

Effect of Implementing Birth Plan on Women Childbirth Outcomes and Empowerment

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Abstract: Background: The birth plan raises women's knowledge, improves empowerment, and promotes childbirth outcomes. Aim of the study was to implement a birth plan and evaluate its effect on women childbirth outcomes and empowerment. Design: A quasi-experimental comparative design. Sampling: A purposive sample of 194 pregnant women was enrolled and equally allocated into two groups (the intervention group who engaged in a birth plan to receive planned care during childbirth, a control group who received routine hospital care) 97 women each. Setting: The study was conducted at the obstetrics outpatient clinic and in the delivery room of Benha University Hospital. Tools: four tools were used for data collection; A Structured Self-Administration Questionnaire, Birth plan fulfillment sheet, childbirth outcomes sheet, Childbirth related Empowerment Scale. Results: that there were highly significant difference in most items of designed birth plan care during 1st, 2nd and 3rd stage between control and study group ($P \leq 0.001$) and there was a significant decrease in mean \pm SD of 1st stage duration and the total duration of childbirth stages of the study group comparing to the control group ($P \leq 0.05$). Before implementing the birth plan, there was no statistical significance difference between control and study group regarding childbirth-related empowerment scale as ($p > 0.05$) while after implementation, there were highly statistically significant differences regarding most items of birth-related empowerment scale as ($P \leq 0.001$). Conclusion: the birth plan has a higher implementation of designed childbirth care, a positive effect on maternal and fetal outcomes and there was a highly significant increase in the total women's empowerment scores after implementing birth plan ($p < 0.001$) compared to control group. Recommendation: Raising awareness of healthcare staff of the outpatient clinic, delivery ward to implement birth plan toward increasing childbirth empowerment.

Keywords: Birth Plan, Childbirth Outcomes, Empowerment

1. Introduction

The creation of a birth plan is an increasingly common part of a woman's antenatal childbirth preparation [1]. A birth plan is defined as a document created during pregnancy in preparation of childbirth to help the mother determine birth values, become acquainted with different options for childbirth, and develop a list of criteria to facilitate a supportive childbirth environment [2].

Adequate investment in preparation for birth is key to have uncomplicated childbirth, a birth plan is an important tool that valued childbirth care in the health system and

empowers women participation in the childbirth care programs [3].

(WHO, 2016) [4] Reported that the birth plan serving for childbirth preparation, reducing the women's fears and providing tailored information which is missing in routine intrapartum care, so the implementation of birth plans is recommended as it encourages a more natural process of childbirth and avoids routine intrapartum procedures.

It is important for women to fully understand the provided intrapartum care if they want a childbirth with fewer interventions, unfortunately, prenatal education offered by most public hospitals is often a general program which does not aware pregnant women to the hospital protocol of care so it has negative effect on women empowerment toward

making more informed decisions before giving birth [5].

The birth plan facilitates communication with health care staff, improves women's empowerment, and promotes childbirth outcomes [6]. The Birth Plan favors the ethical principle of autonomy and enhances women's control over the childbirth process therefore; it contributes to a positive effect on women's empowerment [7].

The key components of the birth plan include respecting women dignity, awareness the women of early signs of an emergency, labor begins on its own, a plan for a birth attendant, no restriction on oral fluid, freedom of movement throughout childbirth, and proper management during childbirth stages [8]. Many prenatal care innovations recommended pregnant empowerment is an innovative mechanism that brings favorable birth outcomes by involving women in participating in birth plan formulation and implementation [9].

Empowerment defined as the process of enhancing women's ability to make purposive choices and to transform those choices into desired actions and outcomes [10]. Empowerment achieved the implementation of the birth plan through several sequential components as self-efficacy, future image, self-esteem, support and assurance from birth supports and joy of adding to new family [11].

On the other hand, some studies documented a lower rate of cesarean sections and better birth outcomes if women utilized birth plans compared to more reported complications with routine care [12]. However, the influence of birth plans on birth outcomes need further well studies, a body of data demonstrates that birth preparedness, positive women experiences and empowerments are associated with improved maternal outcomes [13].

Maternity nurse is the first skilled staff who has contact with pregnant women and plays a crucial role throughout the prenatal period raising the pregnant woman empowerment by providing appropriate information, prepare woman physically and emotionally, stress on their rights for promoting birth outcomes and provide chances for social support with health care staff to implement the designed birth plan [14].

The maternity nurse takes the responsibility of educating women about birth plans and directing nursing care to labor women so that they can help the women achieve safe childbirth process and positive outcomes [15]. Once the nurse understands women's preferences, building a trust relationship and then provides appropriate information and communication to support their preferences [16].

1.1. Significance of the Study

In Egypt, 1400 women and 50% of their newborns die each year due to pregnancy and childbirth complications which need further efforts to be applied as programs or approaches to improve maternal health issues [17]. Antenatal childbirth preparation is often seen as a doorway to women's health through education, communication, and empowerment of women which were the main components of the birth plan. Despite that, it isn't applied efficiently in

Egypt and limited to private maternity hospitals so women in public hospitals feel unsupported because nurses and doctors focus more on providing routine care rather than face-to-face care.

Birth plan implementation not a burden on health care staff, vice versa it directs nursing practices toward women's needs and aware women about emergency signs to be identified as early as possible, researches proved that when maternity hospital policies implemented birth plan component, they deliver a comprehensive and quality childbirth care.

The birth plans become more successful in promoting birth outcomes by all health care staff including maternity nurses as they communicate, educate women about childbirth and facilitate greater empowerment lead to improvements in their health, particularly in areas where disparities are highest such as maternal mortality.

There are limited researches in Egypt that exist on the topic of birth plans and this is the first study examined its effect on childbirth empowerment. From this, more researches need to be conducted to better understand the effect of the birth plans in improving birth outcomes also, to promote women empowerment more positively. This wouldn't be happened by unless the health care staff adopting and educating the women about birth plans in preparation for childbirth and hospital policies supporting this approach. So the present study is looking to evaluate the effect of implementing a birth plan on women childbirth outcomes and empowerment.

1.2. Aim of the Study

The current study was aimed to evaluate the effect of implementing a birth plan on women childbirth outcomes and empowerment

1.3. Research Hypotheses

Hypothesis 1: Pregnant women who engaged in a birth plan will receive more designed child birth care than those who not engaged in the birth plan.

Hypothesis 2: Pregnant women who engaged in a birth plan will exhibit better childbirth outcomes than those participants who not engaged in the birth plan.

Hypothesis 3: Pregnant women who engaged in a birth plan have a higher level of childbirth-related empowerment than those who not engaged in the birth plan.

2. Subject and Methods

2.1. Research Design

A quasi-experimental research design was utilized.

2.2. Setting

The study was conducted at obstetrics outpatient clinic and in the delivery room at Benha University Hospital. This setting is the official hospital affiliated to Benha University

with a high rate of women undergoing childbirth.

2.3. Sample Type and Size

A convenience sample of 194 pregnant women was enrolled and equally allocated into two groups (intervention and control group) They were recruited from the previously mentioned setting according to the following criteria: age 18 years or more, primigravida, gestational age from 36 to 40 weeks, normal pregnancy with (singleton pregnancy & cephalic presentation), chosen delivered normal childbirth at Benha university hospital and read & write. *Exclusion criteria* included suspected placental abruption, and/or any contraindications to vaginal delivery were ineligible.

2.4. Tools of Data Collection

Four main tools were used for data collection.

2.4.1. The Tool I: A Structured Self-Administration Questionnaire

This tool was designed by the researchers after reviewing related literature; it was written in a simple Arabic language and included demographic characteristics of the studied women as age, educational level, occupation, residence, and monthly income, and telephone number, besides, gestational age at enrollment.

2.4.2. Tool II: Birth Plan Fulfillment Sheet

It included two parts Part A- Birth plan expectations sheet which was prepared based on the standard childbirth worksheet for [18] in the form of open-closed questions. And then translated & introduced to each a pregnant woman in the intervention group to choose and filled birth plan in the outpatient clinic in order to assess their expectations during childbirth (as respecting dignity, presence of birth attendants, no restriction on oral fluid, encourage movement and proper management during childbirth).

Part B- Childbirth characteristics sheet that was adopted from [19] to evaluate the implementation of designed birth plan care during childbirth. It was recorded by the researchers and included care during 1st stage (6 items) such as (complete history taking, physical examination, the partograph, fetal monitoring, hydration, and movement), care during 2nd stage (3 items) such as (type of pushing, position of delivery and perineal condition) care after delivery (3 items) such as (immediate baby care, Apgar score, carrying and dressing the baby, breastfeeding and hospital discharge). Each item was scored (1) for done each step while (0) score was given for not done. The higher scores indicated better implementation of a birth plan during childbirth.

2.4.3. Tool III: Childbirth Outcomes Sheet

The childbirth outcomes sheet was used to assess childbirth duration outcomes as (onset of childbirth, duration of childbirth), maternal outcomes as (mode of delivery, presence of complications, childbirth experience and hospitalization days) and fetal outcomes which included (Apgar score at 1st, 5th minute and baby weight).

2.4.4. Tool IV: Childbirth Empowerment Scale (CES)

The childbirth empowerment Scale (CES) was adopted from [20] and translated into the Arabic language to assess pregnant women's childbirth-related empowerment and sense of control over their birth plan. The CES consisted of 25 items covering four subscales; self-efficacy (6 items), future image (6 items), self-esteem (5 items), support and assurance from others (4 items), and joy of adding to a new family (including 4 items). It was filled before and after implementing the designed birth plan.

Scoring system

The CES score is a total of the items based on 3- Likert scale rating, from 1 "disagree" 2 "to what extent" 3 "agree". The total minimum score was 25 and the maximum score was 75. High empowerment were >75% (>56.25 degree) of total score, Moderate empowerment range from > 60-75% (> 45-56.25 degree) of total score and Low empowerment below 60% (<45 degree) of total score.

2.5. Tools Validity and Reliability

The tools were reviewed for appropriateness and comprehensives of contents through a panel of three experts in the field of maternity nursing and obstetric medicine. The panel ascertained the content validity of the tools II and IV. The reliability was measured with Cronbach's Alpha coefficient test, the internal consistency of the observational childbirth characteristic equal 0.75, CES equal 0.90, and birth outcomes sheet equal 0.87.

2.6. Ethical Considerations

Informed oral consent was obtained from every participant recruited in the study after an explanation of nature and the aim of the study. The participants were assured that all data are used only for research purposes. Each participant was informed that participation is voluntary and has the right to refuse or withdraw at any time without any interference with the care provided. Participants' anonymity and confidentiality were secured.

2.7. Pilot Study

A pilot study was carried out on 10% (20 pregnant women) of the total sample size to ascertain the clarity and applicability of the tools, estimate the time required to complete the tools, and detect any obstacles that may be encountered to the researchers during the study process. No modifications were done, thus these pregnant women were included within the main study sample.

Birth plan component:

A birth plan was adopted by [19, 21] translated into the Arabic language and adapted by the researchers based on women choices, it consisted of women preferences such as (clothes, transport arrangements, health care providers involved or present at the birth, mode of delivery, method for starting childbirth, support person and pain relief measures as analgesia), besides instructional content (leaflet) regarding early emergency signs during late pregnancy, obstetric care

during childbirth stages "1st, 2nd and 3rd stage".

2.8. Procedure

The study was carried out from the beginning of March 2018 to the end of September 2018, covering a period of six months. Official approval to conduct this study was obtained from the Dean of Faculty of Nursing to Director of Benha University Hospital and the Manager of Obstetrics and Emergency Department. The researchers visited the previously mentioned setting three days per week (Saturday, Thursday and Tuesday) from 9.00 a.m. to 1.00 p.m. The average number of participants interviewed per week was 4-5 women.

The researchers interviewed, introduced themselves to each woman with the inclusion criteria to participate in the study during her antenatal follow-up visit (delivery preparation visit) in the outpatient clinic, and explained all information about the study aim, duration, and activities, and then written consent was obtained. The researchers obtained the data of the interviewing questionnaire from both groups and asked the participants (intervention & control) to telephone them to determine the time of childbirth.

For the control group: as the childbirth started they have received routine care (without writing birth plan) as care during the first stage of labor in attendance of researchers, which included (administrating intravenous fluids, auscultating fetal heart, taking vital signs, assessment uterine contraction, vaginal examination, and oxytocin augmentations), care of the second stage included perform episiotomy, delivery of head & baby and then active care of the third stage without any additional interventions or instructions.

For the intervention group: In the delivery preparation visit, the researchers continue to introduce part A- Birth plan expectations sheet to pregnant woman to choose and fill it, explanation and discussion about childbirth birth plan was conducted with pregnant women, the researchers focused sequentially on empowerment about birth plan components as (early emergency signs in late pregnancy and labor, nutrition during labor, preparation & childbirth care "1st, 2nd and 3rd stage", early postpartum care, breastfeeding & immediate care of the newborn) and given the Arabic leaflet on the mentioned topics. The written birth plan was given to health care providers (obstetrician & maternity nurse) to discuss the feasibility & barriers of implementing a birth plan.

Finally, when the childbirth started, the researchers had evaluated the implementation of birth plan care through tool II-part B characteristic of childbirth sheet, then after childbirth complete the tool III and IV for both control and intervention group.

The average time for completion tools was around 30-45 minutes, divided as (5 minutes) for the tool I, (15-20 minutes) for tool II, (5-10 minutes) for tool III, and (5-10 minutes) for tool IV.

2.9. Statistical Analysis

Data were verified before computer entry. Statistical Package for Social Sciences (SPSS version 22.0) was used,

followed by data analysis and tabulation. Descriptive statistics applied (frequency, percentages, mean and standard deviation,). Tests of significance (Chi-square, Fisher Exact Test used when the cells have expected count less than 5 and independent t-test) were used for comparison between the groups and to test the study hypotheses. A statistically significant difference was considered at $p\text{-value} \leq 0.05$, a highly statistically significant difference was considered at $p\text{-value} \leq 0.001$. And no statistically significant difference was considered at $p\text{-value} > 0.05$.

2.10. Limitations of the Study

This study has two limitations; first, the lack of national researches that studies the current research topic. Second, challenging to conduct the study in a public hospital.

3. Results

Table 1 demonstrates that the mean age \pm SD of the control group were 25.6 ± 4.96 and the study group were 27.2 ± 5.39 , (54.6%) of the control group lived in rural areas in compare to (58.8%) of the study group, (54.6%) of the control group had secondary education in compare to (50.5%) of the study group, and (53.6%) of the control group were housewife comparing to (52.6%) of the study group. also, the gestational age of the control group was 35.7 ± 0.57 and the study group was 35.5 ± 0.54 and there were no statistically significant differences between both groups about demographic data ($p > 0.05$).

Table 2 displays that there were highly significant differences in most items of designed birth plan care during 1st, 2nd and 3rd stage between control and study group ($P \leq 0.001$).

Table 3 denotes that there was a significant decrease in mean \pm SD of 1st stage duration and the total duration of childbirth stages of the study group comparing to the control group as ($P \leq 0.05$).

Table 4 elaborates 77.3% of study group delivered vaginal delivery comparing to 58.8% of control group, 75.3% of study group had satisfactory experience of childbirth compared to 42.3% of control group and 17.8% of study group had complications comparing to 27.8% of control group with highly statistically significant difference as ($P \leq 0.001$).

Figure 1 illustrates that the majority of study and control groups (77.3%, 71.1%) respectively had normal Apgar scores after childbirth.

Figure 2 reveals that the baby weight at birth of the study and control groups were relatively similar and normal.

Table 5 portrays there was no statistical significance difference between control and study group regarding items of birth-related empowerment scale before implementing a birth plan ($p > 0.05$).

Figure 3 portrays that the (41.2%, 47.4) of the control & study studied group respectively had moderate total childbirth empowerment scores before the intervention.

Table 6 displays there was a highly statistically significant

difference between control and study groups regarding most items of childbirth-related empowerment scale ($P \leq 0.001$).

Figure 4 portrays that the (89.7%, 27.8%) of the control

& study groups respectively had high total childbirth empowerment scores after implementation.

Table 1. Number and percentage distribution of the studied women according to their demographic data (n=194).

Socio-Demographic data	Control group (n=97)		Study group (n=97)		X ² /FET	p-value
	No	%	No	%		
Age						
18- < 25	53	54.6	40	41.2	3.55	0.169 ^{ns}
25- < 34	22	22.7	27	27.8		
> 35 years	22	22.7	30	30.9		
Mean \pm SD	25.6 \pm 4.96		27.2 \pm 5.39		t= 1.810	0.072 ^{ns}
Residence						
Urban	44	45.4	40	41.2	1.36	0.243 ^{ns}
Rural	53	54.6	57	58.8		
Level of education						
Basic education	15	15.5	21	21.7	4.86	0.427 ^{ns}
Secondary education	53	54.6	49	50.5		
higher education	29	29.9	27	27.8		
Occupation						
Housewife	52	53.6	51	52.6	1.01	.315 ^{ns}
Worked	45	46.4	46	46.4		
Gestational age at enrolment	36.7 \pm 0.57		36.5 \pm 0.54		t= 1.469	0.144 ^{ns}

Ns= no statistically significant difference ($p > 0.05$), t= independent t-test £ =Fisher Exact Test.

Table 2. Distribution of the studied women regarding childbirth characteristics of care (1st, 2nd & 3rd stage) (n=194).

Birth plan care	Control group (n=97)		Study group (n=97)		X ²	p-value
	No (%)		No (%)			
1 st stage						
Obtain complete history taking	76 (78.4)		97 (100.0)		23.54	.000**
Perform Physical examination	85 (87.6)		89 (91.8)		0.89	.345 ^{ns}
Provide emotional support in childbirth	41 (42.3)		86 (88.7)		46.16	.000**
Continuous fetal monitoring	44 (45.4)		85 (87.6)		38.89	.000**
Applying partogram	47 (48.5)		74 (76.3)		16.01	.000**
Encourage moving during labor	52 (53.6)		74 (76.3)		10.95	.001**
Allow Frequent change of positions	66 (68.0)		85 (87.6)		10.78	.001**
Provide Pain relieve measures	68 (70.1)		97 (100.0)		34.09	.000**
Administer oxytocin in late dilatation	63 (64.9)		85 (87.6)		56.53	.000**
2 nd stage						
Encourage pushing	97 (100.0)		87.6 (85)		12.79	.000**
Perform Episiotomy	97 (100.0)		62.9 (61)		44.2	.000**
3 rd stage						
Delay cord clamping	44 (45.4)		74 (76.3)		72.9	.000**
Facilitate Early skin to skin contact	40 (41.2)		97 (100.0)		80.71	.000**

Ns: no statistically significant difference ($p > 0.05$), ** A highly statistically significant difference ($P \leq 0.001$).

Table 3. Comparison of the mean and standard deviation of childbirth duration among studied women (n=194).

	Control group (n=97)		Study group (n=97)		T- test	p-value
	Mean	\pm SD	Mean	\pm SD		
1 st stage	11.66	3.09	10.54	3.11	6.08	0.01*
2 nd stage	1.87	0.36	2.04	0.61	3.78	0.17 ^{ns}
3 rd stage	0.26	0.51	0.38	0.12	1.45	.150 ^{ns}
Total duration	13.79	3.96	12.96	3.84	8.87	0.05*

^{ns}= no statistically significant difference ($p > 0.05$), *A statistically significant difference ($P \leq 0.05$).

Table 4. Comparison of maternal outcomes among studied women (n=194).

Items		Control group (n=97)		Study group (n=97)		X ²	p-value
		No	%	No	%		
Mode of delivery	Vaginal delivery	57	58.8	75	77.3	31.84	.000**
	Caesarean section	40	41.2	22	22.7		
Onset of childbirth	Spontaneous	29	29.9	85	87.6	7.68	.006*
	Induced	64	66	12	12.4		
Childbirth experience	Satisfactory experience	41	42.3	73	75.3	9.87	.000**
	Un satisfactory experience	56	57.7	24	24.7		

Items		Control group (n=97)		Study group (n=97)		X ²	p-value
		No	%	No	%		
Presence of complications	Abnormal fetal heart rate	23	23.7	16	16.5	16.45	.001**
	Meconium stained liquor	4	4.1	1	1.3		
	Perineal lacerations	18	14.4	0	0		
Hospitalization days	One day	85	87.6	87	89.7	0.205	.651 ^{ns}
	Two days	12	12.4	10	10.3		

^{ns}= no statistically significant difference ($p > 0.05$), ** A highly statistically significant difference ($P \leq 0.001$).

Table 5. Comparison of childbirth empowerment scale between the studied pregnant women (control & study group) before implementation (n= 194).

Items		Control group				Study group								X ²	p-value
		Agree		To what extent		Not agree		Agree		To what extent		Not agree			
		no	%	no	%	no	%	no	%	no	%	no	%		
Self-efficacy	Identify signs of emergency and notify doctors if present.	22	22.7	12	12.4	63	64.9	7	7.2	55	56.7	35	36.1	43.35	0.23 ^{ns}
	Take care of yourself during late pregnancy and birth.	13	13.4	14	14.4	70	72.2	12	12.4	19	19.6	66	68.0	0.91	0.63 ^{ns}
	Determine when to see the doctor if labor start.	26	26.8	15	15.5	56	57.7	10	10.3	45	46.4	42	43.3	24.11	0.11 ^{ns}
	The birth plan provides the needed information about childbirth.	29	29.9	0	0.0	68	70.1	8	8.2	36	37.1	53	54.6	49.77	0.14 ^{ns}
	Be involved in decision making about your childbirth	22	22.7	0	0.0	75	77.3	0	0.0	88	90.7	9	9.3	161.85	0.21 ^{ns}
	The birth plan facilitates communication with health staff.	34	35.1	35	36.1	28	28.9	8	8.2	51	52.6	38	39.2	20.58	0.391 ^{ns}
Future image	Feel that it is a reality to be a mother.	11	11.3	33	34.0	53	54.6	42	43.3	0	0.0	55	56.7	51.16	0.31 ^{ns}
	Acceptance of receiving a new baby.	16	16.5	28	28.9	53	54.6	37	38.1	0	0.0	60	61.9	36.75	0.42 ^{ns}
	Have an ideal image of childbirth.	27	27.8	19	19.6	51	52.6	3	3.1	58	59.8	36	37.1	41.53	0.17 ^{ns}
	Imagine how the delivery will be.	18	18.6	34	35.1	45	46.4	45	46.4	17	17.5	35	36.1	18.48	0.74 ^{ns}
	Imagine the demands of the new baby.	23	23.7	10	10.3	64	66.0	14	14.4	33	34.0	50	51.5	16.21	0.31 ^{ns}
	Imagine how postpartum will be.	10	10.3	38	39.2	49	50.5	12	12.4	45	46.4	40	41.2	1.68	0.43 ^{ns}
Factor Self-esteem	Feel strength for going delivery.	12	12.4	33	34.0	52	53.6	0	0.0	49	50.5	48	49.5	15.28	0.16 ^{ns}
	Be confident that my baby will be well.	19	19.6	25	25.8	53	54.6	18	18.6	14	14.4	65	67.0	4.35	0.11 ^{ns}
	Have confidence in managing the delivery.	5	5.2	39	40.2	53	54.6	27	27.8	7	7.2	63	64.9	38.24	0.81 ^{ns}
	Satisfied with your new life.	33	34.0	22	22.7	42	43.3	32	33.0	0	0.0	65	67.0	26.95	0.24 ^{ns}
	Have a positive attitude.	29	29.9	25	25.8	43	44.3	12	12.4	25	25.8	60	61.9	9.85	0.17 ^{ns}
	Family and friends acknowledge your way.	25	25.8	54	55.7	18	18.6	19	19.6	24	24.7	54	55.7	34.80	0.61 ^{ns}
Support and assurance from others	Family and friends understand your current situation.	24	24.7	26	26.8	47	48.5	32	33.0	27	27.8	38	39.2	2.11	0.37 ^{ns}
	Consult with others for helping to achieve your goals.	19	19.6	28	28.9	50	51.5	2	2.1	64	66.0	31	32.0	32.30	0.41 ^{ns}
	Ask for help when you need to.	18	18.6	24	24.7	55	56.7	7	7.2	27	27.8	63	64.9	5.55	0.62 ^{ns}
	The joy of be looking forward to life after childbirth	65	67.0	2	2.1	30	30.9	6	6.2	40	41.2	51	52.6	88.85	0.33 ^{ns}
	Like to enjoy your postpartum.	60	61.9	0	0.0	37	38.1	15	15.5	0	0.0	82	84.5	44.01	0.21 ^{ns}
	to the Feel affection for my new baby.	52	53.6	0	0.0	45	46.4	4	4.1	52	53.6	41	42.3	93.32	0.41 ^{ns}
family	Excited about childbirth to receive a baby.	53	54.6	7	7.2	37	38.1	8	8.2	26	26.8	63	64.9	50.89	0.17 ^{ns}

^{ns}, a statistically significant difference ($p > 0.05$).

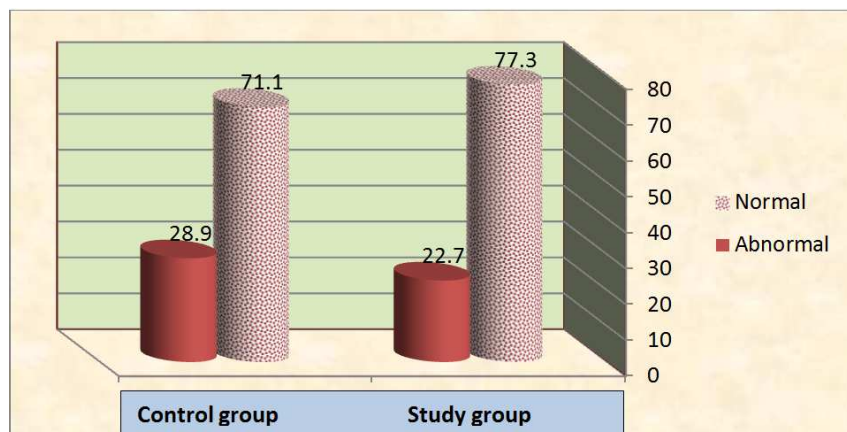
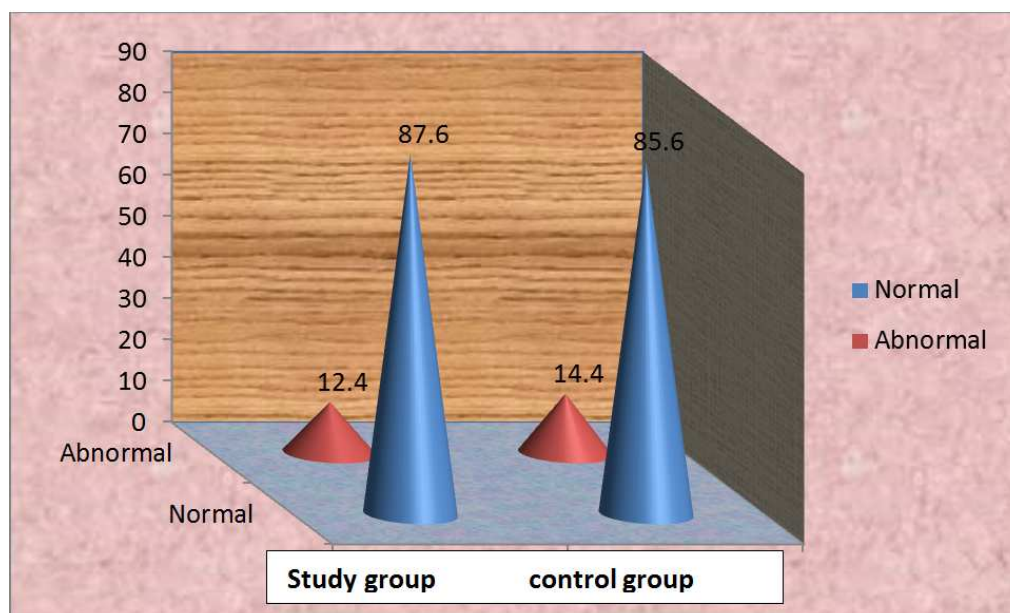


Figure 1. Frequency distribution of studied women regarding fetal outcomes (Apgar score) (n=194).

Table 6. Comparison of childbirth empowerment scale between the studied pregnant women (control & study) after implementation (n= 194).

Items		Control group						Study group						X ²	p-value
		Agree		To what extent		Not agree		Agree		To what extent		Not agree			
		no	%	no	%	no	%	no	%	no	%	no	%		
Self-efficacy	Identify signs of emergency and notify doctor if present	97	100.0	0	0.0	0	0.0	7	7.2	35	36.1	55	56.7	17.8	.000**
	Take care of yourself during late pregnancy and birth.	55	56.7	32	33.0	10	10.3	15	15.5	60	61.9	22	22.7	48.0	.000**
	Determine when to see the doctor if labor start.	87	89.7	10	10.3	0	0.0	15	15.5	47	48.5	35	36.1	19.8	.000**
	The birth plan provides the needed information about childbirth.	77	79.4	20	20.6	0	0.0	20	20.6	57	58.8	20	20.6	71.2	.000**
	Be involved in decision making about your childbirth	87	89.7	10	10.3	0	0.0	0	0.0	14	14.4	83	85.6	17.6	.000**
	The birth plan facilitates communication with health staff	87	89.7	10	10.3	0	0.0	27	27.8	43	44.3	27	27.8	79.1	.000**
Future image	Feel that it is a reality to be a mother.	87	89.7	10	10.3	0	0.0	87	89.7	10	10.3	0	0.0	10.4	.001**
	Acceptance of receiving a new baby.	87	89.7	10	10.3	0	0.0	75	77.3	22	22.7	0	0.0	5.38	.020 ^{ns}
	Have an ideal image of childbirth.	75	77.3	22	22.7	0	0.0	13	13.4	42	43.3	42	43.3	91.9	.000**
	Imagine how the delivery will be.	87	89.7	7	7.2	3	3.1	34	35.1	56	57.7	7	7.2	85.9	.000**
	Imagine the demands of the new baby.	65	67.0	22	33.0	10	10.3	64	66.0	33	34.0	0	0.0	0.02	.879 ^{ns}
	Imagine how postpartum will be.	89	91.7	8	8.2	0	0.0	26	26.8	43	44.3	28	28.9	11.9	.000**
Factor Self-esteem	Feel strength for going delivery.	67	69.1	0	0.0	0	0.0	7	7.2	37	38.1	53	54.6	16.8	.000**
	Be confident that my baby will be well.	77	79.4	10	10.3	10	10.3	48	49.5	41	42.3	8	8.2	65.5	.000**
	Have confidence in managing the delivery.	90	92.8	7	7.2	0	0.0	27	27.8	63	64.9	7	7.2	19.5	.000**
	Satisfied with your new life.	87	89.7	10	10.3	0	0.0	69	71.1	28	28.9	0	0.0	10.6	.001**
	Have a positive attitude.	75	77.3	22	22.7	0	0.0	48	49.5	49	50.5	0	0.0	16.1	.000**
	Family and friends acknowledge your way.	75	77.3	22	22.7	0	0.0	45	46.4	45	46.4	7	7.2	22.3	.000**
Support from others	Family and friends understand your current situation.	97	100.0	0	0.0	0	0.0	52	53.6	45	46.4	0	0.0	58.5	.000**
	Consult with others for helping to achieve your goals.	87	89.7	10	10.3	0	0.0	14	14.4	35	36.1	48	49.5	114.6	.000**
	Ask for help when you need to.	97	100.0	0	0.0	0	0.0	14	14.4	56	57.7	27	27.8	145.0	.000**
The joy of an addition to the family	be looking forward to life after childbirth	87	89.7	10	10.3	0	0.0	26	26.8	43	44.3	28	28.9	81.4	.000**
	Like to enjoy your postpartum.	75	77.3	22	22.7	0	0.0	50	51.5	47	48.5	0	0.0	14.0	.000**
	Feel affection for my new baby.	97	100.0	0	0.0	0	0.0	40	41.2	41	42.3	16	16.5	80.7	.000**
	Excited about childbirth to receive a baby.	97	100.0	0	0.0	0	0.0	40	41.2	57	58.8	0	0.0	80.7	.000**

^{ns} no statistically significant difference ($p > 0.05$), ** A highly statistically significant difference ($P \leq 0.001$).

**Figure 2.** Frequency distribution of studied women's regarding fetal outcomes (baby weight) (n=194).

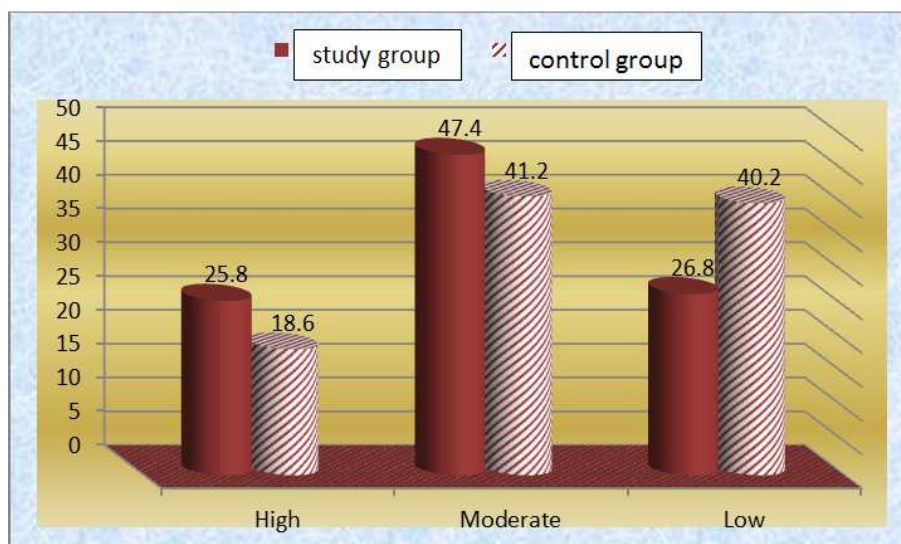


Figure 3. Frequency distribution of studied women (control and study group) regarding total childbirth empowerment scores before implementation.

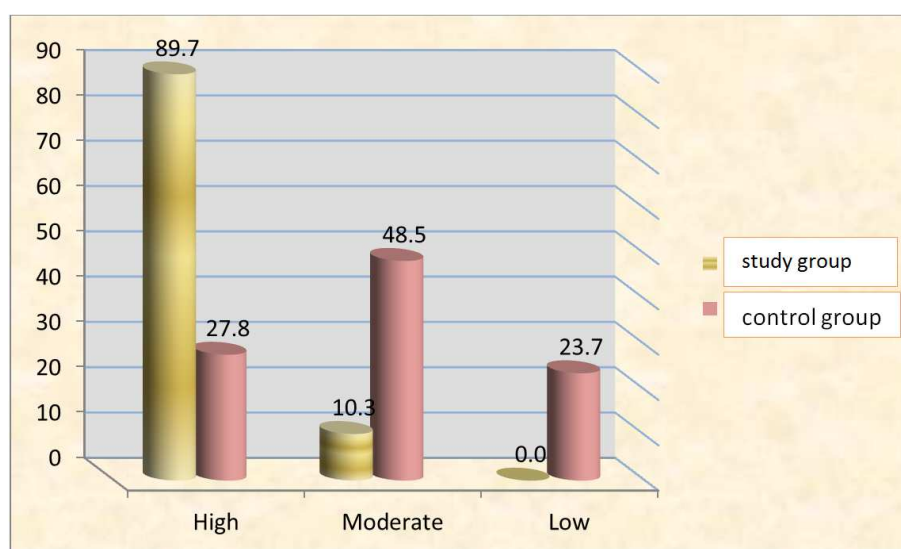


Figure 4. Frequency distribution of studied women (control and study groups) regarding total childbirth empowerment scores after the intervention.

4. Discussion

A birth plan is a document containing a woman's preferences and expectations about her childbirth process which targeting has given care toward promotion birth outcomes [1]. A key element of implemented birth plan care is empowering women to make informed decisions about health care through health education, direct communication, and a power-sharing women-health care provider relationship [22], therefore the present study was conducted to implement a birth plan and evaluate its effect on women childbirth outcomes and empowerment. The study findings supported the research hypotheses.

The findings of the current study showed no statistically significant differences between the control and study groups concerning age, educational level, occupation, residence and gestational age at enrollment data ($p > 0.05$) which means both groups were homogenous. These findings were similar

to those reported by (Hodnett, 2015) [23] in a study conducted in Egypt titled " Effect of implementing a birth plan on women s' childbirth experiences and maternal & neonatal outcomes " and revealed that there was no significant difference of the general characteristics of women among the intervention group and control group.

Performing obstetric practices during childbirth based on designed birth plan which followed the recommendations of WHO and Ministry of Health has made sure that the policy had been established in the hospital [24]. Concerning characteristic of childbirth, there were highly significant difference in most items of designed birth plan care during 1st, 2nd and 3rd stage between control and study group ($P \leq 0.001$). these results are consistent with [25] who found in a randomized cluster study titled the effectiveness of birth plans in increasing use of skilled care at delivery that women in the intervention group of the study reported higher implementation of the most elements of the birth plan during childbirth than the women in the control group with highly

significant difference ($P < 0.001$).

Also, these results agreed with [26] who stated that there is extensive evidence that women whom written birth plan showed an increase of a range of intrapartum interventions during stages of delivery including continuous fetal monitoring, pain management, and late oxytocin administration, as well as are more likely to have a spontaneous vaginal birth. The present findings could be showed that birth plans serve a guide for obstetrician and maternity nurses to deliver optimized health care throughout the childbirth process and additionally correct their misconceptions that women with birth plans have unrealistic expectations with no adding value to childbirth outcomes.

Regarding childbirth outcomes after implementing the birth plan, the current findings portrayed there was a significant decrease in mean \pm SD of 1st stage duration and the total duration of childbirth stages of the study group comparing to the control group as ($P \leq 0.05$). These results are similar with [23] that documented statistically significant difference between control & intervention groups regarding duration of the stages of labor with the mean of (23.6 ± 4.8) hours in intervention group compared to (27.4 ± 9.7) hours in the control group, while these results discordance with [27] who found no difference between women with a written birth plan and those without regarding the length of any phase or stage of labor in a prospective, non-randomized controlled trial women with and without a written birth plan who lived in Houston, U.S. This difference mainly due to differences of two study places as in [27] study obstetric interventions of delivery applied for both groups once 1st stage started while in our Egyptian hospitals, the women were received childbirth care once they are in active phase of 1st stage that what birth plan compensated it by theoretical instructions during latent phase via telephone communications with study group beside well preparations for childbirth.

Concerning maternal outcomes, the current results portrayed that the majority of study group delivered vaginal delivery comparing to two-thirds of control group, the majority of study group had satisfactory experience of childbirth compared to about two-fifths of control group and only 17.8% of the study group had complications comparing to 27.8% of the control group with highly statistically significant difference ($P \leq 0.001$).

The mentioned results were congruent with the following study findings as [28] who reported in a study titled "obstetrical outcome in women with self-prepared birth plan" that there was significance drop in the intrapartum C-sections, a study of [1] who investigated the perspectives of expectant women and health care providers on birth plans and documented that birth plans can enhance the experience of delivery if women understand that unexpected circumstances that can arise during delivery and felt consistent with the birth plan, besides [29] who documented the higher satisfactory experience scores after delivery of the intervention group who use a standardized birth plan in compared to the control ones.

Also [2] added that reassuringly, having a birth plan was

not associated with an increase in the rate of perineal lacerations or postpartum hemorrhage which could be considered dependent on obstetrical interventions. And [30] summarized that childbirth preparations programs and birth plans provide medical & social support according to women's needs that promoted best birth experiences and lessened the occurrence of potential complications during or after deliveries.

As regarding to fetal outcomes, the current findings documented that the majority of study and control groups (77.3%, 71.1%) respectively had normal Apgar score after childbirth and the baby weight of the study and control groups were relatively similar and normal weight. These findings go in the line with [1] result that reported there was no difference regarding Apgar scores (1- or 5-minute) or birth weight of both groups ($P = .69$). And [26] highlighted that studies do not show any differences in the Apgar test or baby weight between newborns of mothers with or without a birth plan, while the current findings disagree with [31] findings that showed the higher compliance of the birth plan of, the better the Apgar score and more normal baby weight ranges. This difference may be due to the last study showed the compliance of standardized birth plan interventions since 2004 as routine care in Spain third-level public hospitals which established earlier and comprehensive childbirth preparations and additionally favors more positive birth outcomes.

The results of the current study proved that there was no statistical significance was observed among the control and study groups regarding birth-related empowerment scale items before interventions ($P > 0.05$). While there was highly statistical significance difference increase among study group compared to control group regarding most items of birth-related empowerment scale after intervention as ($P \leq 0.001$) as well as (89.7%) of the study group had high total birth plan empowerment scores compared to (57.8%) of the control group. These findings are agreed with [32] which examined the impact of women's empowerment on reproductive health outcomes in Egypt and showed that educating women about childbirth preparations and participating in domains of care will enhance women's empowerment toward favorable health outcomes. And similar to a result of a study aimed to analyze how the birth plan provided female empowerment during labor and delivery and presented that the construction of a birth plan increased the empowerment of women in the process of parturition [33].

Besides [34] added in a study of birth preparedness and complication readiness among pregnant women attending antenatal care services that pregnant mothers who were knowledgeable about childbirth process were 2.9 times more likely to prepare for birth as compared to those who were not knowledgeable (AOR: 2.9; 95%CI: 0.04-0.81) and reported less the obstetric complications, and also [35] demonstrated that birth plan educational content had an indirect effect on higher levels of empowerment and birth preparedness of women during delivery. This attributed to the fact when

provided the opportunity for women to be knowledgeable and aware of their childbirth process, they gained more confidence and empowerment-related childbirth and also due to the effect of implemented birth plan educational and planned care to raise women empowerment.

From the above findings, it has shown achieving of the study hypotheses that consequently summarized the benefits of birth plan as an effective tool to favor a more natural and physiological childbirth process, better maternal & neonatal outcomes and greater women empowerment which were in the same line with different methodological studies as [36]. Who concluded that the benefits derived from the use of the birth plan is as it an educational tool stimulates the discussion, obtaining of information, improves women's empowerment and promotes women sense of control during the childbirth process and [37] guidelines recommended that the positive effects of using the birth plan are to promote good practices in the care of delivery and childbirth and therefore, favor the improvement in the quality of maternal and child health care.

5. Conclusion

The implementation of birth plan has a significant effect on childbirth outcomes and women empowerment as the birth plan reported a higher implementation of designed childbirth care and a better effect on childbirth (duration, maternal and fetal) outcomes among the study group compared to control group. Also there was a highly significant increase in the total childbirth empowerment scores after implementing birth plan ($p < 0.001$) in the control group compared to control group. Therefore, the research hypotheses are accepted.

6. Recommendations

Based on the findings of the current study, the following recommendations are suggested:

1. Raising awareness of healthcare staff of the outpatient clinic, delivery ward to implement birth plan toward increasing childbirth empowerment.
2. Hospital policies are needed to encourage the implementation of standardized birth plans to improve quality of maternity care.

Further studies are needed to

1. Investigate the degree of compliance after implementing a birth plan in official hospitals.
2. A similar study can be conducted for multiparous women.

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