

*Original Article***The effect of using maternal care log book on pregnancy outcome in clients referred to private gynecologists and midwives offices***Marjan Beigi\**, *Zahra Javanmardi\*\**, *Behnaz Khani\*\*\**, *Faranak Safdari\*\*\*\****Abstract**

**BACKGROUND:** One of the important health indicators in every society is maternal and neonatal health status. Provision of the best prenatal care can reduce mortality rate in these two susceptible groups. This study focused on the effect of maternal care log book on pregnancy outcome.

**METHODS:** This was a clinical trial and 180 samples were randomly selected from the mothers referred to private offices of gynecologists and midwives and were divided into two groups of case and control. The outcome of pregnancy was determined by prenatal care log books in the case group and with pregnancy card in the control group. The data were collected using quality of life questionnaire and a pregnancy complications questionnaire. Descriptive and analytical statistical methods (Fisher's exact test, independent t-test and chi-square test) were used to analyze the data.

**RESULTS:** The results demonstrated a significant difference between case and control groups concerning normal vaginal delivery ( $p = 0.01$ ), preterm labor ( $p = 0.015$ ) and postpartum infection ( $p = 0.012$ ). The result of quality of life in physical and mental domains and especially in mental domains was better in the case group than in the control group ( $p = 0.026$  in physical and mental dimensions and  $p = 0.02$  in mental dimensions). This difference was lower in physical dimensions alone ( $p = 0.049$ ). However, there was no significant difference between the case and control groups in terms of preeclampsia, intrauterine growth retardation and intrauterine fetal death.

**CONCLUSIONS:** As found out by the results, using maternal log book of mothers cares due to its comprehensive care items was more effective than simple maternal cards used by gynecologists and midwives. This can bring about better prenatal care and detected pregnancy complications.

**KEY WORDS:** Prenatal care, pregnancy complications, pregnancy.

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Prenatal care is a form of preventive medicine by which the risk factors during pregnancy are diagnosed and if necessary, required measures would be carried out. Since maternal health during pregnancy is one of the most fundamental and most certain ways to maintain growth and health of the mother and fetal development, implementing healthcare methods, natural process of pregnancy and normal fetal growth as well as favorable growth can be under supervision to sooner discover the possible pregnancy complications

and prevent the occurrence of high risk dangers or its progression in mother and fetus<sup>1</sup>.

Although pregnancy is a natural phenomenon and different changes occur in all the mother's organs and body systems and they are for compatibility and preparation of the mother's body with pregnancy, these changes in some of the mothers get abnormal state that along with lack of appropriate care may cause serious complications and ultimately maternal and fetal death<sup>2</sup>.

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Vintzileos et al. showed that due to adequate prenatal care, infant mortality rate associated with high risk conditions like placenta previa, fetal growth restriction and delayed pregnancy can be reduced considerably. Furthermore, study results of Harper et al. showed that the risk of such deaths is 5 times lower in the recipients of prenatal care<sup>3</sup>.

Other studies have shown that receiving such care and required trainings in this regard would reduce the likelihood of postpartum depression, anemia and postpartum infection. Besides, due to increase in the knowledge of the mothers, provided that they suffer from these complications, how to deal with problems would be different so that even if there are risky complications, mortality rate of these mothers would be extremely low<sup>4</sup>.

Maternal health prospect in Iran emphasizes that all the mothers in all parts of the country should be able to receive the best services at the beginning of pregnancy and at the middle of it to six weeks after the delivery with any health condition and can refer to the country health-care system (whether public or private). So after passing this period, no death or incurable complication should happen and they have to receive the relevant treatment for any problem; and transition from this period should leave happy memories behind<sup>5</sup>.

According to National Research Center (IMES: Integrated Management Evaluation Surveillance), 98.3% of pregnant women in Iran receive prenatal care<sup>6</sup>. However despite this, there are many injuries or deaths of the mothers and infants due to preventable factors in pregnancy; this can illustrate quality defects of these services. This issue also can have bad effect on maternal knowledge and impair their decision-making in sensitive conditions like selecting the labor type. Today, natural vaginal delivery is casting away to the sideline despite all its undeniable benefits and cesarean has been quickly substituted. The measure that should save the life of mothers and infants in critical conditions has been changed to a risk factor due to non-compliance of scientific standards as well as lack of receiving appropriate pregnancy care.

And consequently, not only many facilities, equipments, hospital beds and professionals and experts are involved, but also mortality rate and pregnancy complications dramatically will be increased.

Now, considering that one of the major health indicators in every community is health of the infants and mothers and with regard to the different maternal care status, developing a maternal care log book for the pregnant mothers that has comprehensive care and educational items, accurate documentation of pregnancy care and referral and/or required prenatal counseling have been considered.

The present study aimed to determine the effect of this log book on pregnancy outcome; besides it aimed to compare it with the control group (recipients of pregnancy cards prepared by physicians and midwives or obstetricians) to identify weak points and strength points of female physicians' and midwives' care programs.

## Methods

This was a quasi-experimental clinical trial study which was done on 180 pregnant mothers (two 80-member groups of case and control) who referred to the private gynecologists and midwives offices in Isfahan in 2008. Study subjects, who had inclusion criteria as the women with at least three pregnancies and women that their referral had been before the second trimester of pregnancy, randomly entered in one of the study groups. Pregnancy follow-up in the case group was done after providing maternal care log book designed by the researchers, and in the control group was done by providing pregnancy cards provided by physicians or midwives. In this regard, it was tried to select physicians and midwives who had similar items in their care cards. It should be noted that the responsibility for arranging and completing the log books and cards and also the labor was by the same mentioned people.

Data collection tool was a pregnancy complications questionnaire. Except the variable of quality of life which was identified 42 days after the delivery by the study interviewers, status of other variables from reports of the physicians or

midwives were identified during pregnancy and at the first 10-day postpartum period.

The pages of maternal care log book included maternal profile, previous history, current pregnancy status, documenting prenatal care, intensive care for pregnancy complications, weight graph (nomogram weight), referral or required consultation, results of pregnancy tests, prenatal ultrasound sonography, guidance of food groups table and labor condition and postpartum routine care. Moreover, in this log book there has been considered some special educational titles to increase maternal knowledge and how to deal with emergency cases appropriately that physician or midwife was responsible to train them. These titles included change in mother's body and organs (uterus, weight gain, breasts, temperament and skin), pregnancy health care (nutrition, marital relations, oral hygiene, mental health, drug consumption, exercise, and avoid contacting with sick people), common maternal morbidity (nausea, vomiting, urinary frequency, fatigue and drowsiness, constipation, increase vaginal discharge, leg cramps, low back pain, varicose veins, groin pain, insomnia, heartburn, pruritus and weakness and asthenia), embryonic growth stages (first, second and third trimester), delivery (natural vaginal delivery, cesarean and labor preparation), postpartum maternal body changes (uterine, breast and postpartum depression), postpartum care (nutrition, care nipples, postpartum sexual relation, constipation, postpartum pains, exercise and family planning) and infant care (breastfeeding, breastfeeding technique, breastfeeding in working mothers, milking lactation, vaccination, vitamin K injection, infant cord care, jaundice, infant bathing, defecation, prescribed multivitamin or vitamin A+D).

Pregnancy complications questionnaire included recording the type of delivery, presence or absence of preeclampsia, preterm delivery, intrauterine death, intrauterine growth retardation and postpartum infections.

Quality of life questionnaire also included assessment of physical and psychological status. This was a researcher-made questionnaire with 40 questions according to Likert scale.

In order to obtain validity of the quality of life and pregnancy complication questionnaires, content validity method was used; i.e., these three tools were given to President of University, 10 gynecologists and midwives, Director of Midwifery Department of School of Nursing and Midwifery and Treatment and Health departments and after collecting their revising opinions, necessary changes were applied to increase content validity. In order to obtain the reliability of quality of life questionnaire, Cronbach's alpha coefficient was used. Considering that the value of this coefficient was more than 70% (87.4%), this questionnaire was used to review the study objectives. Analyzing the data was used by descriptive and inferential statistics (chi-square, Fisher's exact test and independent t-test).

## Results

Mean age of the mothers in the case and control groups was 26.5 and 27.3 years, respectively. Most of the samples in each group had one or two children. Most of the samples were high school graduates and in terms of occupations also, 98% in the control group and 94.8% in the case group were housewives.

Results showed a significant difference between the control and case group in implementing the natural vaginal delivery ( $p = 0.01$ ) (Table 1), preterm delivery ( $p = 0.015$ ) and postpartum infection ( $p = 0.012$ ).

Moreover, the quality of life in physical and psychological dimensions after the delivery ( $p = 0.026$ ) and especially in psychological dimensions ( $p = 0.02$ ) was better in the case group than in the control group and this difference was less significant in the physical dimensions alone ( $p = 0.049$ ) (Table 2). However, there was no significant difference in preeclampsia, intrauterine growth retardation and intrauterine death between the control and case groups.

**Table 1.** Frequency distribution of delivery types in the control and case group

Delivery type	Case	Control	Total
Cesarean	46 51%	60 66%	106 58.9%
Vaginal delivery	44 49%	30 34%	74 41.1%
Total	90 100%	90 100%	180 100%

$p = 0.1$ ;  $df = 2$ ;  $X^2 = 41.9$

**Table 2.** Comparison of the mean score of quality of life (0 to 100) in different dimensions of quality of life between the case and control groups

Quality of Life	Case		Control		t-test results	
Dimensions	SD	Mean	SD	Mean	P value	t
Physical	16.11	80.2	13.5	75.9	0.049	1.98
Psychological	9.2	80	13.9	69	0.02	2.18
QOL (Total)	12.03	72	18.57	60	0.026	2.003

## Discussion

As results indicated, a higher frequency of vaginal delivery was seen in the case group (recipients of log book) and a higher frequency of cesarean was seen in the control group (recipients of the pregnancy cards). Therefore, statistically there was a significant correlation between implementing the care using these log books and selecting vaginal delivery type.

In a study by Nilses et al. in Zimbabwe, it was indicated that following appropriate implementation of these cares, cesarean rate was acceptable.<sup>6</sup>

According to IMES in 2005, cesarean statistics reported to be 40% in Iran,<sup>7</sup> and based on studied researches in recent years, this rate even reached 61%; whereas, according to the report of World Health Organization, only 5-15% of the all deliveries should lead to cesarean section.

These problems are associated with changing the pregnant mothers' attitudes towards maternal labor pain and knowledge shortage of these people towards the benefits of vaginal delivery. This incorrect process would not be repairable except through necessary trainings during pregnancy.

The other finding of this study was a statistical significant correlation between implementing these cares using log books and preterm labor. As it was indicated, a higher frequency of preterm labor was associated with control

group and the case group had a lower frequency in this regard.

Charreire et al. from Canada,<sup>8</sup> Wehby et al. from Argentina<sup>9</sup> and Zeka et al. from Massachusetts<sup>10</sup> in different studies believed that prenatal cares were effective on birth weight and term birth of the delivery and announced that although creating preterm birth was associated with socio-economical status, race and etc., inadequate and improper quality in prenatal care plays an important role meanwhile. Furthermore, Wehby stated that inaccurate documentation of care and pregnancy complications would face the maternal follow-up with problems and this can create maternal morbidities.<sup>9</sup>

In association with determining and comparing postpartum infection in the case and control groups, it was indicated that statistically there was a significant correlation between implementing the care using these log books and postpartum infections.

In this regard, Koblinsky et al. in a study titled "reviewing indicators of maternal mortality and improving the maternal health" in Bangladesh stated that postpartum infection was one of the important causes of mortality in this group, and these people should receive standard maternal care, birth intervals (spacing), and education on family planning services.<sup>11</sup>

The other finding of this study was

postpartum quality of life that showed that quality of life, particularly in the psychological dimension in the case group was better than that in control group and this difference was less significant in the physical dimension.

Appolonio et al. in association with psychological and emotional problems of the mothers announced that these disorders in women not only were associated with reducing self-esteem, previous depression, lack of social support and marital dissatisfaction, but also depend upon receiving inadequate training in this period which is due to receiving inadequate prenatal care.<sup>4</sup>

Waller et al. in this regard also stated that in order to prevent postpartum psychological problems, trainings and prenatal care should be done with the presence of the husband so that they can engage their paternal role and by supporting the wife, be effective on removing the stress of their wives and prepare a better environment for them in postpartum period.<sup>12</sup> Ultimately, study findings of Yee et al. also showed that although parents often suffer from stress and anxiety at the first sessions of the training after gaining some knowledge about changes and crises in this period, after a while, with in-

creasing their knowledge level, these concerns would be solved and their performance in facing with emergency cases would be more logical and acceptable.<sup>13</sup>

One of the major postpartum mental disorders is communicational problems with others and postpartum grief that would change to depression provided with sustainability. The case of this issue often is followed by reduction in hormones level, social factors, and biological and pregnancy anxiety; the anxiety and concern also are resulted from inappropriate and poor pregnancy care and knowledge of the mothers from changes of this period.<sup>14</sup>

Using the log book of the present study for the pregnant mothers, considering its comprehensive care and educational items and also in respect to the findings of the present study, can increase the knowledge level of these people about physiological process of pregnancy and can be more effective than care cards of the physicians and obstetricians. This would allow to provide the best prenatal care and to identify pregnancy complications.

The authors declare no conflict of interest in this study.

## References

1. Erel CT, Erkan S, Simsek OY, Kucukoglu S. Successful pregnancy achieved by assisted reproductive techniques in a woman with severe congenital bicuspid aortic valve stenosis. *Arch Gynecol Obstet* 2007; 275(4): 299-300.
2. Fraser DM, Cooper MA. Myles' Textbook for Midwives. 14<sup>th</sup> ed. Philadelphia: Churchill Livingstone, 2003.
3. Cunningham F, Leveno K, Bloom S, Hauth J, Gilstrap L, Wenstrom K. Williams Obstetrics. 22<sup>th</sup> ed. New York: McGraw-Hill Professional, 2005.
4. Appolonio KK, Fingerhut R. Postpartum depression in a military sample. *Mil Med* 2008; 173(11): 1085-91.
5. Health Center of Golestan Province. Never Die Mother. *Journal of University of Medical Sciences and Health Care of Golestan* 2004; Special:2.
6. Nilses C, Nyström L, Munjanja S, Lindmark G. Self-reported reproductive outcome and implications in relation to use of care in women in rural Zimbabwe. *Acta Obstet Gynecol Scand* 2002; 81(6): 508-15.
7. Health Department. IMES National Research Results. Department of Health - and Medical Education, 2005.
8. Charreire H, Combier E. Poor prenatal care in an urban area: a geographic analysis. *Health Place* 2009; 15(2): 412-9.
9. Wehby GL, Murray JC, Castilla EE, Lopez-Camelo JS, Ohsfeldt RL. Prenatal care demand and its effects on birth outcomes by birth defect status in Argentina. *Econ Hum Biol* 2009; 7(1): 84-95.
10. Zeka A, Melly SJ, Schwartz J. The effects of socioeconomic status and indices of physical environment on reduced birth weight and preterm births in Eastern Massachusetts. *Environ Health* 2008; 7:60.
11. Koblinsky M, Anwar I, Mridha MK, Chowdhury ME, Botlero R. Reducing maternal mortality and improving maternal health: Bangladesh and MDG 5. *J Health Popul Nutr* 2008; 26(3): 280-94.
12. Waller MR, Bitler MP. The link between couples' pregnancy intentions and behavior: does it matter who is asked? *Perspect Sex Reprod Health* 2008; 40(4): 194-201.
13. Yee WH, Sauve R. What information do parents want from the antenatal consultation? *Paediatr Child Health* 2007; 12(3): 191-6.
14. Naasiri M. *Pregnancy and Childbirth Mental Health*. Tehran: Boshra, 2000.