

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

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Abstract

Background: Antenatal preparations enable women to cope with pregnancy anxiety and promote a healthy pregnancy, safe labor, and it can be very helpful in reducing anxiety and pain associated with labor and delivery. this study was conducted to evaluate the effect of antenatal preparation sessions on mothers' anxiety and labor pain during labor process,

Methods: Experimental randomized controlled trial study was conducted among low risk Sudanese pregnant mothers in Omdurman Maternity Hospital from February 2017 to January 2019. Mothers were selected by random sample technique, their number was 286 pregnant women (140 in experimental group and 146 in control group). Experimental group members attended in antenatal preparation sessions and the control group only received routine antenatal care. Data were collected by means of demographic checklist, standard Hospital Anxiety and Depression Scale (HADS), intensity of labor pain based on verbal descriptive scale (VDS), a checklist, related to childbirth process, and likert scale for assessing mother's satisfactions. The data were analyzed by SPSS using T-test and chi-square test.

Results: this study showed that there were significant differences between experimental and control groups, in relation to anxiety level, it was (7.67±2.415 vs.11.99±4.089) respectively (P = 0.000), Pain intensity during first stage of labor was (3.17 ± 0.611 vs.3.56 ± 0.855) respectively (p= 0.000), while the pain intensity during second stage of labor was (4.06 ± 0.504 vs.4.49± 0.632) respectively (p= 0.000). Regarding childbirth process there was a significantly lower rate occurrence in the experimental group compared to control in need for induction of labor (2.9%) vs., (19.2) respectively, usage of pain reliever drugs (10.7%) vs. (22.6) respectively and conducting cesarean delivery (10.7%) vs., (19.2) respectively (p. value > 0.05). The mean score of satisfaction level regarding labor and delivery experience was (3.94±2.0560 vs. 3.55 ± 0.622) respectively (p=0.000).

Conclusion: The study concluded that application of antenatal preparation sessions was effective in decreasing anxiety level, pain intensity and some obstetric interventions during labor and delivery process, also the preparation sessions were increased mothers satisfaction level regarding their labor and delivery experience. Study recommended that designing and applying antenatal preparation sessions as an essential component of standard antenatal care.

Key words: antenatal preparation –anxiety- labor pain – obstetric interventions- satisfaction.

INTRODUCTION

Labor is one of the most important phenomena and perhaps one of the most painful and stressful experiences that a mother is exposed to in her lifetime, anxiety is most significant factor of pain rate and mother's adaptation with pain. Decreasing mother's stress and anxiety will increase co-operation and adaptation which results less pain and shortest labor.⁽¹⁾ So that labor period needs a lot of care and support due to its painful nature and its maternal and neonatal complications, preparing mothers for the childbirth process helps in having easier and more natural childbirth, women should receive information about all interventions that are likely to be offered during labor and birth well before the onset of labor, this information can be obtained through antenatal preparation or child birth education.⁽²⁾ Antenatal preparation programs involve several techniques and activities performed by different healthcare professionals. The main aims of antenatal preparation programs are to promote healthy practices, minimize excessive anxiety and prevent or minimize the discomforts of pregnancy and labor. Such programs may include educational activities, physical exercise and psycho prophylactic techniques.⁽³⁾

Birth is a physiological event; however, it is seen as a crisis in terms of psychological anxieties for women⁽⁴⁾ Women's emotional and psychological wellbeing contributes significantly to their perceptions and experiences of pregnancy and birth. Poor emotional health is associated with increased childbirth fear and risks of depression, birth trauma, an inability to interact positively with the baby, and can be a stressor to the couple relationship. In addition, pregnant women with childbirth fear or anxiety more often prefer a caesarean section delivery⁽⁵⁾. Women experience pain in childbirth in varying degrees of intensity, influenced by physiological and psychosocial factors. It's affected by multiple factors, including psychological, physiological, and biochemical factors, and appreciation of labor pain severity differs. Infrequently, some mothers can be tolerated this pain, where as others have described it as the worst experience in life.⁽⁶⁾ Pain management during delivery represents an important challenge for both health care specialists and laboring mothers. This management includes pharmacological and non-pharmacological methods. Pharmacological methods, such as epidural analgesia, have been confirmed to

be effective in reducing pain during labor, but they have many risks, like low blood pressure, motor blocks, hindering leg movement, urinary retention, and fever. Non-pharmacological methods, such as relaxation techniques, are often safe, simple, and inexpensive. Several studies and systematic reviews have recommended the use of non-pharmacological methods for pain management, either as a primary method or as a complement to pharmacological methods.⁽⁷⁾ Satisfaction with childbirth is considered the most important qualitative outcome in assessing childbirth experience, given that women's satisfaction with this experience affects their health and their relationship with their infant, group of researchers identified many dimensions for the delivery experience (pain intensity, complications and length of labour , medical care, nursing care, information received and participation in the decision-making process, and physical aspects of the labour and delivery rooms).⁽⁸⁾

Antenatal preparation for childbirth that can be very helpful in reducing anxiety and pain associated with labor and delivery, it has been offered to pregnant women over a long period of time in most high-income countries. Such preparation may be a component of routine antenatal care within a country's healthcare system or organized by different stakeholders outside the system.⁽⁹⁾

Sudan as a nation faced high maternal and infant mortality rates in 2015, the Maternal Mortality Ratio (MMR) was 311 per 100,000 live births and the infant mortality rate was 50 deaths/1,000 live births. Moreover, for every woman who dies, approximately 20 women suffer from long-lasting injuries, or disabilities such as obstetric fistula, uterine prolapsed, infertility, and depression. The main direct causes of maternal death in Sudan are hemorrhage, infection, pregnancy-induced hypertension, and unsafe abortion, while malaria, anemia, and hepatitis contribute indirectly⁽¹⁰⁾. In Sudan, Formal antennal preparation programs in the public sector are lacking in preparing women for pregnancy, labor, delivery, and the postpartum. In addition, maternal health, education, and research face many challenges, including shortages in resources and facilities. Antenatal preparation regarding childbirth is not applied in Sudanese health care systems, prenatal care is limited to regular examinations, tests, and ultrasound. Therefore, pregnant women fell under the threats of inadequate information, negative attitude toward natural childbirth and fear from childbirth

which leads to requested cesarean section without medical indications.

The World Health Organization (WHO) recommends that the rate of cesarean section should be from 5%-15%, in Sudan cesarean sections is performed on 43.2% of cases⁽¹¹⁾. In Omdurman Maternity Hospital which is considered as the first and largest specialized maternity hospital in Sudan, the annual delivery statistics revealed that 32.638 - 34.000 deliveries per year with average monthly deliveries of 2.719 - 3.000. Detailed statistical data showed that 66 % of deliveries were normal deliveries and 1% was abnormal deliveries (instrumental deliveries), 33% were Cesarean section deliveries.⁽¹²⁾ There is needed to establish a culturally based antenatal preparation sessions for Sudanese women to meet their expectations and needs. This sessions adopted the Lamaze International method, the preparation sessions covered many topics regarding labor process like anatomy & physiology of the female reproductive tract, preparedness for labor, the Premonitory signs and true signs of labor, the process and stages of labor, usual investigations and examinations done in labor room, measures to reduce labor pain, relaxation techniques useful during the first and the second stages of labor, and tips to reduce anxiety and stress⁽¹³⁾. The antenatal preparation sessions applied among low risk pregnant women, those who experience singleton, term, vertex pregnancies and absence of any other medical or surgical conditions.⁽¹⁴⁾ Many studies have shown positive and useful effects of antenatal preparation, in Iran a study conducted by Firouzbakht, M. *et al*, disclosed that Prenatal child birth education and psychological support of mothers during labor can reduce anxiety, pain intensity, and interventions such as episiotomy and cesarean section⁽¹⁵⁾ Other study conducted by Siraj *et.al*, in Jeddah at Saudi Arabia, it was a quantitative, randomized controlled trial, aimed to assess the effectiveness of lower back massage on reducing labor pain for primiparous. This study revealed that a lower back massage is significantly an effective, non-Pharmacological and alternative intervention, to reduce labor pain and increase the level of mothers' satisfaction⁽¹⁶⁾

The present study was conducted with the aims to evaluate the effect of antenatal preparation sessions on mothers' anxiety level, labor pain intensity and rates of obstetric interventions during labor process; also the study was assessing mother's satisfaction regarding their labor and delivery experience.

MATERIAL AND METHODS

This study was prospective experimental randomized controlled trial; it was conducted in the Omdurman Maternity Teaching Hospital, which is first and largest specialized government maternity hospital in Sudan, study conducted from February 2017 to January 2019. Random sample technique was used and the sample size was measured by Slovenes' formula, $(n=N/1+N(e)^2)$ Where: N=1200 is total number of low risk pregnant women attended at outpatient antenatal care clinic per month in 2017. So $1200/1+1200(0.05)^2$ gave 300 women. The sample was divided by a randomization approach (1:1 ratio) in the experimental group n (150) and control group n(150) The inclusion criteria were as follows: low-risk pregnant women attending the antenatal care clinic and who were available during the data collection period, were willing to participate in the study, with singleton normal pregnancy, their age between 19 to 35 years, pregnancy achieved without the aid of medical intervention, were mentally and physically stable prior to pregnancy, their gestation age between 28 to 36 weeks, education level at least complete primary school, and no contraindication for natural delivery, without any complication during pregnancy.

To achieve the study aims data collection using the following tools:

Interview questionnaire, it was designed to collect personal data for recruiting women before the implementation of sessions. It consisted of mother's socio-demographic data such as; mother's level of education, occupation, socioeconomic status, and primary antenatal care provider, Standard Hospital Anxiety and Depression Scale (HADS) was used to assess level of anxiety for both experimental and control group when they were admitted in labor unit. An Arabic translated HADS questionnaire used in this study translated by group of psychiatrists and psychologist in psychiatric Hospitals Ministry of health Sudan. In pretest of 10 non patients sample found that all categories of the questionnaire were easy for some instances to be responded by the patients and analyzers, a Cronbach's alpha coefficient as estimate of internal consistency was 0.81. Verbal Descriptive Scale (VDS): the scale for assessing labor pain intensity during first and second stage of labor, checklist designed by a researcher to assess obstetric interventions occurred during labor and

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

delivery process. The checklist included (Induction of labor, augmentation of labor by oxytocin, use of pain reliever drugs, instrumental vaginal birth, and cesarean delivery), and 5 points Likert-Type Scale questionnaire to assess mother's satisfaction toward their labor and delivery experiences.

Pilot Study

After obtaining formal administrative approval from the concerned authority, the tools was pre-tested to check for the clarity of items and feasibility. The reliability of the tools was tested on 10 mothers. The inter-rater reliability was determined by having another expert make the record analysis. The reliability co-efficient was computed by Pearson's co-efficient of correlation formula and Cronbach's alpha coefficient was 0.883

Procedure for Data Collection

During the study period the researcher attended the study setting and checked the registered book to identify the pregnant mothers who met the inclusion criteria. The researcher met each mother separately; a full explanation of the aim and the scope of the study were given to retrieve mother's acceptance and their written consent. The complete instructions about the tools of data collection were given. The first tool interview questionnaire was used for recruitment in the study as an initial baseline assessment. The researcher was randomly assigned the participants to the experimental and control group upon completing the baseline assessment. The control group received the routine antenatal care and experimental exposed to antenatal preparation sessions, researcher divided the participants in the experimental group into small groups, the size of the group was depending on the availability of the sample on an average of 10 - 15 pregnant women in a group were given preparation sessions. The researcher assured that each of them was exposed to four preparation sessions for childbirth; one session on every-two-week schedule the duration of the session was two hours (90 minutes for teaching and 30 minutes includes consultations forms of questions and answers between mothers and health care providers). The content and structure of antenatal preparation sessions were guided by Dick-Read's "natural labor", Lamaze's "psycho prophylaxis"⁽¹⁷⁾ and tailored to be culturally relevant to the needs of Sudanese mothers. The preparation sessions were conducted in line with the principles of adult education using interactive methods like

demonstration, different simulation scenarios during birth how they might respond through the use of role-play, audiovisual instruments and many other methods, theoretical training presented by means of audiovisual instruments like videos of natural delivery and power point presentations, the practice part covers the training of proper positions during labor and delivery, proper breathing exercises for working with contractions during labor and delivery, relaxation techniques and pushing techniques. These sessions run by the researcher, a group of midwives and obstetric nurses which they were trained in helping during the presentation of the preparation sessions and collecting the data during labor

The researcher went back to the labor and delivery unit after knowing the time of labor by the participants contacting. The researcher and data collectors team attended with all participants (experimental and control groups) during labor and delivery. Hospital Anxiety and Depression Scale (HADS) was distributed to mothers for self-reporting to measure their anxiety level. During labor and delivery the mothers in experimental group performed all the procedures they had learned, Midwives and Obstetric Nurses who were trained in preparation sessions were helping mothers by comforting, reassuring, encouraging, talking, helping with the best position for different stages of labor, walking, relaxation techniques, breathing exercises and effective bearing down during second stage.

Verbal descriptive scale (VDS) used to assess labor pain at cervical dilatation 3- 10 cm (active phase first stage of labor) and the second stage of labor. Information about the progress of labor and interventions arising during labor and delivery, were noted from labor records using the checklist for the outcome of labor, after two hours from delivery satisfaction regarding labor and delivery experience was evaluated by using Likert scale method. All these tools used for whole samples experimental and control groups.

The data were analyzed based on the objectives and hypotheses by employing appropriate statistical methods using SPSS version 20 to calculate relative and absolute frequencies, mean values and their standard deviation by using chi-square test and T. test as statistical tests. The study was approved by a relevant Research and Ethics Committee at Alzaiem Alazhari University, and then it was submitted to the Ministry of Health. A letter was sent to respective

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

nursing offices and hospital principals to inform them about the aim, design, and importance of the study. Each Participant was well informed about the aim and potential benefit of the study and confidentiality was ensured then written consent was obtained

RESULTS

The results of this study displayed in Figure (1) was the passage of participants through each trial stage.

Firstly, 300 cases were enrolled to participate in the study, but 14 women were dropped during the study 4 women from control group due to the preference of different hospital for delivery and 10 women from experimental group (4 women due to failure in completing the last preparation session and 6 women due to the preference of different hospital for delivery). Statistical analyses were conducted on 286 cases (146 in the control and 140 in the experimental group).

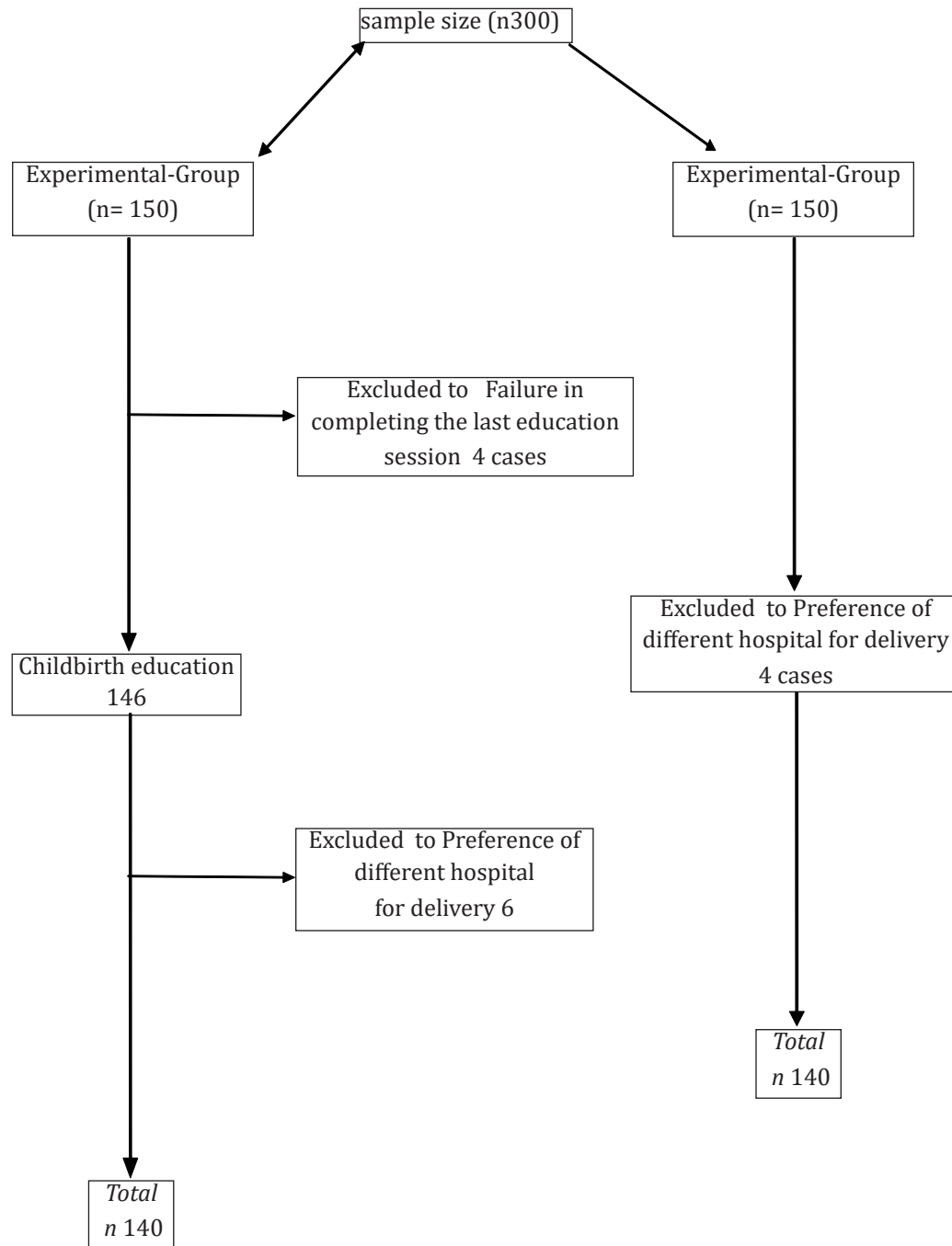


Figure 1. Description the passage of participants through each Trial stage

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

Table 1. Distribution of the participants according to their Socio-demographic Characteristics

Socio-demographic Characteristics		Study population		P. value
		Control group n = 146	Experimental group n=140	
Education level	Primary	28 (19.2%)	9 (6.4%)	0.001
	Secondary	54 (37.0%)	55 (39.3%)	
	University &above	64 (43.8%)	76 (54.3%)	
Occupation	Housewife	104(71.2%)	64(45.7%)	0.000
	At work	42(28.8%)	76(54.3%)	
Socioeconomic status of the family	High	4(2.7%)	1(0.7%)	0.007
	Middle	120(82.2%)	132(94.3%)	
	Low	22(15.1%)	7(5.0%)	
Type of primary antenatal care provider	Community midwife	16(11.0%)	19(13.6%)	0.002
	health visitor	43(29.5%)	31(22.1%)	
	Doctor	87(59.6%)	90(64.3%)	

Table (1) presented the socio-demographic characteristics. Concerning to the educational level more than half (54.3%) of the experimental group and more than two-fifths (43.8) of control group completed university education and above and there were significant differences in both studied groups P. value (0.001). In relation to occupation, more than half of experimental group (54.7%) and less than third of control group (28.8) were employed while (45.7%) vs., (71.2%) respectively were housewives, there were significant differences among the two studied groups, P. value (0.000). regarding socioeconomic status of family majority of experimental group (94.3 %) and control group (82.2 %) were at middle socioeconomic status, significant differences were found among two groups p. value (0.007), in relation

to type of primary antenatal care provider near to two thirds of experimental group (64.3%) and more than half of control group (59.6 %) their primary antenatal care provider was doctor while (22.1%) vs., (29.5%) respectively in the experimental and control groups was health visitor and a little number of women their primary antenatal care provider was community midwife in experimental (13.6%) and in group control group (11.0%). There were significant differences among both studied groups concerning type of primary antenatal care provider P. value (0.002). From above results both of the two studied groups, were found to be statistically homogeneous in nature as per chi-square test. (P >0.05). in all the variables describing the socio-demographic characteristics of the sample.

Table 2. Comparison between two studied groups in Anxiety level during labor

Study population	n	Mean	Std. Deviation	Std. Error Mean	P. value
Control group	146	11.99	4.089	0.338	0.000
Experimental group	140	7.67	2.415	0.204	

Table (2) showed that the mean score of anxiety level during labor by using HADS scale was normal 7.67±2.415 among experimental group but among control group

the score of anxiety level during labor was abnormal 11.99±4.089 (high anxiety level), there were significant differences between two groups P. value (0.000).

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

Table 3. Comparison between two studied groups in Pain intensity during labor stages

Labor stages	Study population	n	Mean	Std. Deviation	Std. Error Mean	P. value
At the active phase stage	Control group	146	3.56	0.855	0.071	0.000
	Experimental group	140	3.17	0.611	0.052	
At the second stage of labor	Control group	146	4.49	0.632	0.057	0.000
	Experimental group	140	4.06	0.504	0.045	

Table (3) in terms of pain intensity by using Verbal Descriptive Scale the results showed there was significantly less labor pain intensity during the active phase of the first stage of labor(3-10 cm in cervical dilatation) in experimental group mean and the standard deviation was 3.17 ± 0.611 compared to control group they were 3.56 ± 0.855 , p. value (0.000), also the pain intensity during the second stage of labor was significantly less in the experimental group it was 4.06 ± 0.504 and in control group 4.49 ± 0.632 P value (0.000).

Table 4. Comparison between two studied groups according to the Occurrence of Obstetric Interventions during labor & delivery

the occurrence of obstetric interventions		Study Population		P. value
		Control group n =146	Experimental group n=140	
Induction of labor	No	118 (80.8%)	136 (97.1%)	0.000
	Yes	28 19.2%	4 2.9%	
Augmentation of labor by oxytocin	No	73 50.0%	81 57.9%	0.183
	Yes	73 50.0%	59 42.1%	
Usage of pain reliever drugs	No	113 77.4%	125 89.3%	0.007
	Yes	33 22.6%	15 10.7%	
Episiotomy	No	51 34.9%	57 40.7%	0.313
	Yes	95 65.1%	83 59.3%	
Instrumental vaginal birth	No	142 97.3%	129 92.1%	0.052
	Yes	4 2.7%	11 7.9%	
Cesarean surgery	No	118 80.8%	125 89.3%	0.006
	Yes	28 19.2%	15 10.7%	

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

Table (4) indicated that there were significant differences between experimental & control groups in relation to occurrence of obstetric interventions the experimental group had significantly lower rate in some interventions, which were needing for induction of labor (2.9%) vs., (19.2) respectively in the experimental and control group p. value (0.00), need for using of pain reliever drugs (10.7%) vs., (22.6%) respectively p-value (0.007), and rate of

Table 5. Comparison between two studied groups in experience.

P value	Std. Error Mean	Std. Deviation	Mean	n	Study population
0.000	0.051	0.622	3.55	146	Control group
	0.047	0.560	3.94	140	Experimental group

Table (5) revealed that the mean score of satisfaction level regarding labor and delivery experience by using likert scale in experimental group was 3.94 ± 2.0560 , and in control group was 3.55 ± 0.622 . Satisfaction level regarding labor and delivery experience was significantly high in experimental group in compared to control group p. value (0.000).

DISCUSSION

This study aimed to evaluate the effect of antenatal preparation sessions on mothers' anxiety and labor pain during labor process, among low risk Sudanese pregnant women. The objectives and hypotheses of the study were achieved through the study findings. Which they were revealed that antenatal preparation sessions reduced anxiety and labor pain intensity among mothers attending antenatal preparation sessions (experimental group), as well as many interventions during labor and delivery like need for induction of labor, usage of pain reliever drugs and cesarean delivery, also there was increasing in mothers satisfaction regarding labor and delivery experience. This study is consistent with a systematic review study conducted by Brixval *et al*, reported that there were many researchers examined the effectiveness of antenatal education and preparation on childbirth process and outcomes worldwide, but till now, most such researches carried out in Western countries⁽¹⁸⁾ Additionally, a qualitative study in three Arab countries conducted by Khasholian *et al*, found that absence of antenatal preparatory classes and there were many barriers for implementing labour companionship in Lebanon, Syria and Egypt,⁽¹⁹⁾. Regarding socio-demographic characteristics of both studied groups, the study displayed that there were

cesarean delivery (10.7%) vs., (19.2) respectively p. value (0, 006), while there were no significant differences between experimental & control groups in need for augmentation of labor by oxytocin (42.1%) vs., (50.0%) respectively, conducting episiotomy (59.3 %) vs., (65.1 %) respectively and in requiring to perform instrumental vaginal birth (7.9 %) vs., (2.7%) respectively.

satisfaction level regarding their labor and delivery

significant differences among the experimental and control groups in relation to the level of education, occupation, socioeconomic status of the family ,and type of primary antenatal care provider. This may be due to homogenous random distribution of participants to experimental and control groups, also it would assure that groups are equal and decreasing the influence of group's differences that could impact on outcome results, this findings is supported by study done in India by Kirandeep Kaur *et al*, to assess the effect of video on breathing exercises during labor on pain perception and duration of labor among the primigravida mothers all socio-demographic characteristics in both two groups were found to be homogeneous in nature as per chi-square test ($p > 0.05$).⁽²⁰⁾ As we knew labor is an intense process that creates a high level of emotional stress and anxiety for a woman. During labor, the mother need lots of help for the realization and acceptance of labor as a normal physiological phenomenon, the current study showed that the mean score of anxiety level by using HADS scale was significantly normal among experimental group in compare to high anxiety level among control group, explanation of reducing anxiety among experimental group is due to the knowledge acquired during the antenatal preparation sessions regarding labor process and strategic methods to cope with labor pain as well as to the ability to communicate effectively with their hospital staff, the findings of this study is consistent with the study done by Mozghan Firouzbakht, *et al* to evaluate the effect of education process on childbirth The mean score of anxiety among trained group was significantly reduced in compare to control.⁽²¹⁾

The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

In the present study, VDS was utilized to assess intensity of labor pain between the two studied groups at the first and second stage of labor, women in the experimental group had a significantly lower level of pain score than women in the control group. This may be due to that women who were in the experimental group being well informed and recognized the source of pain which lead to a positive attitude towards normal labor as less fear; additionally, women learned how to implement coping and practical relaxation techniques during labor pain; this findings is similar to Study done in Egypt by El-Kurdy *et al*, to test the application of antenatal education on childbirth self-efficacy for Egyptian primiparous women. The results highlighted that there were highly significant differences between the two groups regarding the mean score of labor pain at the 1st and 2nd stages of labor ($p = <0.001$),⁽²²⁾ but the findings of our study is not in agreement with study done by Firouzbakht *et al*, they studied the effect of antenatal education on labour pain of Iranian women, they found that no significant difference between both groups at the second stage of childbirth.⁽²³⁾ Also in the current study, the researcher thinks that as result of less labor pain intensity at first and second stage of labor among the experimental group a significantly reducing in need of usage pain-reliever drugs (pain killers) during the first stage of labor in comparison to control group. Women who fear and anxious parturition are more possible to request a cesarean delivery and are also more probably to actually have a planned cesarean delivery.⁽²⁴⁾ The present study illustrated that there were significant differences between two studied groups in relation to conducting of cesarean delivery and induction of labor which were considered as obstetric interventions, these findings are similar to the study conducted by McGrath, in Sweden, used randomized controlled trial design to examine the prenatal effects of doula support for primigravida middle income women during labor and delivery, the study concluded that the rate of cesarean section and the need for epidural analgesia in the trained group had significantly reduced.⁽²⁵⁾ Also our study findings agree with retrospective study done by Ohad Gluck *et al* to determine whether participating in childbirth classes is associated with a reduction in delivery complications, the results of the study concluded that there was a significantly lower rate of cesarean delivery, vacuum extraction and higher rate of normal vaginal delivery in class group.⁽²⁶⁾ But the current

study was contrasted with the finding of study done by Brixval.*et al*, to examine the effect of an antenatal education program in small classes versus standard auditorium-based lectures, his study showed that there were no statistically significant differences in the use of epidural analgesia between participants in the intervention group versus the control group, also the two groups did not differ regarding other types of pain relief or obstetric interventions.⁽²⁷⁾ In the hospital where this study was conducted, oxytocin is routinely used to accelerate labor also episiotomy was performed as routine practice mainly among primigravida women. Sometimes some methods like changing positions and bearing down technique training were used for untrained mothers (control group) by midwifery students and some delivery ward personnel; these could perhaps be the reason for lack of difference between two groups in the occurrence of some interventions during the labor process. Also possible explanation of these results may be related to educational differences between the two groups. The experimental group had a higher educational level than the participants in the control (54.3%) of the experimental had an university education and above compared with (43.8) in control group) and also it is possible that viewing information and knowledge on the part of women holding academic degrees who have greater access to current information on health in general and pregnancy and birth in particular. In the present study Satisfaction level regarding labor and delivery experience was significantly high in experimental group in compared to control group p . value (0.000) this consistent with a qualitative study was conducted by Miquelutti *et al*, the objective of this study was to describe the experience of labor and delivery as reported by women who participated and women who did not participate in an antenatal program of preparation, the study concluded that Women who participated in a systemized program of preparation for labor and delivery were satisfied with the birthing experience, managed to maintain control, and used non-pharmacological techniques for pain relief. Women who did not participate in the systemized educational activities of preparation for childbirth and who reported dissatisfaction with the experience were woman who said they had difficulties maintaining control during of labor.⁽²³⁾ This reinforce that Participation in antenatal preparation sessions is associated with higher satisfaction with the birth experience.

Probably increased knowledge and skills during pregnancy better prepare pregnant mothers and enabling them to cooperate with the health care providers during labor by participating in any type of antenatal preparation could reduce the anxiety level and labor pain intensity, also increased mothers satisfaction level regarding their labor and delivery experience.

Limitation of the Study

Due to the political situation during study period 14 women from total population were dropped due to the preference of different hospital for delivery. Another limitation was design of labor room in study area, it is not fully equipped to implement many sessions items that women need to practice during labor & delivery.

CONCLUSION

The present study concluded that applying of antenatal preparation sessions was effective in decreasing anxiety level, pain intensity during birth, and the interventions rate such as induction of labor, usage of pain reliever drugs during labor and cesarean delivery. Likewise, the mothers who received antenatal preparation sessions were significantly more satisfied than the mothers who received routine hospital care.

Recommendations

the study recommended that Designing and applying antenatal preparation sessions as an essential component of standard antenatal care at different affiliated public hospitals in Sudan.

Designing and implementing antenatal preparation training programs into maternity and midwifery nursing undergraduate curriculum.

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Contributors

Amal. M. Hamid, as the PhD student, was the main contributor to the development and design of the study, the conduct of the study, and drafting of the manuscript. Ahmed. M. A. Fadalla was the supervisor and assisted with the research design, review of data and manuscript drafts.

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The Effect of Antenatal Preparation Sessions on Sudanese Mother's Anxiety and Labor Pain

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