

## **Effects of Mindfulness Combined with Doula Delivery and its Outcome on Maternal and Infant Health**

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### **Abstract**

**Objective:** The purpose of this study was to observe the effect of mindfulness combined with Doula delivery assistance on health of pregnant women and their fetuses;

**Method:** For this purpose, a total of 146 normal parturition women (admitted to our hospital from December 2019 to May 2021) among them 73 cases were selected for the experimental group while other 73 cases in the control group were mothers with traditional delivery care. Furthermore, we compared the time of delivery, postpartum hemorrhage, clinical delivery methods, and psychological status of the two groups of parturient and the difference between postpartum breastfeeding and newborn weight.

**Results:** Our results showed that there was no significant difference between the experimental group and the control group in the first, second, third and total labor time ( $P>0.05$ ); however, the bleeding volume in the 2 hours postpartum, the pain of parturient delivery, postpartum anxiety, depression, postpartum exclusive breastfeeding exhibited significant difference ( $P<0.01$ ) between control and experimental group.

**Conclusion:** The application of mindfulness delivery combined with doula delivery assistance has an ideal effect on the safety of mothers and babies. It can significantly reduce the amount of bleeding and reduce the occurrence of complications. At the same time, it can also significantly reduce the postpartum pain, depression and anxiety and other adverse psychological reactions, and improve the mother the rate of exclusive breastfeeding after childbirth can better guarantee the safety of mothers and babies, has high clinical application value, and can be widely used in clinical nursing.

**Keywords:** Mindful delivery; Doula delivery; Postpartum hemorrhage; Anxiety; Breastfeeding

### **Introduction**

Childbirth is an important moment in women's lives, but some women are afraid of the pain caused by childbirth, and are prone to adverse psychological reactions such as fear, anxiety and depression during childbirth which ultimately disrupt the orderly progress of childbirth, thereby increasing the incidence of difficult labor, cesarean section, and postpartum complications. Therefore, it is an urgent need for a non-drug auxiliary delivery method to reduce the occurrence of postpartum sequelae. Besides, mindfulness refers to the awareness of consciously focusing attention on every moment that occurs in the present, without making any judgments and trade-offs [1] while prenatal mindfulness education during pregnancy can effectively reduce the occurrence of fear of childbirth. Whereas the ongoing support of doula has been also reported to reduce the need for ointments, oxytocin, forceps (a metal device used for childbirth), caesarean section rates, and labor schedules [2-3]. According to the previously reported studies doula's assis-

tance has been attributed to the maternal satisfaction with the childbirth experience, breastfeeding initiation rates, as well as reduction in depression, labour, anxiety, and pain by providing psychological support during childbirth [4-5]. Though accumulated studies have indicated the effects of mindfulness training on maternal outcomes at home and abroad. While there set of study has also suggested the beneficial effects of full-length accompaniment to doula delivery on maternal delivery patterns, bleeding volumes, neonatal Apgar scores and outcomes of childbirth. However, no study has observed combined effect of mindful childbirth and doula delivery assistance on the outcome of mother-infant delivery. Therefore, this study was designed to explore the effects of women receiving mindful childbirth combined with doula assistance and its outcome of maternal and infant health. Besides, we also reported the effects of this combined strategy on adverse psychological emotions such as maternal anxiety and depression after childbirth, with the aim of providing better clinical care guidance for ma-

ternal and infant childbirth.

**Material and Method**

**1. General information**

A survey was conducted based on the number of specific cases of pregnant women who came to the hospital for delivery. Among 146 women, 73 patients who received the mindfulness delivery combined with (1 to 1 midwife) doula delivery were included in the experimental group for observation. The age of the selected women was between 21 to 37 years, average (28.11±3.321) years, gestational age from 38 to 40 weeks, the average gestational week is (39.29±0.87) weeks, and the estimated newborn weight is (3305.97±348.09) g. 73 pregnant women who had undergone routine delivery were included in the control group, aged 21-42 years, average (28.01±4.128) years old, gestational age 37-42 weeks, average gestational age (39.27±0.99) weeks, estimated newborn weight (3226.99) ±329.87) g. There was no significant difference in clinical data such as age, gestational age, and newborn weight between the two groups (P>0.05).

**2. Method**

Experimental group: Pregnant women go to the midwife clinic for delivery planning after 36 weeks of pregnancy. During the visit, the midwife will guide the pregnant women to standardize and study mindfulness and relaxation courses assisted video and causing to guide pregnant women to precisely understand contractions and natural childbirth and to self-scan her own body and feel the moment to relief the tension by guiding the breathing and muscle relaxation methods. Besides, after one hour of delivery, a 1-on-1 midwife will be arranged to accompany Doula, that is, a professionally-trained midwife will continue to provide help and care to promote physical and mental relaxation throughout the delivery process of the pregnant woman, such as inducing mindfulness relaxation, aromatherapy, Non-drug pain relief measures such as touch and massage. Control group included 73 women who experienced traditional antenatal education and care for childbirth.

**3. Statistical Processing**

The data of this group were analyzed and processed by SPSS statistical software. The comparison of measurement data was performed by t-test and the comparison of count data was performed by chi-square test. P<0.05 indicates that the difference is statistically significant.

**Result**

**a. Comparison of the time of labor between the two groups**

The experimental group and the control group comparatively analyzed the labor duration of mindfulness delivery combined with Doula delivery. The results showed that: the experimental group had no significant difference in the first, second, third stage of labor and the total duration of labor compared with the control group (P>0.05).

Table 1: Comparison of the time spent in each birth process between the two groups of women (x±s).

Groups	First stage of labor	Second stage of labor	Third stage of labor	Total labor time
Experimental group (n=73)	447.80±231.77	51.67±38.18	8.38±8.37	507.84±243.57
Control group (n=73)	411.55±229.95	49.6±39.11	7.01±3.01	468.16±245.14
T-value	0.915	0.312	1.255	0.947
P-value	0.362	0.755	0.212	0.345

**b. Comparison of the amount of bleeding in the two groups of women**

Analyze and compare the effects of mindfulness delivery combined with Doula delivery on reducing postpartum hemorrhage of parturients. The average two-hour postpartum bleeding volume in the experimental group was 232.37±96.234ml, and the average two-hour postpartum bleeding volume in the control group was 288.56±193.39ml. Mindful delivery combined with Doula delivery can significantly reduce the bleeding volume in the two-hour postpartum. Hence, our results showed the significant difference in hourly bleeding (P<0.05) between the two groups.

Table 2: Comparison of postpartum hemorrhage between the two groups (x±s).

Group	Bleeding volume during delivery and 2h after delivery
Experimental group (n=73)	232.37±96.234
Control group (n=73)	288.56±193.39
T-value	-2.071
P-value	0.041

**c. Comparison of maternal delivery outcomes between the two groups**

The results showed that the rate of normal delivery in the experimental group was higher than that of the control group, and the rate of cesarean section in the experimental group was lower than that of the control group, but the difference between the two was not statistically significant (P>0.05).

Table 3: Comparison of childbirth outcomes between the two groups.

Grouping	Normal delivery	Cesarean section	χ <sup>2</sup>	P
Experimental group (n=73)	70 (95.89%)	3 (4.11%)		
Control group (n=73)	67 (91.78%)	6 (8.22%)	1.023	0.312
total	136	9		

**d. The scores of anxiety and depression in the control group before and after childbirth**

The results showed that there was no significant difference in the prenatal and postnatal anxiety scores and depression scores of the control group (P>0.05).

Table 4: Comparison of prenatal and postpartum anxiety and depression scores of control group (x±s).

Group	SAS-Score (points)	SDS-Score (points)
Control group prenatal score (n=73)	38.62±5.087	48.30±4.449
Control group postpartum score (n=73)	38.21±4.927	47.17±2.925
T-value	0.496	1.729
P-value	0.621	0.086

**e. Comparison of the degree of anxiety, depression, and pain of the pregnant women in the experimental group before and after intervention**

The scores of SAS, SDS, and VAS after the intervention of mindfulness delivery combined with Doula delivery in the experimental group were significantly lower than those before the intervention (P<0.01), see Table 5.

Table 5: Comparison of the degree of anxiety, depression, and pain in the experimental group before and after intervention (x±s).

Group	SAS-Score (points)	SDS-Score (points)	VAS-Score (points)
Experimental group before intervention (n=73)	45.94±4.630	45.08±4.083	9.17±1.007
experimental group After intervention (n=73)	40.25±3.985	39.18±2.698	3.18±0.757
T-value	7.91	10.235	40.325
P-value	0	0	0

**f. The breastfeeding situation of the two groups of mothers 2 months after delivery**

The results showed that the rate of exclusive breastfeeding in the experimental group was higher than that of the control group, and the rate of mixed feeding in the experimental group was lower than that of the control group. There was a statistically significant difference between the two (P<0.01).

Table 6: Comparison of postpartum breastfeeding between the two groups.

Grouping	Exclusive breastfeeding	Mixed feeding	χ <sup>2</sup>	P
Experimental group (n=73)	62 (86.11%)	10 (13.89%)		
Control group (n=73)	39 (53.42%)	34 (46.58%)	18.323	0
total	101	44		

**g. Comparison of the weight of newborns between the two groups**

The results of this study showed that there was no statistically significant difference in the weight of newborns between the two groups (P>0.05). See Table 7 for details.

Table 7: Comparison of newborn weight between the two groups (x±s).

Group	Newborn weight
Experimental group (n=73)	3305.97±348.09
Control group (n=73)	3226.99±329.87
t值	1.403
P值	0.163

**h. Satisfaction survey situation**

The postpartum satisfaction survey of the two groups of parturients women showed that the experimental group scored higher than the control group and there was a statistically significant difference between the two groups (P<0.01).

Table 8: Postpartum satisfaction survey of parturients (x±s).

Group	Postpartum satisfaction survey
Experimental group (n=73)	9.97±0.165
Control group (n=73)	9.7±0.617
T-value	3.66
P-value	0

**Discussion**

Delivery of pregnant women is a natural and complex physiological process, and is extremely vulnerable to external influences. Pain is an important factor that affects the mood and mentality of the parturient that whether they can give birth smoothly and naturally. Therefore, it is imperative to reduce the pain of pregnant women during childbirth. The traditional method to reduce labor pain is through intraspinal block anesthesia. Although the effect is significant, there are adverse reactions such as hypotension, itching, urinary retention, and postural headache after analgesia. Therefore, it is necessary to

seek a universal, effective labor analgesia without side effects.

Mindfulness training has showed a good effect on the treatment of various behaviors and personality disorders as well as the general field of physical and mental health. By consulting the literature, it is found that the Doula App has a positive effect on alleviating the pain of childbirth. Practioner has found that the professional Doula assistance can also achieve better results in deliver. It can better relieve the emotions of pregnant women and make the delivery smoother. The results of this study showed that after the implementation of mindfulness delivery combined with Doula delivery, the observation group had no significant difference in the duration of the first, second, third and total labor of the pregnant women in the observation group and the control group (P>0.05). Accordingly, previously reported study by Gruber et al [6] have indicated that the observation group with mindfulness and doula assistance exhibit significantly shorter duration of each labor process as compared to the control group [6]. Moreover, we found that there was no significant difference in the length of labor duration between the experimental group and the control group. The bleeding volume in the experimental group was significantly lower than that in the control group at 2 hours postpartum (P<0.01), which indicated that the standard course of mindfulness relaxation before childbirth is an effective strategy. Moreover, arranging a one-on-one midwife doula to accompany delivery during labor can guide the new mother to pay attention to herself to experience childbirth with peaceful, accepting and open attitude, to pursue and realize the state of selflessness, improve pregnant women’s cognition of childbirth, actively adjust behaviors and emotions, and to keep pregnant women in a stable emotional and psychological state. Hence, by this relaxation strategy effective contractions occur thereby reducing bleeding in the 2 hours postpartum [7].

Moreover, the postpartum pain, anxiety, and depression scores of the experimental group were significantly lower than those of the control group, and the difference was statistically significant (P<0.01), indicating that mindfulness delivery combined with doula delivery assistance can significantly improve the clinical labor analgesic effect and reduce the side effects of drug analgesia, therefore, the pain of the parturient women during childbirth was greatly reduced. Moreover, it also helped in reducing the adverse psychological reaction of the postpartum anxiety and depression of the parturient, thus facilitating the smooth completion of the parturition and the recovery of postpartum physical and mental health [8]. Furthermore, we found that the rate of exclusive breastfeeding in the experimental group was higher than that in the control group, and there was a significant difference between these two (P<0.01) groups, thus indicating that the standardized learning of prenatal mindfulness courses can help increase women’s awareness of breastfeeding and increase the rate of exclusive breastfeeding. Additionally, it is also beneficial to the good and healthy growth of infants and young children and promotes the cognitive development of infants and young children.

In summary, the implementation of mindfulness delivery combined with doula delivery assistance for the parturient women can significantly reduce the pain of parturient delivery; effectively reduce the amount of postpartum hemorrhage of the parturient, thereby reducing the occurrence of postpartum complications, which is conducive to the postpartum recovery of the parturient; at the same time, it can also reduce the postpartum anxiety, depression and other bad psychological emotions of

the parturient have improved the mental health of the parturient; it has promoted the rate of exclusive breastfeeding of the parturient. Therefore, mindfulness delivery combined with doula delivery has a very precise clinical analgesic effect and high clinical application value, and it is worthy of promotion and application in clinical delivery.

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