Effect of Educational Program on Knowledge about Normal Labor among Primigravidas' Pregnant Women

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Abstract:

Background: Labor education is an essential component of prenatal care. Preparing for labor helps women especially cope with their pregnancies and improves pregnancy outcomes. **Aim:** To evaluate the effect of educational program on knowledge about normal labor among primigravidas pregnant women **Methods: Design:** This study used a quasi-experimental research. **Setting:** Study was conducted at the antenatal out-patient clinics, Sohag University Hospital. **Sample:** A simple random sample about included 100 of all available pregnant women (prime) attended antenatal out-patient clinics. **Tools:** Structured interview questions tool was used for data collection that included three parts personal characteristics, obstetric data and pregnant women's knowledge about normal labor. **Results:** About 94.0% and 54.0% of the studied women in the study and control groups had satisfactory knowledge score about labor respectively, with highly statistical significant differences at p-value <0.01. **Conclusion:** labor education interventions significantly improve pregnant women's understanding of the labor process. **Recommendations:** Give mothers educational classes on importance and advantages of normal labor.

Keywords: Educational Intervention, Knowledge, Normal Labor, Pregnant Women & Primigravidas .

Introduction:

Childbirth, which is a crucial stage in women's lives made women to feel anxious. Pregnant women may also experience significant anxiety due to the potential biological, psychological, and social changes that may accompany childbirth. Anxiety is fundamentally accompanied by worry. It is a psychological threat that arises from anticipating unfavorable future events, which is more common in expectant mothers. (Shirvani & Tayebi, 2021).

Compared to women who have given birth before, primigravid women are more likely to experience unfavorable pregnancy outcomes and to be afraid of giving birth. It is noteworthy that fear of childbirth is prevalent in both early and late pregnancy, indicating that timely support during pregnancy is essential for maintaining the psychosocial well-being of expectant mothers and assisting with birth preparations. Maternal physiological processes and hope are improved when active psychosocial and cultural support is given in the form of information about childbirth (**Munkhondya et al., 2020**).

According to World Health Organization (WHO) guidelines, all expectant mothers ought to receive psychological assistance in order to enhance their ability to give birth. Additionally, giving primigravid women tangible physical, emotional, and informational support prior to giving birth increased their satisfaction with labor and delivery. Additionally, satisfaction during labor was primarily linked to the presence of birth preparation classes, which boost women's positive emotions and, as a result, produce positive pregnancy outcomes in terms of woman and child experiences (Korn et al., 2021). Pregnant women should understand the importance of labor education in preparing them for typical labor. Pregnant women go through a variety of physical and psychological changes that need to be understood in order to preserve both the health of the fetus and the mother. Pregnant women who lack sufficient knowledge run the risk of feeling anxious and uncertain, which could interfere with the pregnancy and delivery process. Thus, labor education plays a critical role in supplying the knowledge required to guarantee that expectant mothers are prepared for a safe and comfortable delivery (Hayatii et al., 2022)

The likelihood of difficulties during labor can also be decreased with the knowledge acquired through labor education. Pregnant women who are knowledgeable are more likely to spot early warning indicators of problems and seek medical attention before it's too late. Furthermore, being aware of standard labor techniques, such as appropriate breathing and body alignment, can help lessen stress and pain during labor and improve the likelihood of a successful delivery without the need for needless medical intervention (**Huang et al., 2024**).

Participation in labor classes has the potential to increase women's knowledge about normal labor while also reducing anxiety and fear about the labor 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 nonpharmacological pain relief techniques in labor (**Rashed et al, 2023**).

Significance of the study:

Most pregnant women experience normal childbirth naturally, but lack of knowledge about it can cause anxiety and uncertainty that can have a negative impact on both the health of the expectant mother and the outcome of labor. Pregnant women's knowledge of normal labor is still not fully understood, despite the fact that reproductive health education has been widely acknowledged as an effective way to increase pregnant women's knowledge and preparedness (**Araujo et al., 2024**).

Over the years; global caesarian section (CS) rates have significantly increased from around 7% in 1990 to 21% today surpassing the ideal acceptable CS rate which is around 10%–15% according to the WHO. However, currently, not all CS are done for medical reasons with rapidly increasing rate of nonmedically indicated CS and the so-called "caesarian on maternal request." These trends are projected to continue increasing over this current decade where both unmet needs and overuse are expected to coexist with the projected global rate of 29% by 2030. (**Angolileet al.**, **2023**)

Examining these effects is important to ensure that the educational interventions provided actually provide significant benefits and are not just a formality. So, this study aims to evaluate the effect of educational intervention on knowledge about normal labor among primigravidas' pregnant women. The rate of cesarean sections has increased dramatically worldwide over the past three decades. World over the past decades. World Health Organization (WHO) has reported the optimum C/S rate as Worldwide, 21.1% of women give birth by CS (Betran et al., 2022). Central Agency for Publication Mobilization and Statistics, Egypt (CAPMAS) found that C-section increased to 72 percent of all deliveries in 2021, up from 52% in 2014. The agency also found that Csection in rural areas increased to 84% of all delivers in 2021, up from 70.6% in 2014 (AL Rifai, 2022)

Aim of the study:

This study aimed to evaluate the effect of educational program on knowledge about normal labor among primigravidas' pregnant women.

Research Hypothesis:

Women, who will receive educational program, will have a better knowledge regarding normal labor, than others who don't receive.

Subjects & Methods:

The subject and methods of the current study were discussed under four designs (technical, operational, administrative, and statistical design).

Technical design:

Research design:

Quasi experimental research design was applied for this study. where the study groups took the educational program and the control took only the routine care.

Setting:

This study was conducted at the antenatal out-patient clinics, Sohag University Hospital. It served both rural and urban regions in Sohag Governorate, it included two rooms; one for interviewing the pregnant women and taking their medical and obstetric history and the second room for physical and obstetric examination as (abdominal examination). There is a hall for waiting of pregnant women outside the room. And to complete the service of examination. There is another room for performing ultrasonography for pregnant women In this clinic the women have been examined:

- Vital signs (pulse –blood pressure- temperature-respiration)
- Examine height and weight of women
- Make ultrasonography for pregnant women, auscultate and count fetal heart rate

Subjects:

Sample: A simple random sample was used that included 100 of all available pregnant women (prime) attended antenatal out-patient clinics, at Sohag University Hospital. It was divided into two equal group intervention (who received educational program) and control (who received routine hospital care). The sample size was calculated based on the following formula.

$$n = \frac{[DEFF * Np(1 - p)]}{[(d2/Z21 - \alpha/2 * (N - 1) + p * (1 - p)]}$$

DEFF (Design effect) = 1

N (population) = 600

- p (Hypothesized %) = 10% + -5
- d (tolerated margin of error) = 0.05
- Z (level of confidence) = 1.96
- α (Alpha)= 0.05

n= 100 primigravida women

Inclusion Criteria:

• Primigravidas who willing and able to participate in this study.

- 32-34 weeks of gestation without complications or previous abortion but had no labor before.
- Age 20-35 years old.
- Attended and booked ANC at Sohag university hospital.
- History of previous abortion, but had no labor before.

Exclusion Criteria:

- Women with medical or psychological problems with pregnancy.
- women who have been taken educational classes or information about normal labour.

Tools of data collection:

Structured interview questions tool was used for data collection that included three parts

Part (1): Demographic data. As: age, telephone number, Living area, educational level, occupation, and years of marriage.

Part (2): Obstetric data as: previous abortion, weeks of gestation, regular follow up during current pregnancy and received any counseling regarding labor preparation.

Part (3): Pregnant women's knowledge about normal labor: It was developed by researcher based on related literature review as which includes 18 question as: do you know definition of normal labor? - Do you know factors affecting normal labor?- Do you know characters of true labor pain?

(Shen et al., 2019) & (Solomon et al, 2021). It included 24 questions classified as :general knowledge (5 items), knowledge about labor pain (5 items) (knowledge about episiotomy (4 items) knowledge about care during labor (4 items). After completing the interview questionnaire and having their knowledge verified by a model key response.

Knowledge scoring system:

The pregnant women's knowledge was scored. As a result, the right response received a grade of (1), while the wrong and unknown questions received a grade of (0). This is how the total knowledge score was determined, even though knowledge was deemed unsatisfactory if the percent score was below 70% and satisfactory if the percent score was 70% or higher (**Bashir et al., 2023**)

Operational design:

It includes the preparatory phase, content validity of the developed tool, pilot study and field work.

Tools Validity:

Three experts from the Department of Obstetrics and Gynecological Nursing at the Faculty of Nursing at Assiut University evaluated the study's instruments to ensure that they met the intended criteria for face and content validity. The tools were altered in accordance with the panel's recommendations regarding sentence structure, content appropriateness, and item order.

Tools Reliability:

Reliability for tools was applied by the researcher for testing the internal consistency of the tools. Reliability was assessed using Cranach's alpha test. It was 0.837

Procedure:

Preparatory phase:

The researcher used textbooks, articles, prominent magazines, and other local and international literature to review pertinent literature for the current study. The tools were then developed based on this literature and validated by obstetrics and gynecology experts.

The development of the educational program was guided by the identified needs and a pertinent literature review. The program was created in printed Arabic and covered a variety of subjects to advance the knowledge and abilities of students enrolled in childbirth preparation classes. Which include:

1-Definition and physiology of normal labor

2-premonitory signs of labor

3-true and false labor pain

4-what to bring to the hospital

5-overview of stages and phases of labor

6- Nature of labor pain

7-Medication used in labor

8-Non medical coping with labor pain

9- Complications of cesarean section

10-Benefits of normal labor

The investigator also created a power point presentation covering the subjects.

Various teaching strategies, media, and evaluation techniques were chosen to meet the needs of the expectant mothers and accomplish the program's goals. The goal was to give expectant mothers as much experience as possible. Utilizing the available resources, pertinent content, and instructional strategies for each session, the teaching sessions were successful. A variety of teaching techniques, including lectures, group discussions, were employed. The researcher prepared a handout that was distributed to all pregnant women in the first class of the educational program, along with instructional media.

Pilot study:

Following questionnaire preparation, a pre-test was conducted on 10% (10) of pregnant women, in order to assess the validity and reliability of the research instruments. Since the study instruments did not undergo any significant changes, the subjects from the pilot study were also included in the main study.

Field work:

The process of gathering data took place over the course of three months, from February 2023 to April 2023.

Procedure:

Involved three phases (pre intervention, intervention, and evaluation):

Pre intervention phase

Oral consent was obtained from each pregnant woman.

The investigator was accessible in each study setting four days a week, from 9:00 a.m. to 1:00 p.m. It took six to seven cases a day for four weeks to get a group of one hundred women. The study sample was split into two equal groups (the intervention group and the control group). the first two days in the week was for intervention group and the second two days was for control group each group involved 50 pregnant women according to inclusion and exclusion criteria.

The researchers collect personal data and medical obstetrical history in the first meeting with pregnant women. It took from five and ten minutes for every woman.

For Intervention group:

In a classroom next to the clinic, the researcher conducted individual interviews with all of the pregnant women in the intervention group who attended outpatient clinics for follow-up. Pregnant women were informed about the nature and goal of the study, and their voluntary consent to participate was obtained.

Subsequently, the researcher convenes with the women in the intervention group in the hospital's seminar room between 10 and 11 am. And provided them with the first session program, which covered topics such as the definition and physiology of labor, premonitory labor signs, genuine and fake labor pain, and an outline of the stages and phases of labor. The session from 10 to 11 a.m. took one hour.

The nature of labor pain, medications used during labor, non-medical ways to cope with labor pain, and variations in delivery (episiotomy and C-section, complications from cesarean sections, care introduced during labor) were all covered in the second section from 11 a.m. to 12 p.m., it took one hour.

A brochure with methods for managing labor painboth natural and pharmaceutical-was given to them by the researcher. Optimal positions to take during labor; episiotomy types; causes of cesarean delivery and its complications; and advantages of breastfeeding for both mother and child.

Supporting materials used by the researcher included power point, pelvic models, and episiotomy models. After two weeks in the same location, the researcher told the women about the second class and answered all of their questions.

After the second class, the researcher scheduled a follow-up meeting with the intervention group two weeks later to collect the first part of the questionnaire answers.

For Control group:

The control group only received prenatal care at the clinic. Data were collected from women who agreed to participate in the study after being informed of its purpose. The investigator collected the women's health information as well as their obstetric history. Then completed the knowledge survey.

Evaluation phase:

After two weeks, the researcher assessed the knowledge of the intervention and control groups of pregnant women using a questionnaire on normal labor.

Administrative design:

The director of Sohag University Hospital and the head of the department of obstetrics and gynecology provided formal approval for the study to be conducted. To maintain their cooperation in carrying out the study, a letter was sent to them by the director of the chosen study setting at Assuit University's nursing faculty.

Ethical considerations:

The proposed study was approved for conduct by the Assuit University Faculty of Nursing's ethical committee. Women who are pregnant voluntarily choose to participate in the study as pregnant women. Every expectant mother was advised of the nature of the process and the anticipated results. Ethical considerations include describing the nature of the study, its potential benefits, and its purpose. Expectant mothers are entitled to withdraw from the study at any point without facing consequences, and they will also receive the results once the research is over.

Statistical analysis:

The Statistical Package for Social Sciences (SPSS) version 26 was used to arrange, classify, code, tabulate, and analyze the data that had been gathered. In order to determine whether two qualitative variables were related, the data was presented in tables and figures using numbers, percentages, means, standard deviations, and the chi-square test of significance. For statistical significance, a P-value of less than 0.05 was used.

Results:

Table (1): Distribute the pregnant women's according to their demographic characteristics in the study and control groups (n=100):

Personal characteristics	Stud	y group (50)	Contr	p-value	
	Ν	%	Ν	%	-
Age groups/ years					
≤ 22	15	30.0	17	34.0	0.668
23 or more	35	70.0	33	66.0	
Age/ years(Mean±SD)	23.9±2.01		23.7	/2±2.16	
Living area:					
Rural	25	50.0	19	38.0	0.227
Urban	25	50.0	31	62.0	
Level of education:					
Illiterate	7	14.0	8	16.0	
Basic education	9	18.0	9	18.0	0.844
High school	24	48.0	20	40.0	
University education	10	20.0	13	26.0	
Occupation:					
Housewife	37	74.0	36	72.0	0.822
Employee	13	26.0	14	28.0	
Years of marriage:					
≤ 1 year	37	74.0	35	70.0	0.656
More than one year	13	26.0	15	30.0	

Table (2): Distribute the pregnant women's according to their obstetrical data in the study and control groups (n=100):

Obstetrical data	Study (5	group 0)	Contro (:	p-value	
	Ν	%	Ν	%	-
Previous abortion:					
Yes	10	20.0	17	34.0	0.115
No	40	80.0	33	66.0	
Current weeks of gestation:	30.78±0.82		30.94 ± 0.83		0.143
Regular follow up to antenatal clinic:					
Yes	46	92.0	44	88.0	
No	4	8.0	6	12.0	0.505
Having any counseling regarding					
normal labor preparation					
Yes	2	4.0	3	6.0	0.646
No	48	96.0	47	94.0	

Table (3): Mean ±SD knowledge scores about labor in the study and control groups before and after intervention (n=100):

	Women's kn inter	owledge before vention		Women's ki inter		
Items	Study group (50) Control grou (50)		p- value	Study group (50)	Control group (50)	p- value
	Mean ±SD	Mean ±SD		Mean ±SD	Mean ±SD	
General knowledge about normal labor	10.31±2.17	10.02±2.73	0.114	14.20±1.12	11.02±3.73	0.001**
knowledge about labor pain	12.12±2.61	10.12±2.33	0.429	13.80±1.51	11.11±3.41	0.001**
knowledge about episiotomy	8.22±2.53	8.01±2.07	0.164	10.22±1.43	7.53±3.07	0.001**
Knowledge about care during labor	10.01±1.98	10.34±1.63	0.176	11.42±1.21	9.94±2.33	0.001**
Total knowledge score	45.32±6.64	43.21±7.23	0.553	60.36±6.55	49.19±13.76	0.001**

Chi-square test

(**) highly statistical significant difference



Figure (1): Total knowledge score about labor in the study and control groups before and after intervention (n=100)

Chi-square test

(**) highly statistical significant difference

Table (4):	Correlations	between	the	studied	women's	s total	knowledge	about	normal	labor	before
	intervention	and pers	onal	l charac	teristics (n=100):				

Personal		Total knowledge about normal labor before intervention				
characteristics		Study group	Control group			
Age/ years	Pearson Correlation	0.043	0.267**			
· ·	Sig. (2-tailed)	0.767	0.007			
Living area	Pearson Correlation	0.123	0.020			
	Sig. (2-tailed)	0.393	0.846			
Level of education	Pearson Correlation	0.547**	0.200*			
	Sig. (2-tailed)	0.000	0.046			
Occupation	Pearson Correlation	0.347*	0.082			
	Sig. (2-tailed)	0.014	0.417			
Years of marriage	Pearson Correlation	0.013	-0.048-			
_	Sig. (2-tailed)	0.926	0.637			

Chi-square test (*) statistical significant difference (**) highly statistical significant difference

 Table (5): Correlations between the studied women's total knowledge about normal labor before intervention and obstetrical data (n=100):

Obstetrical data		Total knowledge about normal labor before intervention				
		Study group	Control group			
Previous abortion	Pearson Correlation	0.066	0.188			
	Sig. (2-tailed)	0.647	0.062			
Current weeks of	Pearson Correlation	-0.100-	-0.123-			
gestation	Sig. (2-tailed)	0.491	0.222			
Regular follow up to	Pearson Correlation	0.847***	100			
antenatal clinic	Sig. (2-tailed)	0.000	0.064			
Having any counseling	Pearson Correlation	-0.178-	.530			
regarding normal labor	Sig. (2-tailed)	0.217	0.188			
preparation						

Table (1): Illustrates that 70% and 66% of the studied women in the study and control groups had age group \geq 23 years with a mean and SD of 23.9±2.01 and 23.72±2.16 respectively. Regarding living area, 50.0% and 62.0% of them in the study and control

groups were lived in urban areas. Concerning level of education 48.0% and 40.0% of them had high school level in the study and control groups respectively. Pointed to occupation, 74.0% and 72.0% of the studied women in the study and control group were housewives, with no statistical significant difference between the study and control groups at p-value > 0.05.

Table (2): Shows that 20% and 34% of the studied women in the study and control groups had previous abortion respectively. Regarding follow up to antenatal clinic, 92.0% and 88.0% of them in the study and control groups had regular follow up. Concerning taking any counseling regarding normal labor preparation, only 4.0% and 6.0% of them received counseling in the study and control groups respectively, with no statistical significant difference between the study and control groups at p-value > 0.05.

Table (3): Reports that there were no statistical significant differences at p-value >0.05 between the study and control groups regarding mean \pm SD of the studied women's knowledge about normal labor, labor pain, episiotomy, and care during labor before intervention. While after intervention there were highly statistical significant differences after intervention at p-value <0.01 between the study and control groups regarding mean \pm SD of the studied women's knowledge about normal labor, labor pain, episiotomy, and care during labor before intervention at p-value <0.01 between the study and control groups regarding mean \pm SD of the studied women's knowledge about normal labor, labor pain, episiotomy, and care during labor

Figure (1): Demonstrates that before intervention 46.0% and 43.0% of the studied women in the study and control groups had satisfactory knowledge score about labor respectively, with no statistical significant differences at p-value 0.468. After intervention, about 94.0% and 54.0% of the studied women in the study and control groups had satisfactory knowledge score about labor respectively, with highly statistical significant differences at p-value <0.01.

Table (4): Reports that in the study group, there were positive correlations between total knowledge about normal labor and the studied women's level of education and occupation, and there were no correlations between total knowledge about normal labor and the studied women's, living area, and years of marriage. In control group, there were positive correlations between total knowledge about normal labor and the studied women's age and level of education, and there were no correlations between total knowledge about normal labor and the studied women's age and level of education, and there were no correlations between total knowledge about normal labor and the studied women's of marriage area, occupation and years of marriage

Table (5): Reports that in the study group, there was positive correlation between total knowledge about normal labor and regular follow up to antenatal clinic, and there were no correlations between total knowledge about normal labor and previous abortion, current weeks of gestation and having any counseling regarding normal labor preparation. In control group, there were no correlations between total knowledge about normal labor and previous abortion, current weeks of gestation and having any counseling regarding normal labor preparation. In control group, there were no correlations between total knowledge about normal labor and previous abortion, current

weeks of gestation, regular follow up to antenatal clinic and having any counseling regarding normal labor preparation.

Discussion:

Giving birth represents a major transition in a woman's life. The memories and experiences of labor and birth remain with a woman throughout her life, meaning that the support and care she receives during this time is critical .before the 36th week of pregnancy, expectant mothers must be fully informed about the labor and delivery process, with a focus on using birth plans, preparing for childbirth, recognizing the start of labor, and using pain management techniques (Said et al., 2022). Therefore, the current study aimed to evaluate the effect of educational intervention on women's knowledge about normal labor.

Concerning total knowledge score about labor in the study and control groups before intervention the present study demonstrated that more than two fifth of the studied women in the study and control groups had satisfactory knowledge score about labor, while more than half of them in the study and control groups had unsatisfactory knowledge score about labor, with no statistical significant differences. This may be due to family transmitted knowledge and support beside, technological advancements and availability of many courses online and presence of private obstetricians.

This outcome was inconsistent with the findings of **Ahmed (2016)**, who examined the "Effect of Counseling Intervention on Women's Knowledge, Practices and Lifestyle of Fetal Well-being among Primigravida" and found that the majority of the women did not know enough prior to the intervention's implementation. Additionally, the results corroborated those of **Joshi et al.'s (2018)** study, "Maternal attitude and knowledge towards modes of delivery," which showed that over two-fifths of the mothers who took part in the research had good general knowledge about the advantages and complications of each mode of delivery.

According to Mean \pm SD of the studied women's knowledge about labor in the study and control groups before intervention the current study reported that there were no statistical significant differences at p-value >0.05 between the study and control groups regarding mean \pm SD of the studied women's knowledge about normal labor, labor pain, episiotomy, and care during labor. This may be due to mothers' low levels of education beside, lack experience and absence of any counseling regarding normal labor.

The study "Pregnant Women's Knowledge and Use of Evidence-Based Practices during Labor and Childbirth after Participating in a Health Education Intervention: senses of birth" by Fernandes (2019) produced a similar result, showing that the mean score of perceived knowledge for all three knowledge domains after the intervention was higher than the mean score prior to experiencing the senses of birth. This outcome was further corroborated by Taheri et al. (2014), who conducted a study titled "Effect of educational intervention on self-efficacy for choosing delivery method among pregnant women" and found a significant difference between the two groups' preintervention mean scores for expectations, fear of childbirth, and childbirth self-efficacy. This similarity due to lack of pregnant women's knowledge about normal labor and its stages.

Concerning total knowledge score about labor in the study and control groups after intervention the current study demonstrated that the vast majority of the women in study group had satisfactory knowledge score about labor and more than half of the studied women in the control group had satisfactory knowledge score about labor, while less than one tenth of the studied women in study group had unsatisfactory knowledge score about labor and more than two fifth of women in the control group had unsatisfactory knowledge score about labor, with highly statistical significant differences at p-value <0.01. This may be because he antenatal programs are available on line and is broadcasted on television, beside, transformation of experience with family members, friends and health care personnel that may increases mothers knowledge.

This outcome was comparable to that of **Rashed et al.** (2023), who study "Effectiveness of Childbirth Education on Primigravida Women's' Knowledge about Childbirth Preparation", and reported that women's knowledge levels had significantly increased following intervention. This outcome also aligned with the findings of **Madhavanprabhakaran et al.** (2017), who examined the "Effectiveness of childbirth education on nulliparous women's knowledge of childbirth preparation, pregnancy anxiety, and pregnancy outcomes" and found that such a program enhanced the knowledge of labor and delivery preparation among nulliparous women.

As regard to Mean \pm SD of the studied women's knowledge about labor in the study and control groups after intervention the present study reported that there were highly statistical significant differences between the study and control groups regarding Mean \pm SD of the studied women's knowledge about normal labor, labor pain, episiotomy, and care during labor. This may be due to

the effectiveness and easy presentation of the implemented program and mothers' readiness to learn. This outcome was consistent with that of Said et al. (2022), who performed their study to assess factors associated with childbirth self-efficacy in Australian childbearing women and demonstrated that labor education programs improved expectant mothers' understanding of labor. This outcome also aligned with the findings of Khresheh et al. (2018), who examined "Implementation of a childbirth preparation program in the maternal and child health centers in Jordan" and demonstrated how the program improved women's awareness and comprehension of the various facets of pregnancy, childbirth, and the postpartum period. This similarity results from the absence of pre-pregnancy programs and women's health education in Arab communities.

As regard to correlations between the studied women's total knowledge about normal labor after intervention and obstetrical data in the study and control groups the present study showed that in the study group, there was positive correlation between total knowledge about normal labor and regular follow up to antenatal clinic, and there were no correlations between total knowledge about normal labor and previous abortion, current weeks of gestation and having any counseling regarding normal labor preparation. In control group, there were no correlations between total knowledge about normal labor and previous abortion, current weeks of gestation, regular follow up to antenatal clinic and having any counseling regarding normal labor preparation. This may be attributed to mothers with normal labor passed all normal labor stages and their experiences increased and became aware of all labor and pregnancy complications therefore, they follow up pregnancy regularly.

This result was consistent with the findings of Schwartz et al. (2015), who investigated "Factors associated with childbirth self-efficacy in Australian childbearing women" and discovered no connection between mothers' knowledge women's parity and having a history of abortion. This outcome was comparable to that of Madhavanprabhakaran et al. (2017), who found no statistically significant correlation between mothers' overall knowledge of typical labor and their history of abortion. This is due to the fact that the stages of an abortion differ from those of regular labor.

Regarding correlations between the studied women's total knowledge about normal labor after intervention and personal data in the study and control group the current study reported that in the study group, there were positive correlations between total knowledge about normal labor and the studied women's level of education and occupation, and there were no

correlations between total knowledge about normal labor and the studied women's, living area, and years of marriage. In control group, there were positive correlations between total knowledge about normal labor and the studied women's age and level of education, and there were no correlations between total knowledge about normal labor and the studied women's living area, occupation and years of marriage. This may be because with high level of education the mother readiness and acceptance of information increases. Besides, the maternal and child health centers are presents in rural and urban health care units therefore, the living area not affect the mothers' knowledge.

The study "Knowledge, attitude, and practice on antenatal care among pregnant women and its association with socio demographic factors" by Bashir et al. (2023) provided support for this finding by demonstrating a significant relationship between mothers' awareness of labor and antenatal care and their age and educational attainment. Furthermore, this result was consistent with the findings of Benvian & Ali (2021), who examined the of "Effectiveness Educational program on Primigravida Women's Childbirth Self-Efficacy at Al-Elwea Maternity Hospital in Baghdad City" and disparities discovered notable between the educational attainment and general knowledge of the women. This outcome was inconsistent with the research done by Gebremariam et al. in 2023, which entitled "Level of Knowledge, Attitude, and Practice of Pregnant Women on Antenatal Care in Amatere Health Center, Massawa, Eritrea" and revealed that mothers' occupation had showed statistically significant association to their comprehensive knowledge. This similarity due to a level of education of women increase they are able to search and understand the importance of health information in addition increase level of education increase women self-confidence and trusting their abilities.

As regard to distribution of the studied women according to obstetrical data in the study and control groups the present study showed that one fifth of the studied women in the study group and more than one third of them in control groups had previous abortion. Regarding follow up to antenatal clinic, the great majority of studied women in the study group and the majority in control group had regular follow up. Concerning taking any counseling regarding normal labor preparation, less than one tenth of the studied women in study and control groups received counseling, with no statistical significant difference between the study and control groups at p-value > 0.05. This may be due to women awareness regarding follow up at the antenatal period and to constantly check on the condition of the fetus.

This outcome was consistent with that of **AlSomali et al.** (2023), who studied "The Effect of Structured Antenatal Education on Childbirth Self-Efficacy," and found that most of the mothers in their study had routine prenatal visits. Additionally, this result was consistent with the findings of **Hatamleh et al.** (2019), who examined "The effects of a childbirth preparation course on birth outcomes among nulliparous Jordanian women" and found that there was a range of 2 to 20 antenatal visits. This similarity can be attributed to the expansion of maternity and child health centers in both urban and rural areas, as well as the increase of community health programs and media education regarding the value of prenatal care.

Furthermore, this result was consistent with a study by **Heim & Makuch (2022)** titled "Pregnant women's knowledge of non-pharmacological techniques for pain relief during childbirth," which discovered that the majority of participant mothers answered correctly when it came to natural ways to lessen labor pain, such as using a birthing ball, breathing exercises, and a warm shower.

Limitations of the study:

- Some women want to leave the session of the program before its completion.
- Some women didn't attend the sessions of programed after enrolled her in intervention group and the researcher excluded those women from the study

Conclusion:

Demonstrate that labor education interventions greatly enhance expectant mothers' comprehension of the labor process, encompassing information on episiotomy, normal labor, pain, and labor care. Therefore, this study offers verifiable proof that labor education plays a significant part in giving expectant mothers the best possible preparation for giving birth.

Recommendations

- Give labor education classes in prenatal care in a more organized and targeted way. Additionally, health care professionals need to be trained in giving pregnant patients accurate information and emotional support.
- Carry out a more thorough investigation into the cultural, social, and economic elements that affect labor education's efficacy.
- Use communication technology to help pregnant women receive labor information more successfully.
- Carry out research on the long-term assessment of labor education's effects on delivery outcomes.

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