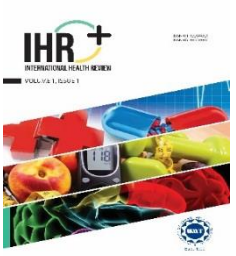

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Breathing Exercise as Prenatal Education during Primigravida and its Effect on Labor Pain

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Abstract

The aim of the current research was to investigate breathing exercise as prenatal education during primigravida and its effect on labor pain. Self-reporting Visual Analogue Scale, Present Behavioral Intensity, and Three Types of Breathing Exercises were used to assess variables under study. Data was collected from (n=140) primigravida. Experimental research design was used in the current study. The results revealed a significant difference between the two groups. The Slow Deep Breathing group (2.820.60) experienced far less pain than the other two groups. Moreover, ANOVA findings showed significant results and indicated that the expecting mothers in the study group (2.82) had a significantly lower mean pain score (P=0.035) than those in the control group (3.20). Furthermore, the results of evaluating pain on a visual analogue scale every 30 minutes suggested that the mothers in the study group suffering from chronic pain (6.72) had a considerably lower mean score (P=0.001) than those in the control group (9.36). During the course of labor, each group's pain level grew but the study group experienced less pain than the control group, which experienced pain at a near-maximal level.

Keywords: breathing exercise, labor pain, prenatal education, primigravida

Introduction

Many primigravidae have expressed their concern about the labor process and its outcomes are considerable, as well as varying levels of pain throughout labor [1]. Pregnant women may suffer some of the most intense labor pains. Abnormal labor can occur if labor pain and anxiety are not addressed. When labor pain is not well managed, it can have serious repercussions for women, such as extended labor [2], which increases fetal

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distress, head constraint, intrauterine fetal mortality, low Apgar scores and physiological damage to newborns [2, 3]. Induced and prolonged labor increases the chance of a caesarean section.

Breathing Exercise

Breathing exercise is one of the strategies adopted to manage labor pain. Breathing techniques assist the mother in concentrating on her breathing rather than her contractions during labor, allowing her to actively participate in the birth and develop inner knowledge of her physique. Breathing also aids in the management of uterine contractions and the reduction of anxiety [4]. Breathing techniques have been shown to have reduced the levels of state anxiety, continuous anxiety, and subjective pain in prior research [5]. It has been discovered that using breathing methods during labour and delivery can assist mothers divert their attention from the pangs of birth, and reduce their anxiety [6]. Furthermore, recent research suggests that these strategies are beneficial in reducing labour time [7].

Prenatal Education in Primigravida

In affluent countries, governmental health authorities, hospitals, midwives, and commercial and community organizations all offer formal prenatal education programs. Public health nurses and midwives are examples of healthcare workers who provide many face-to-face prenatal education programs in small groups. The expectant parents can get prenatal education online through web-based programs like The Gift of Motherhood e-learning, in addition to face-to-face seminars. Prenatal care, physical and emotional changes associated with pregnancy, delivery, nursing, postpartum changes, and pareidolia are all prenatal education themes which are covered in both face-to-face and online settings [8].

Labor Pain

Labor pain is a multi-factorial, complicated, personal, subjective experience impacted by psychological, biological, socio-cultural, and economic aspects. It is viewed as one of the most traumatic experiences in human history, and differs greatly from woman to woman and even from pregnancy to pregnancy. First-time mothers are more likely than previous mothers to have a higher level of the pangs [9]. The link of particular physiologic mechanism in the presence of pain and suffering is a distinctive element of birthing. The sensation of pain during labor, on the contrary, is not merely

a reflection of the physiologic processes of parturition. Labor pain, is caused by a complex and subjective interaction of various physiologic and psychological factors on a woman's individual interpretation of labor cues. A woman-centered approach to labor pain relief that includes a variety of pharmacologic and non-pharmacologic interventions, is based on a multi-dimensional understanding of labor pain [10].

Hypothesis

- There is likely to be a difference of Pain Score between two groups over time with breathing exercise for study group.
- There is likely to be a difference between type of breathing and level of pain for study group.

Rationale

Rationale the study's goal was to look at breathing exercises as a kind of prenatal education in primigravida and their impact on labor pain. Many studies have been undertaken at the international level prior to this study but none was conducted in the target area of Punjab, Pakistan. This factor justifies relevance of this study. Another goal of this research was to reduce birth difficulties such as persistent tears caused by the mother's oblivious behavior, fetal distress caused by hypoxia, and the unnecessary medical treatment, invasive procedures, and hospital stays. From an educational standpoint, the study will aid in the creation of a safe birth environment, It will also serve as guidelines for prenatal education, highlighting the need for using breathing techniques to manage labor of primigravida women between 28 and 32 weeks of pregnancy. Assessing the effectiveness of prenatal education of the breathing method among PG women from a large perspective may ultimately lead to a reduction in overall fetal and mother morbidity and mortality rates, resulting in healthy and cost-effective pregnancy outcomes across the country.

Method

Research Design

Experimental research design was undertaken for the present study with case and control group to assess the breathing exercises as prenatal education in primigravida and its effect on labor pain.

Study Setting

This study was conducted at Lady Willingdon Hospital (LWH) Lahore, Punjab, Pakistan which is the largest tertiary level, government referral hospital with special services for gynecology and obstetrics.

Study Population

All the first-time pregnant women who visited the Out-patient Department of the hospital.

Sample Size

A sample of 140 primigravida females was taken from the target population based on inclusion and exclusion criteria. The sample was divided into two groups i.e., cases and control comprising seventy subjects in each group.

Sampling Strategy

Systematic random sampling technique was used in this study.

Inclusion Criteria

All primigravida >18 to 30 years age group women were selected at 28-32 weeks of gestational age for training during ante-natal period. The PG had a single fetus with cephalic presentation along with healthy and uncomplicated pregnancy. They had Hb % > 10mg/dl.

Exclusion Criteria

Multigravida women and those PGs who had pregnancy less than 28 weeks & more than 32 weeks were excluded from the study. Anyone with co-morbidity & pregnancy complications or mal-fetal presentation, and the immune compromised PG were also not selected for the study.

Assessment Measures

Present Behavioral Intensity (PBI; Bonnel & Boureau, 1985)

Behavioral intensity was created in the beginning [11]. This five-category behavioral observation scale is assessor-rated. The inter-rater reliability of this inventory is 100 percent. This inventory's coefficient of reliability was (=.73).

Self-Reported Visual Analogue Scale (VAS; Taghinejad, Delpisheh & Suhrabi, 2010)

The Self-Reported Visual Analoge Scale was created in the beginning [12]. To be marked on the line map by primigravidae, this scale had six different coloured portions anchored by two extremes of 'no pain' and agonizing pain. Interval test-retest reliability is high on this measure.

Three Types of Breathing Exercises [13]

[13] provided instructions for three kinds of breathing exercises to undertake during the first stage of labor. They include slow deep,, light accelerated and varied (transition) breathing.

Data Analysis

SPSS-23 Version was used in this study. One way ANOVA analysis and Paired Sample T-Test was used in the present study as a statistical analysis.

Results

Type of Breathing and Level of Pain

For multiple-group analysis, analysing differences, a one-way analysis of variance (ANOVA) with Fisher's protected least significant difference test was performedbetween groups of different types of breathing protocol. The table below shows the results (1).

Table 1. For Study Groups, Link between the Kind of Breathing and the Level of Pain

Type of Breathing	Pain Level			P
	Mean ±SD	Min	Max	
Slow Deep Breathing	2.82±0.60	2	4	
Light Accelerated Breathing	5.80±0.64 a*	5	7	0.001
Variable (Transition) Breathing	6.72±0.57 a, b*	6	8	
L.S. D				0.911

*Significant differences between groups are denoted by the letters a and b

The ANOVA test yielded a p-value of 0:001. As a result, there is strong evidence that the three styles of breathing have different discomfort levels. Figure 2 shows that the Slow Deep Breathing type (2.820.60) had much less pain than the other two types (1).

Table 2. Pain Score Differences in Two Groups Over Time with Breathing Exercise for Study Group

Group	Slow Deep Breathing	Light Accelerated Breathing				Transition Breathing	Source	F	P
	Pre	Post 1 Hours	Post 2Hours	Post 3Hours	Post 4Hours	Post 5Hours			
	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	G	1143.911	0.001*
Study	2.93±0.60	4.08±0.79	5.17±0.80	6.18±0.84	6.84±0.56	7.20±0.40	GTT	29.162	0.001*
Control	3.59±1.31	5.01±1.65	6.46±1.47	7.57±1.31	8.57±1.05	9.59±0.49		1262.451	0.001*

*ANOVA, f-test, df=1,5 significant at P0.05.

Pain levels differed considerably across (pre-experiment and post-experiment subsequent measures, (P=0.001) with a group-time interaction effect (P=0.001). The findings revealed that pain levels grew in both groups, but that the study group had lower pain levels than the control group, which had higher pain levels reached near the maximum level of pain score (Table 2).

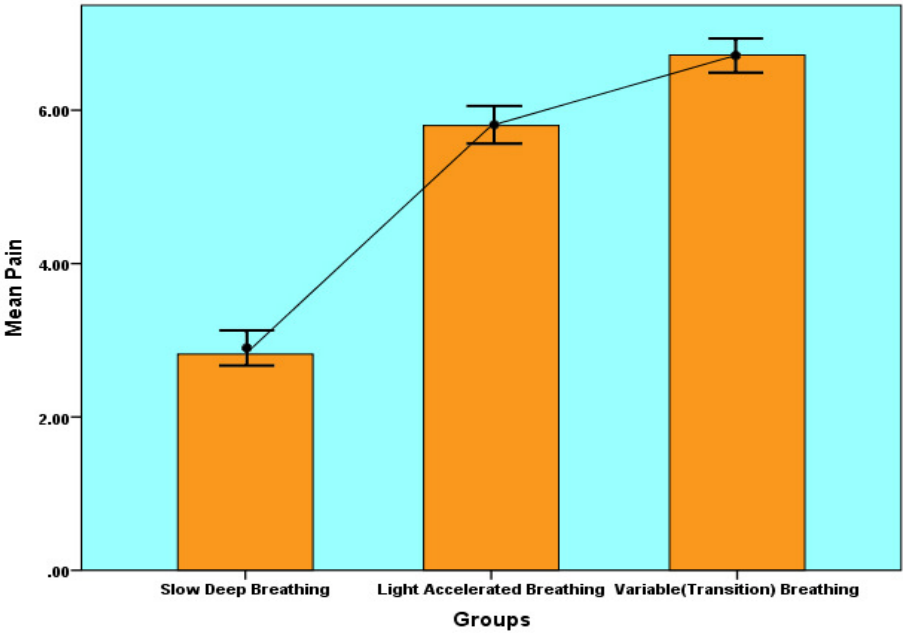

Figure 1. The Three Types of Breathing have Different Mean Pain Levels

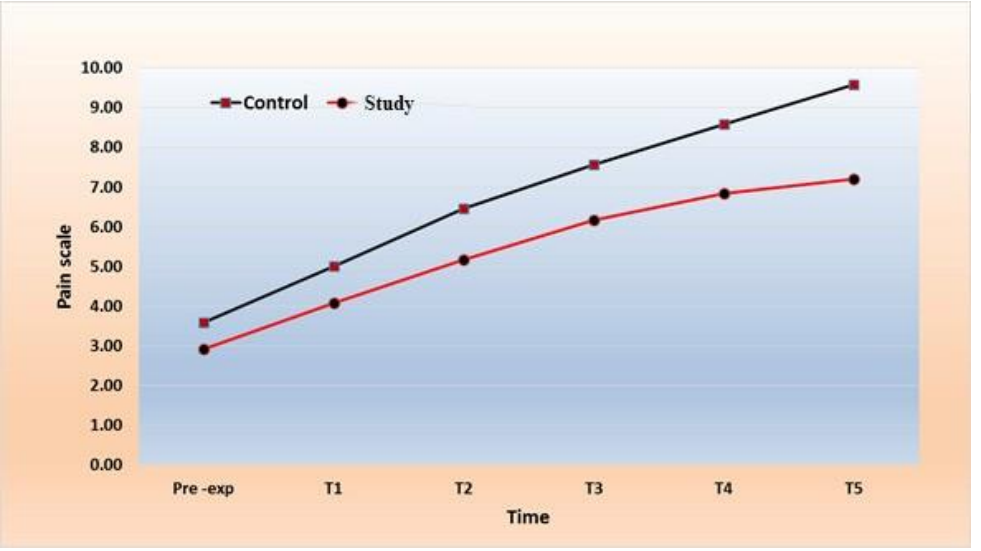

Figure 2. Changes of Pain Over Time

As seen in Figure 2, the study group's pain rating climbed slowly over time, showing that they were less distressed throughout the research sessions than the control group.

Discussion

Table 1 depicted the relationship between the three methods of breathing and the intensity of discomfort experienced by the study group. The average pain level differs for the three modes of breathing, according to studies. The slow deep breathing type (2.820.60) had much less pain than the other two types. The pain scores in this study revealed a significant difference between the control and study groups (P=0.001), as well as across time (pre- and post-experiment subsequent measures, P=0.001). According to [13] pregnant women in the study group reported an average pain level of 8 during the first stage of labor, compared to those in the control group who reported an average pain level of 9 (p = 0.001).

Furthermore, the findings revealed that while both groups' pain levels enhanced, the study group's pain level was lower than the control groups, which achieved its maximum degree of discomfort. In a study by [14]. the study group's pretest mean score was 2.55 and the control group’s 2.75,

while the study group's post-test mean score was 6.30 and the control group's 8.70, showing that the study group has less pain than the control group. It supports the findings of the current study.

With the help of a nurse midwife, simple breathing techniques, especially in the early stages of labor, can be quite effective at reducing pain during contractions [15]. The proper breathing method, according to [16] is when a woman realizes the need to speed up her breathing during the height of each contraction by transitioning from languid panting to acceleration and deceleration breathing. As a result, the mother breathes quickly and shallowly in her thoracic cavity, which speeds up and slows down in reaction to the length and strength of each contraction. When the contractions get stronger and reach their peak, the pregnant woman speeds up her breathing. She slows down the breathing after the contractions go weaker. The [16] study agrees with this research in that it is beneficial for women to have someone evaluate the adequacy of the breathing techniques. To avoid hyperventilation, it's vital to keep the breathing short and shallow.

Recommendations

The research could be conducted on a larger scale in different settings like private and public hospitals in Pakistan. A similar study could be carried out on multi-gravida women to know the effectiveness of breathing exercises. A comparative study could be conducted with other non-pharmacological measures of pain relief i.e., massage, warm water bath with breathing exercises.

Hospital/nursing administration should initiate policies and education plans for the pregnant women during the early phases of their pregnancy and facilitate their r safe labor process in an empathetic and positive nursing atmosphere.

Conclusion

There is considerable evidence to prove that the mean amount of discomfort differed due to the three forms of breathing exercises. The slow deep breathing technique significantly lowered the amount of discomfort as compared to the other two techniques. Each group's pain level grew during labor; however, the study group's pain level was lower than that of the control group, which reached its maximum level of discomfort. During the

transition phase, pain was assessed every 30 minutes using the Visual Analogue Scale. It was determined that mothers in the study group had a considerably lower mean score due to breathing exercises than those in the control group.

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