about 60 minutes each.

Section 1 Firstly, the researcher illustrated the aim, and purpose of the structured teaching program sessions, and then distributed the childbirth preparation handbook to participants. The content for the first session included:

Information about the labor process, Physiology, and benefits of normal labor, signs indicating the onset of labor, preparation, and things to be done when the labor has started, the difference between true and false labor pain, orienting to the labor room,

Section 2 The content for the second class included: explaining the pain location, intensity, and frequency during different stages of labor, teaching about the pushing and breathing exercise

Section 3 The content for the third class included: Episiotomy and its care to be taken, handling of newborns and breastfeeding, and non-pharmacological coping measures with labor pain and breathing exercises for reducing anxiety.

Phase IV: Evaluation

Post-test was conducted on both the experimental and the control group post the stages of labor. It was carried out in the labor room at Mansours University Hospital after labor. Primigravid women were assessed using the same pretest of three different tools: Tool III was used to assess the level of anxiety experienced by the primigravida women, Tool IV was used to assess compliance during labor, and Tool V was used to monitor the duration of labor.

Administrative design

The relevant authorities have given their formal approval for the conduct of this study. Before beginning the study, the Dean of the Faculty of Nursing at the University of Mansoura sent a formal letter explaining the goal, and purpose of the study to the Directors of the aforementioned settings, requesting permission to proceed.

Statistical design

Data was sorted, organized, coded, and transferred into specially designed formats for computer entry. SPSS version 22 was used for the statistical analysis. Frequencies and percentages were used to describe qualitative data. The Chi-square test was used to examine the relationship between categorical variables (χ^2). Significance

was adopted at $p < 0.05$ for a statistically significant interpretation of results of tests of significance, while $p \leq 0.01$ was adopted for a highly statistically significant interpretation of results.

Results

Table 1 shows that the majority of primigravida women in both the experimental and control groups, their ages ranging 25 years old or More and mean ages of 27.5 ± 3.4 and 28.6 ± 2.3 , respectively. Of the primigravida women who were enrolled, three-fifths in the control group (60%) and half in the experimental group (50%) had secondary education. In both groups, the majority were found to be housewives (80.0% and 70.0%, respectively). In both groups, the majority of primigravida women (76.0% and 73.0%, respectively) were from urban areas. Regarding both groups, there was no statistically significant difference in the demographic variables.

Table (2): demonstrates that the majority of primigravida women their gestational weeks in both the experimental and control groups ranged from 36- 37 weeks (85% and 80%, respectively) and (65% and 60% respectively) attended less than four of the visits.

Table (3): Shows there was a highly statistically significant improvement in women`s knowledge regarding labor stages in post-intervention than pre-intervention (P-value < 0.001).

Figure (1): presents that the total levels of women`s knowledge improved significantly after a structured teaching program than before a structured teaching program (P- value < 0.001).

Table (4): The current study demonstrates that the delivery mode among primigravid women following a childbirth preparation program in the experimental group was Vaginal delivery among 85% of them compared to that of the control group (65%).

Table (5): showed that significant difference in the duration of labor among primigravid women following a childbirth preparation program in the experimental group from that of the control group

Table (6): showed that the compliance level among primigravid women following a childbirth preparation programme in the experimental group was good at a mean of 112.23 ± 04.39 compared to that of the control group was 94.44 ± 08.88 in the third observation.

Table (7): Shows that there was a difference between the Mean, standard deviation, and t-value regarding the duration of labor among the primigravid women in control and experimental groups.

Table: 8 shows that there was a significant difference in the compliance level among primigravid women in the control and experimental groups at different observations before and after the structured teaching program regarding childbirth preparation.

Table 9 demonstrates that the mean anxiety in the experimental group was lower after the assessment, at 48.19 (SD=7.33), than it was before the assessment, at 69.66 (SD=11.88). At the 0.001 level, the obtained "t" value of 21.45** was significant. This demonstrates unequivocally that the experimental primigravida women's anxiety levels were significantly different before and after the introduction of a structured teaching program. Compared to the pre-assessment mean anxiety value of 73.57 (SD 6.59), the control group's post-assessment mean anxiety value was 75.46 (SD = 4.55). The obtained significance level (t) was 1.484. This demonstrates unequivocally that the primigravida women in the control group did not differ significantly in their anxiety levels. a substantial decrease in anxiety was seen in the experimental group, but not in the control group. This suggests that the structured teaching program on childbirth preparation was successful in lowering anxiety in primigravida women.

According to the data in **Figure (2)**, the majority of the sample (65%,50%) expressed moderate anxiety during the pre-assessment of 34 primigravida women in the experimental group and control group. Post-assessment data revealed that while 90% of control group primigravida women experienced moderate anxiety, only 15% of experimental group primigravida women experienced moderate anxiety. This indicates a clear improvement in experimental group primigravida women's anxiety levels and a reduction in anxiety levels overall, demonstrating the effectiveness of a structured teaching program aimed at reducing anxiety in primigravida

women.

Table (1): Demographic characteristics among the Studied primigravida women (N= 68).

Items	Experimental group		Control group		Test sig.	of P. value
	N	%	N	%		
Age (years)						
< 25	12	35.0	14	40.0	1.88	0.753
25 or More	22	65.0	20	60.0		
Mean ±SD	27.5 ±3.4		28.6±2.3			
Educational Level						
Primary education	7	20.0	7	20.0	0.89	0.565
Secondary education	17	50.0	20	60.0		
University education	10	30.0	7	20.0		
Working Status					0.77	0.848
Working	7	20.0	10	30.0		
Housewife	27	80.0	24	70.0		
Residence					4.66	0.456
Urban	26	76.0	25	73.0		
Rural	8	24.0	9	27.0		

The chi-square test and Fisher's exact test

Table (2): Obstetric history among the studied primigravida women (N= 68).

Items	Experimental group		Control group		Test sig.	of P. value
	N	%	N	%		
Gestational weeks						
35 – 36	5	15.0	7	20.0	0.73	0.686
36 – 37	29	85.0	27	80.0		
Antenatal care visits						
> 4	45	65.0	20	60.0	0.63	0.687
≤ 4	12	35.0	14	40.0		

The chi-square test

Table: 3 Differences between mean, standard deviation, and t-value of the primigravid women's knowledge regarding the labor process in the control and experimental groups before and after the structured teaching program

Group	Pre-structured teaching programme		Post-structured teaching programme		Paired 't'-test	P -value
	Mean	SD	Mean	SD		
Experimental	10.22±2.56		27.78±2.89		133.66**	<0.001**
Control	10.33±2.72		10.66±2.34		1.498 NS	0.567N.S

**= Significant at 0.01 level, NS= Not significant

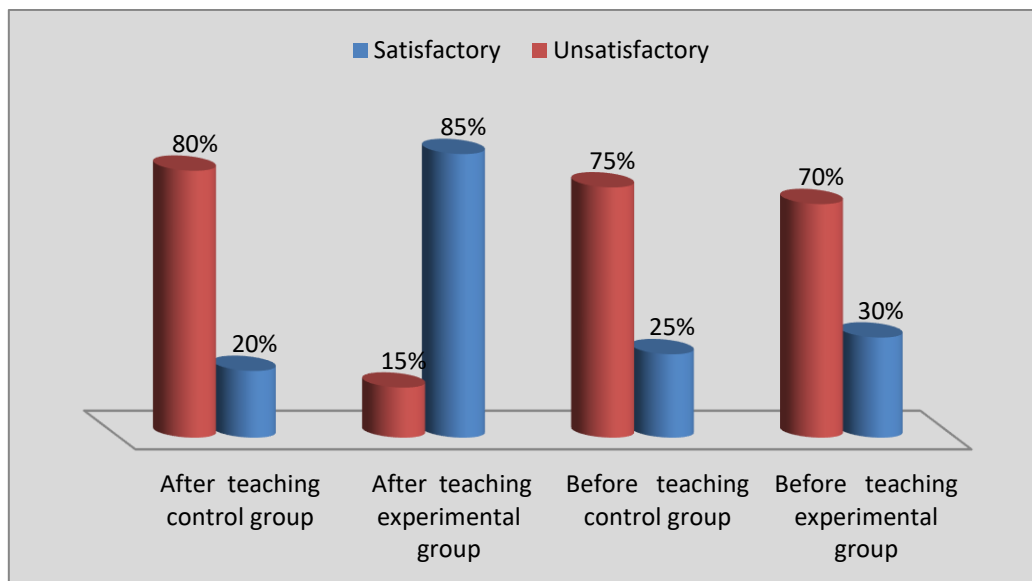


Figure (1): Total knowledge levels among the studied primigravida women in the control group and experimental group (N= 68).

Table (4): Delivery mode among the studied primigravida women in the control group and experimental group (N= 68).

Delivery mode	Control group		Experimental group	
	f	%	F	%
Vaginal delivery	22	65.0	29	85.0
Vacuum extraction	5	15.0	2	5.0
Cesarean section	7	20.0	3	10.0

Table (5): labor duration among the studied primigravida women in the control group and experimental group (N= 68).

Labor Duration (in hours)	Control group		Experimental group		P - value
	Mean	SD	Mean	SD	

6-9					<0.001
9-12	11.2	1.9	9.7	1.3	
12-15					

Table (6): Compliance level among the studied primigravida women in the control group and experimental group (N= 68).

Level of compliance	Control group				Experimental group				
	f	%	Mean	SD	f	%	Mean	SD	
O ₁	Average	29	85.0	89.76	09.73	00	-	114.21	07.22
	Good	5	15.0			34	100		
O ₂	Average	22	65.0	96.22	09.33	00	-	113.33	06.44
	Good	12	35.0			34	100		
O ₃	Average	17	50	94.44	08.88	00	-	112.23	04.39
	Good	17	50			34	100		

Table (7): Differences in Mean, standard deviation, and t value regarding the duration of labor among the primigravida women in control and experimental groups, (n = 68)

Group	Labour duration		p value
	Mean	SD	
Control	79.04	104.56	<0.001
Experimental	73.2	83.75	

*** Significance at <0.001

Table (8): Differences in mean scores of compliance level of primigravida women in the control and experimental group at different observations (n=68)

Items	Control group		Experimental group	
	Mean difference	P value	Mean Difference	P value
O ₁ -O ₂	02.83 ^{ns}	0.55	4.79 ^{**}	0.002
O ₂ -O ₃	01.77 ^{ns}	0.74	2.15 ^{ns}	0.3
O ₁ -O ₃	04.72 ^{ns}	0.22	6.87 ^{***}	<0.001

**Significant level <0.01

Table: 9 Differences between mean, standard deviation, and t-value of the anxiety primigravid women in the control and experimental groups before and after the structured teaching program

Group	Pre-structured teaching programme		Post-structured teaching programme		Paired value 't'
	Mean	SD	Mean	SD	
Experimental	69.66	11.88	48.19	7.33	21.45**
Control	73.57	6.59	75.46	4.55	1.484 NS

**= Significant at 0.01 level, NS= Not significant

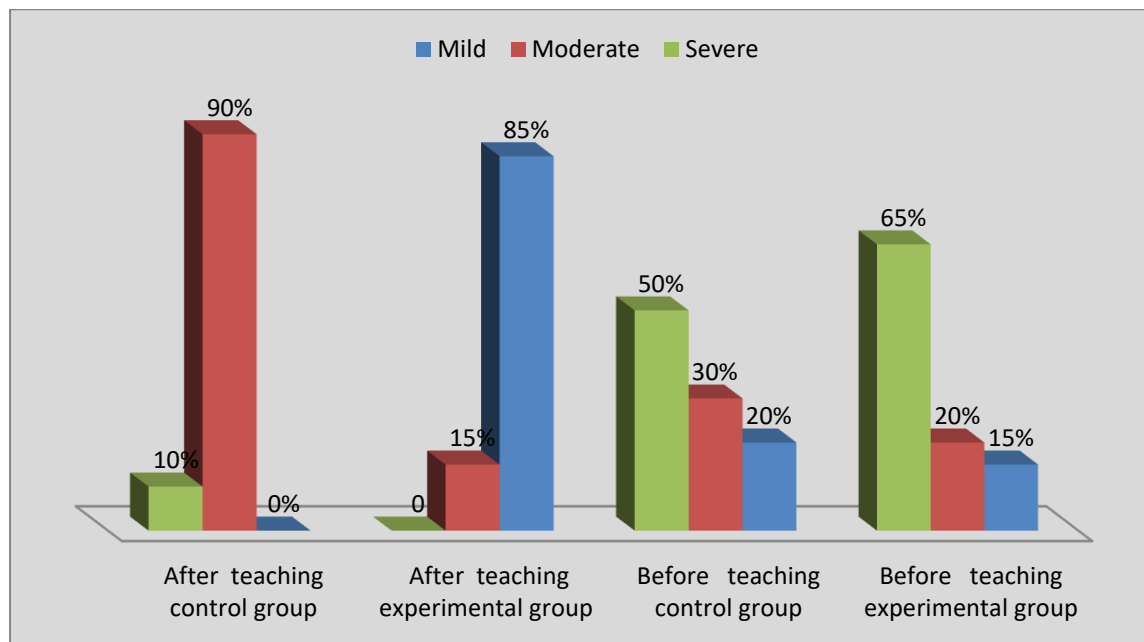


Figure (2) Comparison of the level of anxiety among primigravid women in the control and experimental group before and after the structured teaching program

Discussion

For primigravida women, in particular, the most terrifying sensation is the pain of childbirth. Pregnant women experience greater fear than do multiparous women. This can be caused by low self-esteem, fear of excruciating pain, awful stories from other women, inadequate physical and mental preparation for giving birth, losing self-control, fear of a perineal laceration, a lack of support from the birth team, and anxiety about dying (**Kzlrnak & Baser, 2019**).

The study found that the experimental group delivered more vaginal births than the control group. These results are in line with another study by Scott JR, and Rose NB, which looked at the effect of psycho-prophylaxis on labor and delivery and discovered that the experimental group delivered more vaginal births spontaneously than the control group (**Girija et al., 2019**).

The current study hypothesized that the total levels of women's knowledge improved significantly after the structured teaching program than before the structured teaching program and were highly statistically significant improvements in the post-intervention than pre-intervention. This leads to acceptance of this hypothesis. Also, the intervention had a positive impact on this study; there were improvements in women's knowledge after education, This is matched with the results of a study by **Madhavanprabhakaran et al., (2016)**, who

discovered that a childbirth education program improved women's knowledge of labor and delivery preparation.

The study results revealed that significant difference in the duration of labor among primigravid women following a childbirth preparation program in the experimental group from that of the control group. An analysis of the impact of non-pharmacological interventions on labor duration by Direkvand-Moghdam, A. Delpisheh, M. Rezaeian, and A. Khosravi revealed a statistically significant difference in labor duration following massage therapy and parturition position modification (**Gayathri et al., 2020**).

However, according to **Khaikin et al. (2019)**, there was a significant impact of this training on lowering anxiety or raising mothers' self-efficacy. Additionally, according to reports, this training lessens the anxiety associated with childbirth, but it affects the type or duration of delivery (**Arteta-Pinedo et al. 2020**). Pregnant women who take part in childbirth preparation classes can manage their pregnancy and the postpartum period more effectively than those who only receive routine care, according to Lee and Holroyd's findings (**Lee and Holroyd 2019**).

Through training and group activities, mothers can support one another and share their knowledge and experiences. Attending these training sessions can help women feel less anxious about giving birth and raise their awareness of the potential risks associated with cesarean sections, both of which can improve the outcome of their pregnancy (**Kordi et al. 2017**). There have been mixed findings in studies on the efficacy of childbirth education. According to a study, this training dramatically lowers women's anxiety about giving birth and heightens their desire for a natural delivery (**Mousavi et al. 2021**).

The current study results showed that the compliance level among primigravid women following a childbirth preparation program in the experimental group was good at a mean of 112.23 ± 04.39 compared to that of the control group was 94.44 ± 08.88 in the third observation. From the researcher's point of view, it confirmed the success of a structured teaching program. Educational programs have been shown in recent years to have a significant impact on pregnancy outcomes. Studies by Thampawiboon K, which looked at how prenatal education affected primigravid women's coping mechanisms, support the results of the current study, which found a significant variation in compliance level. Relative to primiparas in the control group, the study indicated that those in the experimental group demonstrated superior coping mechanisms (**Ferguson, 2013**).

The result of the current study showed that there was a decrease in anxiety was seen in the experimental group, but not in the control group. This suggests that the structured teaching program on childbirth preparation was successful in lowering anxiety in primigravida women. The study found that the control group had a statistically significant higher mean score of anxiety about childbirth than the pregnant women who took part in face-to-face and virtual prenatal education classes. Comparing the type of natural childbirth and the anxiety of pregnant women, **Najafi et al. (2016)** conducted research that is in line with the findings of the current study. According to the findings, women undergoing prenatal education classes scored lower on average than the group receiving standard prenatal care when it came to their anxiety about giving birth. Furthermore, other studies like **Hasanzadeh and Karabulut (Karabulut et al. 2016) (Hassanzadeh et al. 2020)**, (**Cankaya and Simsek 2021**), and **Pirdadeh Beiranvand (Pirdadeh Beiranvand et al. 2017)** concurred with the findings of the current investigation.

In a study titled "The Effect of Childbirth Preparation Classes on the Anxiety of Natural Childbirth," **Mehrabadi et al.** They concluded that the intervention group's average total score of anxiety about childbirth was considerably higher than that of the control group, which was at odds with the current study's findings. According to Mehrabadi, the high concentration of expectant mothers in one space and the viewing of films about childbirth and cesarean sections contribute to increased anxiety about childbirth (**Mehrabadi et al. 2020**).

Fontein-Kuipers et al. evaluated the effectiveness of prenatal interventions in reducing maternal distress during pregnancy and up to one year after childbirth. Their meta-analysis results showed that out of ten clinical trials reviewed, six studies used preventive interventions to control maternal distress. The results generally indicated the lack of preventive educational interventions' effect on reducing mothers' anxiety and fear (**Fontein-Kuipers et al. 2019**). The findings demonstrated that having a group discussion can effectively lessen a woman's anxiety about giving birth. In this instance, **Karrabi et al.** also demonstrated that group counseling decreased the concerns pregnant women had about giving birth (**Karrabi et al. 2019**).

The findings indicated a clear improvement in the experimental group primigravida women's anxiety levels and a reduction in anxiety levels overall, demonstrating the effectiveness of a structured teaching program aimed at reducing anxiety in primigravida women. From the researcher's point of view, it reflected the positive effects of the structured teaching program.

In a recent randomized controlled study, **Cankaya and Simsek (2021)** looked into the impact of courses given to primiparous women on fear of birth, childbirth self-efficacy, depression, anxiety, stress, and mode of delivery. According to the findings of this study, a 4-week antenatal education program given to pregnant women increased childbirth self-efficacy while decreasing birth fear, depression, anxiety, and stress both during pregnancy and postpartum. Antenatal education as well urges women to give birth vaginally.

In one other study conducted by **Hassanzadeh et al. (2019)**, between regular and irregular attenders, primiparous women's childbirth knowledge and satisfaction with childbirth preparation classes were compared, with the findings showing that regular attendance at childbirth preparation classes is associated with higher women's knowledge, which can help primiparous women meet their learning needs, decrease maternal deaths, and improve maternal health.

For any woman, especially a primigravida mother, giving birth is one of the most wonderful experiences of her life. Many of them doubt their capacity to handle this significant event in their lives after having fantasies about becoming pregnant and mothers and then being faced with reality. The roles that change and what happens to them are not well-known to many mothers (**Karkada & Chris, 2019**).

Many changes that pregnant women go through both physically and emotionally can cause anxiety (**Rajkumari, 2015**). Anticipation peaks during the third trimester of pregnancy. The current study found a significant difference ($p < 0.001$) in the mean anxiety score between the experimental and control groups, which is consistent with the findings of a study by Arieta-Pinedo and colleagues on the benefits of prenatal education for the childbirth process in Spain. The study also assessed the program's ability to reduce anxiety after childbirth (**Karkada & Chris, 2019**).

The current study's findings are consistent with a study by Jiji George on the effects of relaxation therapy on labor outcomes and comfort in primigravid women, which discovered a significantly lower mean anxiety score in the experimental group compared to the control group (**Rajkumari, 2015**). The current study unequivocally shows that there is no statistically significant difference in the labor duration between primigravid women who participate in a childbirth preparation program and the control group.

experience elevated levels of anxiety and worry regarding childbirth and labor. As anxiety and fear grow stronger, muscle tension rises as well, preventing contractions from being as effective and causing discomfort as well as more anxiety and fear (**Baby & Lakshmi, 2015**).

Topics covered in childbirth education include early parenthood coping mechanisms, supportive labor techniques, and the psychological and physical aspects of pregnancy and childbirth. **Ricchi et al., (2019)** looked at potential predictors of a positive birth experience and discovered that during classes, women who showed greater confidence and knowledge about childbirth also reported less painful deliveries, and those who showed greater fear-related knowledge before classes reported less anxiety during labor and delivery according to **Girija et al. (2019)**. The planned teaching program appears to have assisted the primigravid women, particularly in the experimental group, in adopting labor practices, as evidenced by the experimental group's mean practice scores being higher than those of the control group (**Dickread, 2014**).

The results of this study are corroborated by a study conducted by **Karkada & Chris (2019)** in selected hospitals in south India to assess the effectiveness of childbirth preparation classes in terms of behavioral responses during the first stage of labor and labor outcomes among primigravid women. The study found that more women in the experimental group who had attended childbirth preparation classes showed more positive responses during the first stage of labor than mothers who had not attended childbirth education classes.

Conclusion:

Based on the findings of the present study, it can be concluded that structured teaching programs regarding childbirth preparation had a positive effect on anxiety and maternal outcomes among primigravida women. Preparing for childbirth can effectively lower anxiety in primigravid women. • Preparing children for birth lowers the number of surgical deliveries. For primigravid women, preparing for childbirth significantly alters their degree of compliance.

Recommendations:

Based on the findings of this study, the following recommendations are made:

- Continuous childbirth teaching programs for pregnant women in different antenatal care settings are highly recommended.
- Educational materials such as booklets and pamphlets should be developed for pregnant women according to their beliefs, attitudes, and cultures about childbirth preparation.
- Replication of related specific studies using large probability samples at different sittings is recommended

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