

## Effect of Continuous Midwifery Care on Length of Labor

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### ABSTRACT

**Introduction:** The process of pregnancy and labor has a dramatic impact on society's health. Considering the importance of obstetrical cares and the role and presence of midwife at parturient bedside, this study aimed to evaluate the impact of care and continuous presence of midwifery on labor duration. **Methods:** This was a semi-experimental study. The study population included parturient women referred to 29 Bahman Hospital in Tabriz who had normal vaginal delivery indication. 100 women were randomly selected and divided into experimental and control groups (50 in each group). In the experimental group, obstetrical cares were provided by one midwife since the beginning of active phase of labor with her continuous presence at the bedside of parturient (continuing care) whereas in the control group, cares were provided by several midwives and without their continuous presence. Labor consequences (including labor duration) recorded for both groups. The data were analyzed through SPSS<sub>13</sub> and inferential statistics including independent sample t-test. **Results:** In the experimental group, the lengths of the first and second stages were shorter (per minute) than those of control group ( $p = 0.001$ ). However, the length of the third stage of labor had no significant difference between the two groups ( $p = 0.083$ ). Totally, the lengths of delivery including the first, second and third stages were shorter in the experimental group than in control group ( $p = 0.001$ ). **Conclusion:** The results showed that low number of midwives and their continuous presence on bedside of parturient had a positive effect on reducing the delivery duration. Therefore, being with "parturient" not only does promote the quality of obstetric care, also can promote the health of society.

## Introduction

Childbirth is a painful and cumbersome process; on the other hand, it would lead to the most beautiful event of life.<sup>1</sup>

It forms the most important physiological event of a woman's life which would cause profound physical, psychological and emotional impacts on her. This phenomenon is associated with pain, vulnerability and possible

physical injuries and infrequently with death. Caring the mothers in an uncomplicated labor is the responsibility of midwives. She is the only skilled individual in this regard. Quality of obstetric cares is one of the major factors on labor outcomes. The quality of performance and measurements of midwife in this critical stage of woman's life might have different results not only on mental and emotional health of mother, also on infant's health.<sup>2</sup> Unpleasant

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events of labor such as anxiety and severe pain can have very harmful psychological effects on mother.<sup>3</sup> Stress causes muscle contraction and consequently increases the pain duration and pain also can increase high levels of stress and anxiety in mother. This creates a vicious cycle that leads to lower fetal heartbeat and prolongation of second stage of labor. Consequently, natural and physiological phenomenon of childbirth would change to a complex and difficult issue.<sup>4</sup> Fear is the most effective cause in establishing intense pains and an obstacle for natural progression of labor.<sup>5</sup> Mothers who are calm and relax and have a better spiritual and mental interaction with their midwives during the labor have reported higher satisfaction in their labor. A trustworthy atmosphere between mother and caregivers as well as mother's feeling for being among those who like her and stay with her and also her confidence to their skills would cause mother to have a positive experience on her labor and to report higher satisfaction.<sup>3</sup>

Although psychological and mental status of mother is an effective factor in progression of labor process,<sup>6</sup> there is no one in the labor room who can understand and pay attention to her and as a result her need for empathy, encouragement, guidance and support would not be obviated.<sup>7</sup>

Continuous care and presence of midwife at woman's bedside is the main part of emotional support.<sup>2</sup> Continuous care is defined as providing and implementing care by a certain individual or a small group of professional individuals during the pregnancy, labor and postpartum period.<sup>8</sup> Women's dissatisfaction from midwifery cares have been extensively reported in recent years. This dissatisfaction is caused by lack of continuous care, control, participation in decision-making, adequate knowledge and understanding the fact that caregivers are not helpers.<sup>9</sup> Continuous care in that continuous caregivers and continuous presence are inseparable part of it, is an important decisive factor in experiences of women from labor.<sup>2</sup> Continuous presence of midwife in the

form of continuous care in all the stages of labor enhances ability of woman's body to produce endogenous analgesic or endorphins.<sup>10</sup> Continuation of obstetric care by one midwife is as important as its quality for women and keeping such a relationship enhances their self-confidence and comfort.<sup>2</sup> The study of Rowley showed that amniotomy rate, labor induction and stimulation, any type of epidural anesthesia and analgesia during labor, the first stage more than six hours, episiotomy, perineal and vaginal incisions and lacerations, neonatal resuscitation and pharmacologic interventions during labor significantly were lower in continuous care group than in control group.<sup>11</sup> Current and common obstetric care with uncontrolled traffics in labor room (particularly in educational centers) causes intruding women's privacy in the most critical moments of life; on the other hand, despite high traffic and large number of people in there, they are alone with no continuous support.<sup>6</sup> The study of Petree and Walsh showed that continuous support of women's companions during the labor caused reduction of labor duration and cesarean section rate and increase of the first minute Apgar score of infants.<sup>12</sup> According to failure of care in routine midwifery cares during labor and extensiveness and importance of routine obstetric cares, the present study aimed to determine the impact of continuous midwifery care on length of labor during labor.

## Materials and methods

This was a semi-experimental study and the study population included all the parturient women who at the time of sampling referred to 29 Bahman Hospital in Tabriz, Iran. The sample size determined to be 84 subjects based on the pilot study which was finally increased to 100 people. Sampling was done in simple random sampling and women were selected if they had indication of natural delivery and inclusion criteria. Inclusion criteria included parity less than 5, mother in age range of 18-35 years, no surgical-internal disease, no risk to the fetus, willingness to participate and no

contraindication for natural delivery. The exclusion criteria included withdrawal of mother to receive care and continuous presence and any emergency case occurred for mother or fetus that was out of care responsibility of the midwife's tasks area.

According to previous registered information in admission office of labor room in Hospital of 29 Bahmanin Tabriz (the study environment), 100 parturient women who had inclusion criteria admitted monthly in labor room and because the researcher considered three months for sampling process, from among 300 women who were supposed to be admitted during the next three months, two sets of 50 random numbers were selected according to the number list of admission in maternity ward. The first set randomly (drawing) was dedicated to routine care group and the second set to the continuous care group. In the labor room, 4 or 5 midwives were present and took care of clients. For example, labor and closure of episiotomy incision were done by different midwives. Thus, the number of total caregivers during labor was 5-6 people. Meanwhile, in the experimental group, the total number of caregivers hardly reached 3 people and on the other hand, the caring midwife continuously was present at her bedside.

It should be noted that assignment of samples into two groups was completely random and after data collection, all the delivery information seemed to be effective in the results were compared in both groups (such as mother's age, the number of pregnancy, labor, abortion, gestational age and etc.) and statistically had no significant difference between the two groups. Therefore, obstetrical outcomes of each group collected and recorded in a checklist. It also should be noted that this checklist consisted of three parts. The first part was demographic data, the second part included the reproductive history and the third part covered the outcome of the current labor (including delivery type, labor length, perineal laceration degree and neonatal Apgar score). Content validity was used to evaluate the validity of the

checklist. The reliability among different observers was determined using Cronbach's alpha. Data analysis was done using SPSS<sup>13</sup>. Independent t-test was used to compare productivity characteristics of the study subjects (number of pregnancies, labor, abortion and gestational age) and labor duration between the two groups.

For ethical consideration, written consent received from all the participants and they could withdraw from continuous care at any time they wanted.

## Results

Data were illustrated in Tables 1 and 2 to show the results and achieving the study objectives. The majority of the clients were at the age range of 21-27 years (54%). Most of them were housewives (95%). Most of the clients' husbands were self-employed. Educational level of the clients was in high-school degree and only four of them were illiterate. The education of clients' husbands mostly was high-school degree, three of them were illiterate and 5 percent of the clients and 5 percent of the husbands had academic education. The productivity characteristics of the clients are given in Table 1. The majority of the clients (75%) referred for their first pregnancy and the average number of pregnancies was 1.35 (0.65). Eighty one percent of the clients had no history of labor and most of them also did not mention the history of abortion (86%). The maximum and minimum gestational age were 41 and 37 weeks, respectively, and the average gestational age of the clients was 39.55 (0.85) weeks.

The study results about labor duration are given in Table 2. According to the obtained results from data analysis, the length of the first and second stages of labor had a significant difference between the two groups ( $p < 0.001$ ); however, the difference in the length of the third stage was not significant between the two groups. Totally, the duration of the three stages of labor statistically showed a significant difference between the clients

who received continuous care and those who received routine care ( $p < 0.001$ ).

**Table 1.** Characteristics of the subjects by study groups

Characteristics	Groups		Test results		
	Experimental*	Control*	df	t	P
<b>The number of pregnancies</b>					
One	39 (78)	35 (70)	98	0.15	0.88
Two	5 (10)	10 (20)			
Three or more	6 (12)	5 (10)			
<b>The number of labor</b>					
Zero	40 (80)	41 (82)	98	0.74	0.56
One	5 (10)	8 (6)			
Two or more	5 (10)	1 (2)			
<b>The number of abortions</b>					
Zero	44 (88)	42 (84)	98	0.57	0.45
One or more					
<b>Gestational age (week)</b>					
37-39	23 (46)	17 (34)	98	0.11	0.9
39-41	27 (54)	33 (66)			

\* The data are given as n (%)

**Table 2.** The average duration (minutes) of three stages of labor by study groups

Stages of labor	Group	Mean (SD)	df	t	p
<b>1<sup>st</sup> stage</b>	Experimental	161 (51)	98	6.91	<0.001
	Control	245.6 (69)			
<b>2<sup>nd</sup> stage</b>	Experimental	34.5 (18.95)	98	3.77	<0.001
	Control	53 (28.99)			
<b>3<sup>rd</sup> stage</b>	Experimental	9.34 (4.25)	98	1.74	0.083
	Control	11.30 (6.68)			
<b>Total stage</b>	Experimental	2.84 (62.06)	98	7.51	<0.001
	Control	309.90 (76.9604)			

## Discussion

This study showed that continuous presence of midwife at parturient bedside in the form of continuous care was effective on labor duration. Although there are many factors affecting labor duration, fear and anxiety are very important factors on slowing the labor progression.<sup>12</sup> Stress and anxiety caused by the pregnancy crisis or labor with hospitalization of the woman in the hospital would be exacerbated due to association of this phenomenon with many other stressors such as dealing with strangers, feeling alone and separating from family and home, complicated devices, restricting woman to bed, food and fluids restriction,

unpleasant odors and some other care measurements such as intravenous injections, frequent vaginal examinations, fetal heart monitoring and etc.<sup>13</sup> Continuous presence of midwife in the form of continuous care in all the stages of labor enhances ability of woman's body to produce endogenous analgesic or endorphins.<sup>10</sup> Endorphins are natural compounds whose structure and impact are similar to opiates; moreover, endorphins cause relaxation, drowsiness and increased vitality sense.<sup>14</sup>

The study of Rowley showed that continuous care during labor is effective on labor duration.<sup>11</sup> However, the length of the second stage of labor in clients received continuous

presence of companions showed no significant statistical difference with that of the clients received routine care.<sup>11</sup> The reason might be that in the present study, continuous presence of midwife has been more effective than presence of an unprofessional individual.

Furthermore, the study of Shields showed that clinical outcomes of labor such as labor duration in clients who were aware of obstetrical cares, already knew midwives and had been cared by them showed no significant difference from the clinical outcomes of women who received routine and conventional care.<sup>15</sup>

In women's view, the presence of someone who client knows, has minor importance than receiving lower skill, knowledge, sensitivity and kindness.<sup>2</sup> In the study of Shields, midwives were only familiar with the client whereas in the present study, the midwife had a continuous presence at her bedside which might be the cause of difference in the results. It can be concluded that women require more continuous presence of midwives and their obstetrical outcomes would improve this type of continuous care. Therefore, implementation of continuous obstetrical care with the least involved midwives in caring a client can have a more effective role in improving clinical outcomes of labor and in promoting the quality of midwifery services.

One of the limitations of the present study was lack of blind design; i.e., the researcher herself cared a number of samples in the control group. Therefore, it is recommended that in further researches, for blinding the design, the caregiver to be someone else than the one who completed the questionnaires.

### **Ethical issues**

None to be declared.

### **Conflict of interest**

The authors declare no conflict of interest in this study.

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