Effect of Implementing A Birth Plan on Womens' Childbirth Experiences and Maternal & Neonatal Outcomes

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Abstract
Childbirth satisfaction represents a sense of feeling good about one's birth. It is thought to result from having a sense of control, having expectations met, feeling empowered, confident and supported. The aim of this study was to implement a birth plan and evaluate its effect on womens' childbirth experiences and maternal, neonatal outcomes. A quasi experimental design was utilized. Sitting: antenatal clinic, labor ward at Mansoura university hospital. Participants: included (GI) 37 caregivers and (GII) 260 pregnant woman divided into an(130) intervention who received care as birth plan during birth and (130)control group who received routine care.

Tools: a structured interview questionnaire included 3 parts; demographic data, childbirth expectations fulfillments and childbirth satisfaction data, semi structured interview with nurses and physician, observation checklist to assess maternal & neonatal outcomes. Results: the intervention group had a statistically higher degree of positive childbirth experiences and improved labor outcomes than that of the control group (p<0.001).

Conclusion: women who receive care with birth plan during her birth are more satisfied than those who not.

Keywords: Birth plan, Expectations, Childbirth Satisfaction, Childbirth Outcomes.

1. Introduction
Birth plans were initially implemented in the 1980 in Europe and America in response to the increasing medicalisation of childbirth\textsuperscript{[5,6]}. A birth plan is a written communication tool prepared by a pregnant woman, which involves her preferences for the management of her labor and delivery. Birth plans have different formats to help women gain a better experiences of child birth. One format is a list of options that women could use during labor and delivery. Another format consists of open questions by which women can indicate their preferences\textsuperscript{[24]}.

It is important for women to fully understand these practices if they want a birth with less intervention, unfortunately, prenatal education offered by hospitals is often a generic program that introduces women to the practices of the hospital and does not concentrate on empowering women to make informed decisions for their own birth. So, the birth plan was originally intended as a tool to educate and empower women, encourage shared decision making, facilitate communication about expectations, and develop trust between women and their caregivers\textsuperscript{[32]}.

The common elements of the birth plan include requests to ambulate during labor, drink fluids as desired, to receive the baby to the abdomen after birth, and to have support persons in attendance\textsuperscript{[6]}. They also often contain a list of things that the woman wishes to avoid, such as continuous fetal monitoring, episiotomies, pain medications, and epidurals. Most women who write birth plans want an unmedicated birth with few interventions\textsuperscript{[14,21]}.

Adequate investment in preparation for birth is key to having an un medicated birth,\textsuperscript{[27]} has identified six evidence-based care practices that allow birth to unfold in a natural, physiological process\textsuperscript{[12]}. These six care practices are (1) labor begins on its own, (2) freedom of movement throughout labor, (3) continuous labor support, (4) no routine interventions, (5) spontaneous pushing in upright or gravity-neutral positions, and (6) no separation of mother and baby with unlimited opportunities for breastfeeding.

Patients may feel unsupported because nurses and doctors may focus more on technology rather than face-to-face patient care\textsuperscript{[20]}. Many doctors and nurses believe that women with birth plans have unrealistic expectations and are inflexible in making changes to their plan when necessary. Nurses and doctors may become frustrated because patients come into the hospital with a list of expectations, but have not prepared emotionally or physically for their birth\textsuperscript{[12,21]} . It has been reported that some physicians and nurses seem to believe that women who enter the healthcare system carrying birth plans are at greater risk of a cesarean birth had an overall worse obstetric outcome\textsuperscript{[24]}. A birth plan is a good means through which nurses can do their best to satisfy a woman's preferences, birth plans help women have realistic expectations, stimulate them to think about how to maintain control during labor and may help the women to think about how to deal with the labor process. Common obstetric interventions can greatly improve maternal and neonatal outcomes\textsuperscript{[30]}.

Beneficial outcomes of
a positive childbirth experience include self-esteem, efficient and enhanced maternal attachment and compliance, a good outcome should be that every woman should be satisfied with the care and support she received during pregnancy, delivery and postpartum periods and to feel that she and her baby have been the center of care. Nurses and other caregivers have a crucial task in childbirth experience, women who received care from midwives had higher self-esteem and self-efficacy and empowerment they were also able to achieve a sense of mastery during pregnancy, labor, and the child rearing period, which are valuable to women's birth experience.

Nurses have an important role in providing information and increasing understanding as well as keeping communication going between a woman and her provider.

2. Significant of the study
Supporting women’s preferences during labor has been shown to increase satisfaction with birth. The creation of a birth plan helped to ameliorate a disabling fear of childbirth. Women stated that it was helpful to think about and write down their preferences, and know that their needs would be attended to. Medicalisation of childbirth in developing countries has not always translated into satisfactory childbirth experiences among women. To date, discussion, educating about birth plan, and implementing it are not documented, however it can improve quality of care and increase communication between the pregnant women and health care providers, the fulfillment of women's expectations and feeling of control from antenatal to the childbirth period have not investigated. No investigation about birth plan have been conducted in developing countries. In addition, while midwives have taken a lead role in promoting birth plans in other countries. It was interesting to know how nurses can take the lead role in implementing the birth plans for primiparae. Introducing birth plan in the regime of care during antenatal care is novel in Egypt.

3. Aim of the study
The present study aims to implement a birth plan and evaluate its effect on women’s childbirth experiences, maternal and neonatal outcomes

4. Research Methodology
4.1 Design
Quasi-experimental design was utilized.

4.2 Setting
The present study was carried out at antenatal clinic and labor unit in Obstetric & Gynecology Department at Mansoura University Hospital, during the period from the end of February 2013 to the end of October 2013.

4.3 Subjects
The subjects of the study included two groups: Group(I): Included all healthy care providers obstetricians & nurses (n=37) who were working in labor & delivery unit at hot delivery days during period of collecting data. Group (II): included 260 pregnant women selected by simple random sample technique and divided equally into two groups the intervention group which consisted of 130 pregnant women odd numbers takes birth plan I to fill it and received care during labor as planned, while the control group which consisted of 130 pregnant women even numbers received routine care during labor, the pregnant women were allocated to the study according to the following criteria: Primiparous women; gestational age from 36 to 42 weeks; age 18 years or more; normal pregnancy; read & write; women willing to participate.

4.4 Birth plan:
A birth plan prepared based on standard birth work sheet for Jennifer2008. It translated & introduced to pregnant women in intervention group to choose and write her birth plan in antenatal clinic, it consisted of women preferences such as (clothes, birth attendances, mode of delivery, method for starting labor, support person and pain relief measures), care during 1st stage such as (routine care, fetal monitoring, food, hydration, bathing and movement), care during 2nd stage such as (type of pushing, position of delivery and perineal condition) care after delivery such as(suction, other baby care, first one carrying and dressing the baby, first feeding and hospital discharge). Birth plan II prepared based on evidence based practices during childbirth. It reviewed by supervisors and implemented by researcher on the intervention group, it consisted of complete history taking, Physical examination, supportive care measures for each stage of labor were applied for women, the partograph was used for every participant to record data about: fetal condition, labor progress and maternal condition, select support person, maintain early attachment between women and baby, health education about breast feeding, family planning, vaccination and postpartum visits.

4.5 Tools of Data Collection
Three tools were used in this study (1) Structured Interview Schedule. It was designed by the researcher, and reviewed by the supervisors. It aims to document the effect of implementing birth plan on women’s experiences during childbirth. It consisted of 3 parts: Part 1 "Socio demographic data" as: age, level of education, phone number, gestational age, occupation and monthly income. Part 2 "Childbirth expectations fulfillment sheet" it is
a check list to assess the fulfillment of women’s expectations (birth plan I options) during childbirth process. Part 3 “Childbirth satisfaction questionnaire” it records the measured degree of satisfaction women’s regarding childbirth experiences based on validated Mackey childbirth satisfaction rating scale. It consisted of 40 questions from 1 to 34 the responses will be comprises of Five point ranged from (1) very dissatisfied,(2) dissatisfied, (3) neither satisfied nor dissatisfied,(4) satisfied, (5) very satisfied. The total score ≥136 indicated satisfaction <136 indicated dissatisfaction. Questions 35 & 36 were open ended for the woman to contribute her over all satisfaction/dissatisfaction with her child birth experiences. The questions from 37 to 40 the responses will be comprises of four point ranged from (1) very negative,(2) somewhat negative,(3) somewhat positive,(4) very positive. The total score≥12 indicated positive experiences <12 indicated negative experiences. (2) Semi Structured Interview with nurses and physician to document feasibility & barriers of implementing a birth plan in maternity care which includes three open ended questions (factors facilitate implementing of birth plan, barrier for implementing birth plan, and their point of views regarding how birth plan can be a routine care during birth). (3) Observation Sheet :this check list was used to assess maternal outcomes ( it included the duration of the stages of labor, mode of delivery, and measuring of pain level using Visual Analogue Scale(VAS), neonatal outcomes (it included baby weight, apgar score at 1st & 5th minute).

Methods of Data Collection
The researcher introduced herself to eligible women, and briefly explained the nature of the study, then written consent was obtained from them, the interview took from 30 to 40 minutes with each woman in intervention group after admission to the antenatal clinic, the check list (birth plan I) was Prepared by researcher introduced to pregnant woman to choose and write her birth plan, explanation and discussion about (birth plan I) was conducted with pregnant woman in the intervention group, during childbirth, birth plan was given to nurse and physician to provide care for each woman according to her birth plan, the woman in control group received routine care with out giving detailed information, each participant was allocated to the proper group according to the care received, the physician and nurses were asked about feasibility & barriers of implementing a birth plan in maternity care, then the maternal assessment was performed on pregnant women in the intervention group used birth plan II. After that maternal and neonatal outcomes were observed and recorded to both groups A After delivery and before discharge from the hospital. Finally, the researcher asked the women if she was satisfied with her labor and delivery used Mackey childbirth satisfaction rating scale. The patient's permission was obtained to collect the remaining data by telephone during the 1st weeks of delivery.

Ethical Considerations
Permission to carry out the study was obtained from the supervisor of Maternity and Gynecology of Nursing Department. The director of Mansoura University Hospital. The head of Obstetrics and Gynecology department. The researcher introduced her self to all health care providers & parturient women and the aim of the study was explained prior their participation to obtain their acceptance & cooperation as well as their written consent.

Statistical analysis
The statistical analysis of data was done by using SPSS program (statistical package for social science version 10). The demographic data and clinical characteristics were summarized as the mean, SD for continuous variables, and as frequency counts (percentages) for categorical variables, Statistical significant difference between intervention and control groups was tested by student t-test and Chi square test. Spearman correlation Co-efficiency test was used to test association between variables, P is used at <0.05 level of significance, at confidence interval 95%.Comparison of MEAN & SD between both groups regarding satisfaction, duration of labor and apgar score was tested by student t-test.Comparison regarding causes of satisfaction & dissatisfaction, mode of delivery and pain level was tested by Chi square test.

5. Results
Table 1 Shows that no significant difference of the general characteristics of women among the study group. The mean age of women in intervention group was (20.6 ±1.9) compare to (19.9 ±2.1) of control group. Regarding education, the highest percentage of intervention & control group had basic (secondary)education (80%&82% respectively) with no significance difference. Also the table shows more than one-half of women in the study group had 37-38 weeks of gestation (50.5%&55% respectively). Meanwhile, the majority of women in both intervention and control group were housewives (77%&92% respectively), the difference was significance .

Table 2 reveals women in the intervention group had higher mean (142.7 ±11.4) of satisfaction than those in the control group (84.6 ± 4.6) similarly, they had higher mean (1.8 ± 0.3) of positive experience of labor & delivery than those in the control group (1.3 ± 0.4). There were highly statistical significance difference among the groups p=0.001.

Table 3 reveals that there were statistically significant difference between control & intervention
groups and the duration of the second stage of labor with mean of (23.6 ±4.8) in intervention group & (27.4±
9.7) in the control group).

Table 4 shows that there were highly statistical significance difference among the intervention &
control group regarding the two mode of delivery and pain level

Table 5 shows that there were highly statistical significance difference among the intervention &
control group regarding the two apgar scores in 1st & 5th minute ( p=<0.001), while no statistical significance
difference among the groups regarding the baby weight.

Figure 1 shows that the highest cause of satisfaction was regards to the care provided 30% followed by
good communication 26% support person 20% & the availability of the safe delivery.

Figure 2 shows that the highest cause of dissatisfaction was regarding to episiotomy 29% followed by
23% repeated vaginal examination, no privacy 23% & Un safe delivery 20% there were highly significance
difference among the groups p=0.001

Table (1): The percentage, mean score and standard deviation of the study groups according to their
general characteristics.

<table>
<thead>
<tr>
<th>General Characteristics</th>
<th>Control(N =130)</th>
<th>Intervention(N =130)</th>
<th>χ²</th>
<th>Pvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age( Mean ±SD)</td>
<td>19.9 ±2.1</td>
<td>20.6 ±1.9</td>
<td>1.8</td>
<td>0.06</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Basic education</td>
<td>118</td>
<td>104</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>- University</td>
<td>24</td>
<td>26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeks of gestation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37-38</td>
<td>72</td>
<td>66</td>
<td>0.6</td>
<td>0.7</td>
</tr>
<tr>
<td>39-40</td>
<td>50</td>
<td>56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 41</td>
<td>8</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Housewife</td>
<td>120</td>
<td>100</td>
<td>11.7</td>
<td>0.0006*</td>
</tr>
<tr>
<td>- working</td>
<td>10</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table (2): Number & Percentages of the study groups according to satisfaction after delivery.

<table>
<thead>
<tr>
<th>Woman satisfaction score</th>
<th>Control(N =130)</th>
<th>Intervention(N =130)</th>
<th>χ²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Satisfied ≥136</td>
<td>32</td>
<td>102</td>
<td>47.9</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>- Dissatisfied &lt;136</td>
<td>98</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (MEAN ±SD)</td>
<td>84.6 ± 4.6</td>
<td>142.7 ± 11.4</td>
<td>38.05</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>- Positive experience ≥12</td>
<td>36</td>
<td>114</td>
<td>95.3</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>- Negative experience &lt;12</td>
<td>94</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (MEAN ±SD)</td>
<td>1.3 ± 0.4</td>
<td>1.8 ± 0.3</td>
<td>8.6</td>
<td>&lt;0.001*</td>
</tr>
</tbody>
</table>

Table (3): Mean score and standard deviation of duration of labor among the study groups.

<table>
<thead>
<tr>
<th>Duration</th>
<th>Control(N =130)</th>
<th>Intervention(N =130)</th>
<th>χ²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st stage</td>
<td>755.08±130.5</td>
<td>756±116.8</td>
<td>0.04</td>
<td>0.9</td>
</tr>
<tr>
<td>- MEAN±SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd stage</td>
<td>27.4± 9.7</td>
<td>23.6 ±4.8</td>
<td>2.79</td>
<td>0.006*</td>
</tr>
<tr>
<td>- MEAN ±SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd stage</td>
<td>7.7 ± 2.6</td>
<td>7.07 ±3.04</td>
<td>1.3</td>
<td>0.1</td>
</tr>
<tr>
<td>- MEAN ±SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table (4): Number & Percentages of distribution of the study groups according to mode of delivery and pain level.

<table>
<thead>
<tr>
<th>Items</th>
<th>Control (N =130)</th>
<th>Intervention (N =130)</th>
<th>χ²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Mode of delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal delivery</td>
<td>2</td>
<td>1.5</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>- Normal delivery with episiotomy</td>
<td>104</td>
<td>80</td>
<td>100</td>
<td>77</td>
</tr>
<tr>
<td>- C.S.</td>
<td>24</td>
<td>18</td>
<td>14</td>
<td>10.5</td>
</tr>
<tr>
<td>Pain level</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mild</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>- Moderate</td>
<td>50</td>
<td>38</td>
<td>88</td>
<td>67.5</td>
</tr>
<tr>
<td>- Severe</td>
<td>80</td>
<td>61.5</td>
<td>42</td>
<td>32</td>
</tr>
</tbody>
</table>

Table (5): Mean score and standard deviation of Apgar score and baby weight among the study groups.

<table>
<thead>
<tr>
<th>Apgar score</th>
<th>Control (N =130)</th>
<th>Intervention (N =130)</th>
<th>χ²</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MEAN ±SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st min. Apgare</td>
<td>5.5 ±1.35</td>
<td>7.09 ±0.55</td>
<td>8.7</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>5th min. Apgare</td>
<td>7.33 ±1.38</td>
<td>9.12 ±0.5</td>
<td>9.7</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>Baby Weight</td>
<td>2.9 ±0.65</td>
<td>2.9 ±0.37</td>
<td>0.3</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Figure (1): Number & Percent distribution of the study groups according to causes of satisfaction.
Figure (2): Number & Percent distribution of the study groups according to causes of dissatisfaction.

**Safe delivery**: Means baby is healthy and no need for incubator.

**Unsafe delivery**: Means baby need for incubator.

6. Discussion

Regarding to birth plan and women satisfaction & experiences after birth there were astastically significant association between satisfaction and experiences of labor & delivery. Women in the intervention group had higher mean of satisfaction and positive experiences of labor and delivery than those in the control group. These findings in agreement with Ip et al.,[31] who found that child birth preparation classes, birth planning, midwife preparation, and medical & social support are some of the activities that could be organized ad hoc to the women’s needs and promote the best birth experiences. Simby [23], Kue [24], Yam [38] reported that women who write birth plan has more childbirth satisfaction. These findings were in disagreement with Capitulo, Perez and Lepsch [11] who reported that the birth plan is not necessary, instead, labor and birth units should provide evidence-based care and birth experience if the best care is available and standards are met, there should be no need for birth plans.

In relation to causes of satisfaction. The current study finding showed that the highest causes of satisfaction was regarding to care provided & good communication followed by support during birth. This finding was in agreement with Lothian [26] who stated that all the components of a satisfying birth- a positive relationship with the midwife, excellent labor support, high expectations for the experience, and being part of decision making were present by the time the women went into labor.

These were in agreement with Owies [33] who stated that, the variable that are most frequently associated with childbirth satisfaction are expectations, labor pain and experience of control, as well as support in labor & birth, and reported the way in which women are helped to deal with pain, the extent to which they feel that they are actually cared about, rather than care is something that is done to them, will affect their sense of control and their satisfaction. A birth plan can be a medium to improve patient-provider communication regarding a desired labor and birth experience Dederek [13].

Regarding to relation between birth plan and child birth outcomes among both study groups: Our finding in the same line with Hadar [22] who reported that, a birth plan reduce cesarean section rate is novel. Previous studies have either found no difference or did not address the issue of mode of delivery as an outcome Deering, Zaret, McGaha, and Satin [14] This results disagreement with Pennell et al., [32] who found an increased rate (28.6%) of cesarean birth in women who prepared birth plans compared with the overall rate at their institution.

This results in agreement with Brown & Lumely [9] in cohort of 259 women found that those preparing a birth plan were less likely to undergo an operative vaginal delivery (9.6% VS 14.6%). And agreeing with Dowell et al., [15] El-Nemer [16] who reported that there is good evidence that normal birth rate can be used as indicator of the quality of maternity care.

The current study shows that, birth plan trained companionship utilized different measures to relief significantly mother labor pain and also, significantly improve labor outcome and mother satisfaction regarding labor experiences. These findings by El-Nemer [17] who reported that, the embodied knowledge of mothers (companion) as a first educator and a trustworthy source of information from a basic source of knowledge can support & help women during labour. Also in agreement with Escoott et al., [18] who stated that antenatal preparation and classes include information about child birth process, options for medication based pain relief,
the opportunity for women to develop coping strategies for managing pain and anxiety in labor, increased parental knowledge so they can make decisions because they are having a proper knowledge and information. These findings of study in agreement with Vadivelu etal. [37] & Mckinney etal., [30], who reported that the feeling of apprehension during labor, increase maternal catecholamine levels that lead to inhibition of uterine contractility and prolonged labor. Also in accordance with new researches Ward & Hisley [36], Barrett & Stark [8]. Anderson & Stone [5] showed that support by nurses during labor has a positive effect on maternal and fetal outcomes.

8. Conclusion

the findings of the present study are high lighted some of important features regarding the effect of birth plan on childbirth experiences and maternal & neonatal outcomes such as Birth plan has a positive effect on mode of delivery (reduce C.S.), there was a significant decrease in the pain level and improve apgare score of newborn after using birth plan, also there was a highly satisfaction level in the intervention group after using birth plan (p<0.001).

9. Recommendations

Based on the results of the present study, the following can be recommended: Spreading awareness of health care providers of antenatal clinic, labor ward and encourage them to provide health instructions about the use of birth plan on increasing level of women’s satisfaction and improve maternal & neonatal outcomes, policy makers designing standardized hospital birth plan to improve maternity care and evaluate & follow up the implementation of the birth plan, spreading awareness about midwifery role on implementing birth plan, training staff and select skilled birth attendance for implementing birth plan, further study is needed to investigate the birth outcome after using birth plan.

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