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Effect of Lamaze Childbirth Preparation for Pregnant Woman on Normal Labor Rate and Pregnancy Outcomes

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Abstract
Background: An efficient noninvasive, nonpharmacologic, and supportive method for lowering labor pain and enhancing a laboring woman's behavioral reactions is Lamaze childbirth preparation **Aim:** Determine the effect of Lamaze childbirth preparation for pregnant woman on normal labor rate and pregnancy outcomes **Design**: A randomized control trail. **Setting:** The study was carried out in the Women's Health Hospital's labor unit and antenatal clinic at Assiut University. **Sample:** A simple random sample of 150 pregnant women recruited based on eligibility criteria randomly divided equally into two groups of pregnant women. **Tools of data collection:** Two tools were used to conduct this research: **Tool I:** A structured interview questionnaire, **Tool II:** Assessment checklist of pregnancy outcomes **Results:** Findings of the present study revealed statistically significant differences between the control and study groups in relation to mode of delivery (with p-value 0.038) and rate of normal labor , there is one third (33.3%) of control group were delivered cesarean section and less than one fifth (14.7%) of study group In addition, the study group had positive pregnancy outcomes compared to the control group. **Conclusion:** Applying Lamaze childbirth preparation had a positive effect on increasing normal labor rate, applying Lamaze childbirth technique show more chance for positive pregnancy outcomes than the control group. **Recommendation:** Apply of antenatal educational program for all pregnant mothers to increase knowledge, attitude and practice about Lamaze technique.

Keywords: Effect, Lamaze childbirth preparation, Normal labor rate & Pregnancy outcomes.

Introduction
An efficient noninvasive, nonpharmacologic, and supportive method for lowering labor pain and enhancing a laboring woman's behavioral reactions is Lamaze childbirth preparation and it is referred to be a psycho-prophylactic technique that gets a pregnant women ready to face labor head-on. Lamaze preparation helps women have a stress-free and safe delivery by empowering them to handle the difficulties of labor and delivery in any situation. **(Inam et al.,2021).**

Breathing techniques are usually supposed to be actual, familiar, and likely to be applied in the future. These approaches can be educated during antenatal and intrapartum , rhythmic breathing increases the amount of oxygen available to the mother and the foetus together **(Heim & Makuch, 2023).**

A breathing technique called Lamaze breathing, its idea based on controlled breathing that helps decrease discomfort and promote relaxation in women. For a safe and healthy birth, Lamaze is a complete curriculum that promotes self-assurance and keeps things easy. Strategies of Labor comfort that are recommended to increase the effectiveness of breathing techniques include walking, massage, changing postures, and slowly swaying.**(Kaple & Patil, 2023).**

In fact, the Lamaze childbirth preparation combined with maternity nursing care improved the natural delivery rate, reduced postpartum hemorrhage, shortened labor endurance, and relieved pain, all of which had a significant impact on the delivery process and results. **(Wu et al., 2021)**

Significance of the study:
Women in labor are closely monitored and cared for by nurses. Throughout labor, nurses give drugs. In addition to keeping a close eye on women's and fetuses' vital signs, pain levels, and labor progress, nurses are also in charge of identifying and notifying obstetrician to any abnormalities **(Al Aryani et al., 2022)**

The effectiveness of nursing care combined with Lamaze childbirth preparation on maternal and fatal outcomes improvement has been studied in a number of clinical studies **(Gao et al., 2023),** is essential to raise awareness and encouraging of maternity nurses and midwives who work in delivery services about Lamaze breathing techniques to teach pregnant women these skills. (**Macaranga et al., 2022**)

The caesarean sections rate is rising in both the developed and developing countries. A large percentage of women (68%) are seeking cesarean sections due to psychological symptoms. On other hand, the incidence of caesarean section had reduced with adequate psychological support and relaxation techniques and 38% of them approved for normal vaginal delivery **(Chomechai et al., 2021)**

According to data from **the Central Agency for Public Mobilization and Statistics, Egypt (CAPMAS),** the percentage of deliveries that were C-sections raise from 52 percent in 2014 to 72 percent in 2021. Additionally, according to the agency, the percentage of deliveries in rural regions that were C-sections raise from 70.6% in 2014 to 84% in 2021**. (Al Rifai, R., 2022).**

Aims of the Study

The aim of this study is to:

- Evaluate the effect of Lamaze childbirth preparation for pregnant women on normal labor rate and pregnancy outcomes through the following objective:
- Implement Pregnant women's education program regarding Lamaze preparation.

Research hypotheses:

The research hypotheses for this study were as follows:

H1:- The study group who received Lamaze childbirth preparation had more chance of normal labor rate than the control group.

H01:- The study group who received Lamaze childbirth preparation had no more chance of normal labor rate than the control group.

H2:- The study group who received Lamaze childbirth preparation had more chance for positive pregnancy outcomes than the control group.

H02:- The study group who received Lamaze childbirth preparation had no more chance for positive pregnancy outcomes than the control group.

Participants and Methods

Design:

A randomized control trail (R.C.T).

Settings:

The study was carried out in the Women's Health Hospital's reception and emergency unit and antenatal clinic at Assiut University. This hospital was selected for the study because it had a high number of deliveries annually.

Antenatal clinic:

During preparation sessions (this clinic presented in first floor and contained two rooms (one for taking history and another for examination)

Reception and emergency unit:

During assessment phase and labor process at Women's Health Hospital.

Reception unit:

Contained a big room for examination, one room for CTG (contained three beds), pre-partum room (contained eight beds), two delivery rooms and one post-partum room.

Emergency unit:

Contained a room for examination and ultrasound assessment, one room for CTG (four beds), four pre-partum rooms (two for induction and augmentation, one for abortion and one for preoperative) four beds for everyone, one post-partum room (contained eight beds), two delivery rooms and three operative rooms.

Sample Size:

A simple random sample of 150 pregnant women selected according to eligibility criteria, randomly divided equally into two groups (study and control group), had of 75 pregnant women in each group. The sample was calculated according to the following equation:

$$n = \frac{[DEFF*N\ p(1-p)]}{[(d^2/Z^2_{1-\alpha/2}*(N-1) + p*(1-p)]}$$

DEFF (Design effect) = 1
N (population) = 5891
p (Hypothesized %) = 11%+/-5
d (tolerated margin of error) = 0.05
Z (level of confidence) = 1.96
α (Alpha)= 0.05
n = [1*5891*7%+/-5 (1-11%+/-5)/ [(0.05)^2/ (1.96)^{2}1-0.05*(5891-1) + 11%+/-5 (1-11%+/-5)]

n= 150 women

Randomization procedure:

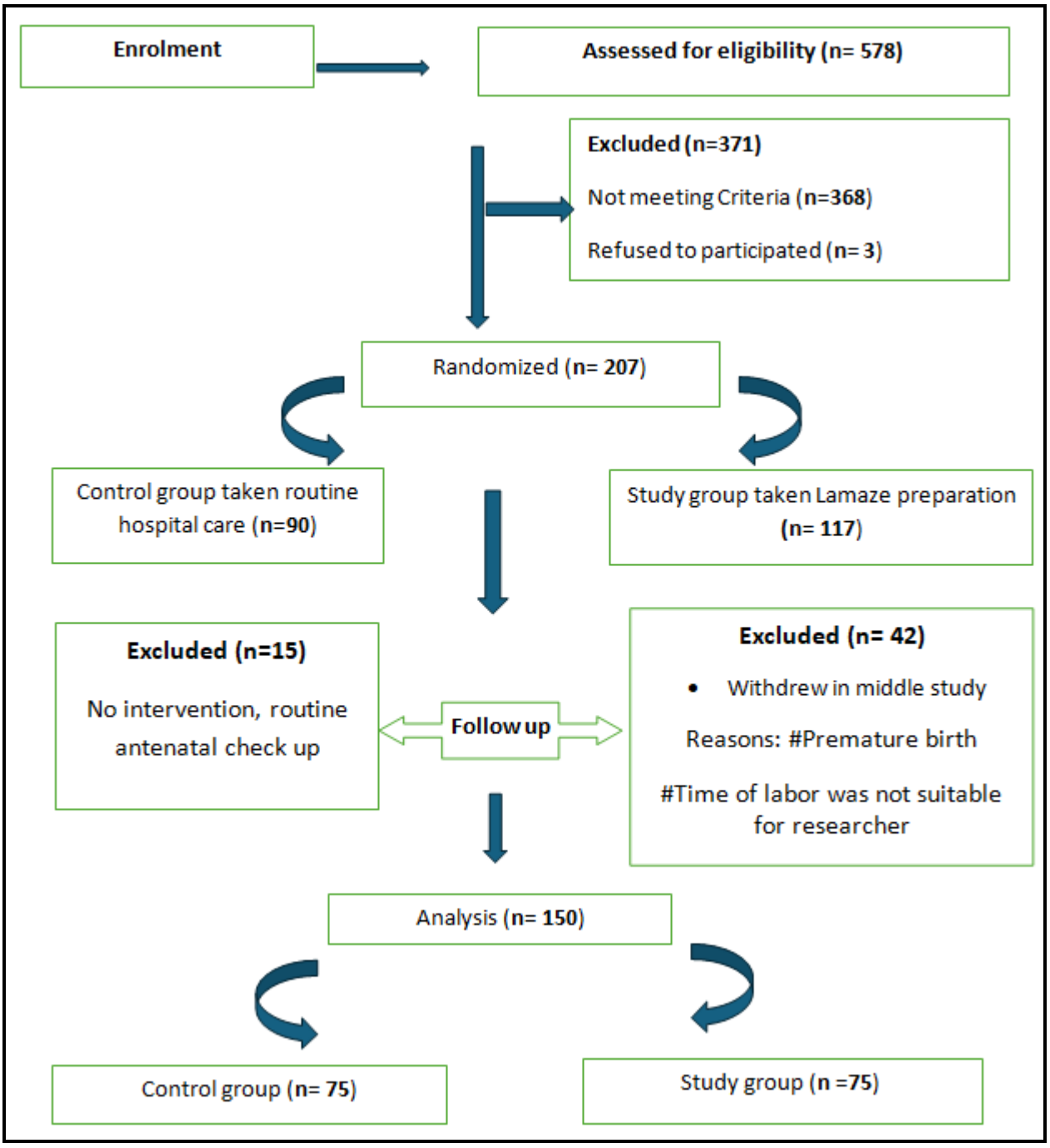
A simple randomization procedure that involved flipping a coin with two groups (control and study) was used to allocate the participating women in a 1:1 ratio to either group. The assignment of each participant was determined by the side of the coin (heads for control, tails for study).

Inclusion criteria:

- In the third trimester, women's pregnancies proceeded normally.
- Prime & Multigravida, cephalic-presenting singleton fetus.
- No history of gynecological or medical problems.
- Willing to take part in the research and easily to contact and access with them during labor.

Exclusion criteria:

- Women with preterm labor.
- Previous C.S



Flow chart of the study women randomized to study and control group

Data collection tools:

Two tools were employed to gather study data:

Tool (I): Structured interview questionnaire:

The researcher created it to gather demographic and personal information from women, reproductive history, current pregnancy history, physical examination, and labor history.

Tool (II): Assessment checklist of pregnancy outcomes: to gather information from women after the related literature reviewing, **(Issac. et al., 2023 & Ramadan, et al., 2022)**. Which include two parts:

part (I): Assessment checklist of maternal outcome which included: mode of delivery (C.S or normal vaginal delivery), vital signs, complication of labor as maternal distress, intra or postpartum hemorrhage, etc.

part (II): Assessment checklist of fetal outcomes which included Apgar score at one and five minutes, Weight of newborn.

Field work:

The following phases: preparatory, assessment, implementation and evaluation phases were adopted and carried out from the beginning of April, 2023 and completed by the end of March, 2024 covering one year. During the implementation phase, the researcher spent three days a week (Sunday, Tuesday, and Thursday) from 8:00 am to 1:00 pm in the previously mentioned setting (antenatal clinic), and during evaluation phase (reception and emergency unit) according to the time of labor and suitable time for the researcher.

Study and control group women followed by phone to avoid their drop out from the study.

Preparatory Phase:

Administrative design:

An official permission to conduct this study was obtained from the dean and ethical committee of the Faculty of Nursing, Assiut University and an official permission also was obtained from the manager of Woman's Health Hospital, Assiut University to proceed with the study & collect data

Validity of the tools

Content validity of the tools and modification are done according to the revision and suggestions given by five expertise from maternity nursing faculty staff.

Reliability

was assessed by measuring its internal consistency using Alpha Cronbach's test for the tools:

For personal and obstetric data

Cronbach's Alpha	N of Items
.639	19

For outcomes

Cronbach's Alpha	N of Items
.741	17

A pilot study:

was conducted on 15 women (10%) of the study sample, to evaluate the study tool's impartiality, validity, clarity, and feasibility. The pilot study's sample was part of the overall sample**.**

Assessment phase:

To evaluate basic data using tool I, the researcher conducted ten-minute individual interviews with each woman in the control and study groups. Women received a thorough description of the design and goal of the trial

Implementation phase:

Antenatal Lamaze child birth preparation was done two times for every woman in the study group in their third trimester during antenatal visits. It included two main parts: Theoretical and practical.

Theoretical part included Teaching of Lamaze childbirth preparation which cover non pharmacological pains relieve as **Cutaneous Stimulation** which includes massage, sacral pressure, thermal stimulation and positioning. **Distraction** which includes breathing technique, focusing on the particular object as imagery and music. **Reduction of anxiety** through providing information to the woman regarding the labor process and presence of support person. The teaching provided individually or in groups as allowed of the researcher's schedules and flow of the women.

The information of Lamaze childbirth preparation was introduced to women through power points presentation, videos, pamphlets, and using pictures. Teaching provided in one session and the second session for assuring of information that provided in previous session, answering women's questions and assured from easily accessibility during labor. This session was conducted in antenatal clinic or its waiting area.

Each session took about 40-60 minutes.

Practical part during labor includes implementation of Lamaze childbirth preparation techniques used for present study were Lamaze breathing technique, changing woman positioning and frequently explanation the progress of labor process.

Evaluation phase

The women were instructed during labor to use one or more of the Lamaze methods and the women were assessed during 1st, 2nd and 3th stage of labor to assess maternal and fetal outcomes.

Ethical considerations:

following the Faculty of Nursing's ethics committee's approval of the research proposal. Common ethical guidelines for clinical research were adhered to in this investigation. Therefore, pregnant women are not at risk when the research is being applied. Oral consent was obtained from them after explaining the nature and purpose of the study. Confidentiality and anonymity were assured, pregnant women have the right to privacy, refuse to participate or withdraw from the study.

Statistical design:

Version 28 of the Statistical Package for Social Science (SPSS) was used for data entry and statistical analysis. Descriptive statistics were used to display the data as means, standard deviations, frequencies, and percentages. To evaluate the internal consistency of the generated tools, the Cronbach alpha reliability test was computed. The t-test was used to compare means, while the chi square and Pearson tests were performed to demonstrate relationships between variables.

Probability (p-value) is the degree of significance and if it less than 0.05 was considered

Results:

Table (1): Distribution of the pregnant women (study and control group) related to demographic characteristics (n=150)

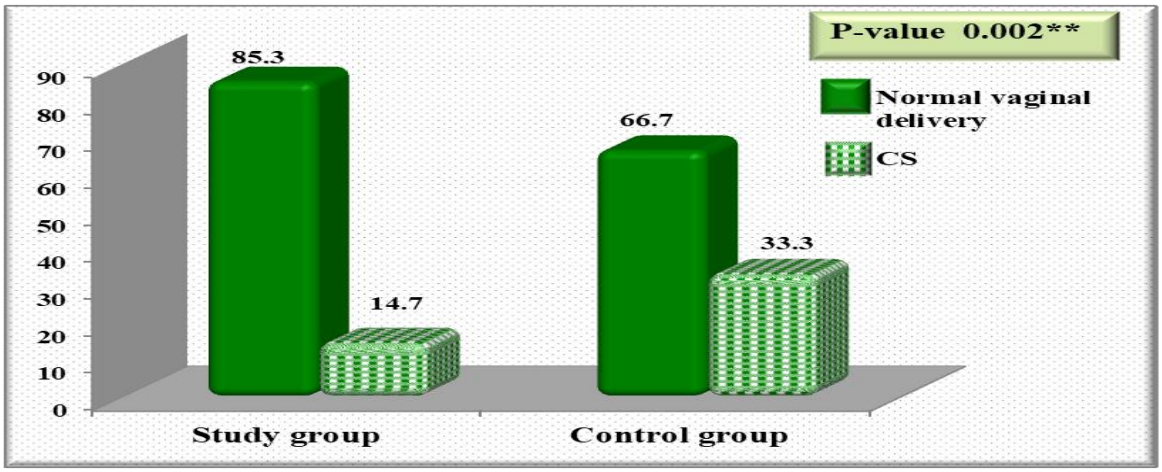
Personal characteristics	Study group		Control group		P- value
	N	%	N	%	
Age\ years:					
Less than 18years	11	14.7	10	13.3	0.132
18-35 years	59	78.6	52	69.4	
More than 35 years	5	6.7	13	17.3	
Age(mean±SD)	**24.15±4.967**		**25.84±6.191**		
Residence:					
Rural	60	80.0	56	74.7	0.435
Urban	15	20.0	19	25.3	
Educational level:					
Illiterate	17	22.7	13	17.4	0.875
Read and write	6	8.0	7	9.3	
Basic education	13	17.3	15	20.0	
Secondary	25	33.3	26	34.7	
University	14	18.7	13	17.3	
Postgraduate & above	0	0.0	1	1.3	
Occupation:					
House wife	48	64	54	72	0.294
Employed	27	36	21	28	

Table (2): Distribution of the pregnant women (study and control group) related to Physical assessment (n=150)

Items	Study group		Control group		P- value
	N	%	N	%	
General examination:					
Weight	76.55± 9.918		78.17±11.967		0.108
Height	160.27±4.035		159.43±4.694		0.195
Abdominal examination					
Gestational weeks					0.071
37 weeks	3	4.0	9	12.0	
37 or more	72	96.0	66	88.0	
Mean±SD	**38.11±1.146**		**38.03±1.252**		
Pelvic examination					
Engagement:					0.502
Yes	48	64.0	44	58.7	
No	27	36.0	31	41.3	

Table (3):Distribution of the pregnant women (study and control group) related to reproductive history (n=150)

Reproductive history	Study group		Control group		P- value
	N	%	N	%	
Gravity:					0.484
Primigravida	26	34.7	22	29.3	
Multigravida	49	65.3	53	70.7	
Parity:					0.065
Non	26	34.7	24	32.0	
Primipara	20	26.7	10	13.3	
Multipara	29	38.6	41	54.7	
Stillbirth					0.649
Yes	2	2.7	3	4.0	
No	73	97.3	72	96.0	
No of living children:					0.179
Non	29	38.7	25	33.3	
1-2	31	41.3	25	33.3	
> 2	15	20.0	25	33.3	



(*) Statistically significant difference

Figure (1): Distribution of the pregnant women (study and control group) related to maternal outcomes (labor) (n=150)

Table (4): Distribution of the pregnant women (study and control group) related to maternal condition (vital signs during1st&2nd stages of labor) (n=150)

Item	Study group		Control group		P- value
	N	%	N	%	
Blood pressure					
Normal	65	86.7	51	68.0	**0.014***
High	4	5.3	5	6.7	
Low	6	8.0	19	25.3	
Respiration					**0.001****
Normal	60	80.0	41	54.7	
Abnormal	15	20.0	34	45.3	
Temperature:					
Hypothermia	7	9.3	14	18.7	**0.041***
Normal	64	85.3	51	68.0	
Hyperthermia	4	5.3	10	13.3	
Pulse					
Normal	72	96.0	64	85.3	**0.025***
Abnormal	3	4.0	11	4.0	

(**) Highly statistically significant difference *(*) Statistically significant difference*

Table (5): Distribution of the pregnant women (study and control group) related to maternal outcomes (postpartum) (n=150)

Item	Study group		Control group		P- value
	N	%	N	%	
Postpartum complications:					
Yes	4	5.3	22	29.3	**0.001****
No	71	94.7	53	70.7	
Type of complications if yes:					
Retained placenta	3	75.0	18	81.8	0.750
ICU	1	25.0	4	18.2	
Perineal tears:					
Yes	21	28.0	25	33.3	0.479
No	54	72.0	50	66.7	
If yes:					
1st degree	14	66.7	6	24.0	**0.028***
2nd degree	5	23.8	15	60.0	
3rd degree	2	9.5	3	12.0	
4th degree	0	0.0	1	4.0	

Item	Study group		Control group		P- value
	N	%	N	%	
Postpartum bleeding:					
Yes	10	13.3	30	40.0	**0.001****
No	65	86.7	45	60.0	
If yes:					
Atonic	6	60.0	19	63.3	0.850
Traumatic	4	40.0	11	36.7	

(**) Highly statistical significant difference (*) Statistical significant difference

Table (6): Distribution of the pregnant women (study and control group) related to neonatal condition (n=150)

Item	Study group		Control group		P- value
	N	%	N	%	
APGAR score at first minute					
Less than 7	32	42.7	46	61.3	**0.022***
7 or more	43	57.3	29	38.7	
(mean±SD)	6.280±1.448		5.827±1.6796		
APGAR score after five minutes					
Less than 7	6	8.0	15	20.0	**0.034***
7 or more	69	92.0	60	80.0	
(mean±SD)	8.83±1.408		8.47±1.862		
Weight of newborn					
2.5-3 kg	0	0.0	3	4.0	0.208
3-3.5 kg	71	94.7	65	86.7	
3.5- <4	2	2.7	5	6.7	
4 or more	2	2.7	2	2.7	
(mean±SD)	3.204±.268		3.083±.3885		

(**) Highly statistical significant difference (*) Statistical significant difference

Table (7): Distribution of the pregnant women (study and control group) related to Multiple regression analysis of the most relevant factors affecting mode of delivery (n=150)

Items	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
Age	**.255**	**.286**	**.113**	**.891**	**.376**
Residence	**-.380**	**.351**	**-.148**	**-1.082**	**.283**
Educational level	**.117**	**.100**	**.162**	**1.163**	**.249**
Occupation	**.092**	**.302**	**.043**	**.304**	**.762**
Gravidity	**-.334**	**.560**	**-.154**	**-.596**	**.553**
Parity	**-.212**	**.334**	**-.176**	**-.635**	**.528**
Abortion	**.283**	**.304**	**.122**	**.930**	**.356**

Table(1): Shows the personal data of studied women reflects that nearly four fifths (78.6%) and more than two thirds (69.4%) of study and control group were from 18-35 years ago with a mean age of study group**24.15±4.967** years and a mean age of control group **25.84±6.191** years respectively, regarding residence, four fifths of women (80%, 74.7%) were from rural area, respectively, regarding educational level, more than one third (33.3%, 34.7%) of them had secondary level, respectively. Regarding occupation, it reflects that nearly two thirds (64%) and nearly three quarters (72%) of study and control groups respectively were housewives**.**

Table (2): Illustrates that there is no significant difference between the studied women in the study and control group. Regarding physical assessment, gestational weeks; the mean ± SD was **38.11±1.146** and **38.03±1.252** weeks in the study and control group. with p-value 0.2

Table (3): Demonstrates that there is no significant difference between the studied women in the study and control group as regarding reproductive history.

Figure (1): Shows that there is significance difference between the studied women in the study and control group, regarding mode of delivery with p-value (0.038) and there is one third (33.3%) of control group were delivered cesarean section compared to

less than one fifth (14.7%) of study group (with p-value 0.002)

Table (4): Shows that there is significance difference between the studied women in the study and control group, regarding maternal condition: with p-value **0.014**. In addition, the temperature between both groups were **0.001**, the temperature **0.041** and pulse rate **0.025**. Generally, there was a statistically significant difference between both groups regarding maternal vital signs ($p < 0.05$).

Table (5): Shows that there is highly significance difference between the studied women in the study and control group, regarding maternal outcomes (postpartum complication and bleeding) with p-value of **0.001**.

Table (6): Shows that the mean of Apgar score at 1st minute between both groups were **6.280±1.448** and **5.827±1.6796** respectively. In addition, the mean of Apgar score at 5th minute between both groups were **8.83±1.408** and **8.47±1.862** respectively. Generally, there was a statistically significant difference between both groups regarding Apgar score at 1st and 5th minute ($p < 0.05$). Regarding the mean of newborn weight between two group it was **3.204±.268** and **3.083±.3885** respectively.

Table (7): Illustrates that there is no significant difference between the studied women in the study and control group. Regarding Multiple regression analysis of the most relevant factors affecting mode of delivery (age, residence, educational level, occupation, gravity, parity and abortion) while educational level shows highly positive effect (**Beta =.162**) and residence shows highly negative effect (**Beta= - 0148**)

Discussion

An acceptable labor process could be achieved by reducing the anxiety during labor, this not only fosters a strong bond between the mother and her baby but also giving positive pregnancy outcomes **(Baljon, et al., (2022)**. Lamaze childbirth preparation is one of the useful strategies that may be applied to improve the course of labor. It's a 'tool' that helps women relax and keep control during uterine contractions **Ramdan, et al., (2022)** so, this study aimed to evaluate the effect of Lamaze childbirth preparation for pregnant women on normal labor rate and pregnancy outcomes.

The current study findings showed statistically significant differences between the control and study groups concerning to mode of delivery (p-value 0.038) and rate of normal labor, there is one third of control group and less than one fifth of study group were delivered cesarean section. This result is supported by **Wu.et al., (2021),** who studied the combined effects of Lamaze breathing training and nursing intervention on the delivery in primipara: A PRISMA systematic review meta-analysis. They clarified that according to certain studies, pregnant women who had Lamaze breathing training were able to give birth with greater assurance and less anxiety, and they preferred spontaneous labor, which may help to decrease high C.S rate in China. And parallel with **karkada, et al., (2024),** who studied impact of Lamaze breathing on childbirth- comparison between primigravid and multigravida women, who clarified that Lamaze childbirth preparation decrease labor duration and enhance labor progress this encourage normal labor rate.

The present study results disagree with **Kaple & Patil, (2023),** who studied Effectiveness of Jacobson relaxation and Lamaze breathing techniques in the management of pain and tress during labor, in India, they reported that Lamaze preparation with nursing combination led to increase the normal vaginal deliveries rate without any interferences. And the same with **Sipahi, (2020),** who studied Effects of childbirth preparation education on the preference of mode of delivery in pregnant nulliparous women, he clarified that regarding the vaginal birth and cesarean section rate there was no significant difference between group which have receive Lamaze childbirth preparation and control group.

The current study findings displays that statistically significant differences between the control and study groups regarding to assisted birth need. This finding is similar to **Karkada. et al., (2023),** who studied effectiveness of antepartum breathing exercises on the outcome of labor: A randomized controlled trial, they revealed that near half of women had a spontaneous vaginal birth and only one third required the augmentation of labor with oxytocin in the intervention group, so Lamaze breathing exercises revealed various effects like reduction in the rate of caesarean birth and assisted vaginal birth.

Regarding maternal outcome, there was a statistically significant difference between two groups concerning maternal vital signs; respiration, temperature and pulse, ($p < 0.05$).

This result corresponds with **Ramdan, et al., (2022),** who studied Effect of third trimester Lamaze preparation on labor pain intensity and pregnancy outcome in Egypt they mentioned that the distribution of the women under study based on maternal outcomes. In contrast to one tenth of the control group, less than one tenth of the study group had maternal distress. Furthermore, more than nine tenth and nine tenth of the study and control groups, respectively, had normal vital signs. Also, this study's result supports by **Leutenegger, et al., (2022),** who studied the effectiveness of skilled breathing and relaxation techniques during antenatal education on maternal and neonatal outcomes: a systematic review.

This study shows that there is highly significance difference among the study and control group, concerning maternal outcomes (postpartum complication and bleeding) with p-value of 0.00, this result supports by **Hafez, et al., (2023),** who studied Effect of health instructions on pregnant women's knowledge regarding puerperal sepsis, Egypt.

The current finding discovered a statistically significant differences among the study and control groups regarding fetal outcome with p-value < 0.05; in a form of Apgar score at 1st and 5th minute and birth weight.

This result supported by **Ramdan, et al., (2022),** they mentioned that mean Apgar score after1minute was (7.64 ± 1.44) compared to (5.78 ± 1.58) among study and control group respectively. Mean Apgar score was (9.24 ± 0.87), compared to (8.60 ± 1.12). among both groups after 5 minutes

These results correspond with **Mohammed, et al., (2024),** who studied Effect of Lamaze technique on labor pain and women's satisfaction during first stage of labor in Egypt, mentioned that neonatal condition among studied women at first and fifths minutes (Apgar score), the result of current study revealed that the mean of Apgar score at 1st minute between study and control group were 8.65±0.93 and 8.21±1.16 respectively. In addition, the mean of Apgar score at 5th minute between study and control group were 9.54±0.73 and 9.15±0.94 respectively and there was a statistically significant difference between both groups regarding Apgar score at 1st and 5th minute (p < 0.05).

The findings of current study supported by **Desmawati et al., (2020**), who studied The effects of childbirth preparation nursing intervention integrating Islamic praying program on duration of labor and neonatal outcomes in primiparous Muslim women , Indonesia and showed that the mean Apgar score in two groups at first minute were 8.8 ±0.45 and 8.79 ±0.41 respectively and at fifths minutes of neonatal life were 9.8 ±0.45 and 9.76 ±0.43 respectively with a statistically significant difference between the and two groups (p < 0.05).

Furthermore the current study results was reinforced by a study carried out by **Baljon et al., (2022),** who studied Effectiveness of breathing exercises, foot reflexology and massage (BRM) on maternal and newborn outcomes among primigravidae in Saudi Arabia: a randomized controlled trial, in Malaysia who reported the mean Apgar score in both groups (at first minute were 9 and 8 respectively and at fifths minutes were 10 and 9 respectively) with a highly statistically significant differences (p < 0.001).

Concerning demographic characteristics of the studied women, the current study findings discovered that, nearly four fifths and more than two thirds of the study and control group, their age extended from 18 to 35 years respectively.

This result is parallel with **Mohammed, et al., (2024),** who revealed that more than one half and almost two thirds of the study and control groups were in age group 25- < 30 years respectively. This result supported by **Erkaya & Çalik, (2021),** who studied The Outcome of intrapartum Lamaze philosophy in low-risk pregnant women in Turkey they mentioned that more than half of women were between 25-29 years old. This result is agreement with **Ramdan, et al., (2022),** who exposed that the mean age of study group **26.68 ± 3.07** years and a mean age of control group **26.68 ± 3.11** years respectively.

The finding of the present study revealed that, four fifths and nearly three quarters of studied women were from rural area, respectively This outcome is corresponding by **Mohammed, et al., (2024),** who stated that over two-thirds of the study and control groups were from rural areas. This result agrees with **Nagvanshi & Linson, (2021),** who studied Assessment of knowledge on Lamaze breathing among primigravida in India and founded the majority of women lived in rural areas. This result disagrees with **Ramdan, et al., (2022),** who mentioned that the majority of the study group and the control group were from cities.

The finding of the present study as regards educational level discovered that more than one third of studied women had secondary education, respectively. This result is parallel with **Adhikari & Devi (2022),** who studied Effect of Lamaze breathing and psychosomatic relaxation techniques on labor pains and its outcome, they clarified that the more than one third of both groups had intermediate or post high school diploma. This outcome is reinforced by **Mohammed, et al., (2024),** who clarified that approximately less than half of and three fifths of the study and control groups had secondary education. These current study results are maintained by **KM & Nanjappan, (2023),** who studied Effectiveness of structured teaching program on knowledge regarding Lamaze technique among antenatal mothers in selected maternity hospitals. Bangalore, in India, they mentioned that more than half and more than two fifths of both groups have secondary education respectively. This result disagrees with **Ramdan, et al (2022**), who stated that, in contrast to over two-thirds of the control group, half of the study group possessed a university degree.

Regarding occupation, the current study reflects that nearly two thirds of study group and nearly three quarters of control group respectively were housewives. This result is parallel with **Mohammed,**

et al., (2024), who mentioned that more than two thirds of study group and approximately three quarters of control group were housewives. Also, Corresponding with **KM & Nanjappan, (2023),** who mentioned that more than half and more than two fifths of studied groups were housewives respectively.

In the current study there was no statistical difference between the study and control groups regarding demographic characteristics. These results agree with **Ayalew et al., (2021),** who Women's satisfaction and its associated factors with antenatal care services at public health facilities: a cross-sectional study.in Ethiopia, they exposed that the most of pregnant women participated in study were housewives.

The researcher believes a good childbirth preparation makes pregnant woman to have adequate information prior to the labor to ensure comprehension of the changes the labor will bring control over the birth of her fetus. Also, supports the effect of Lamaze birth preparation as non-pharmacological maternity nursing care and as to provide high-quality evidence-based practice to address pain intensity and pregnant outcomes improvement. So Lamaze childbirth preparation should include into maternity nursing care to manage pain, and improve maternal and fetal outcomes.

Conclusion

The present study concluded that Lamaze childbirth preparation had a positive effect on increasing normal labor rate, applying Lamaze childbirth technique show more chance for positive pregnancy outcomes than the control group Therefore, the study hypotheses were supported.

Recommendation:

Apply of antenatal educational program for all pregnant mothers to increase knowledge, attitude and practice about Lamaze technique.

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