

Female Relatives or Friends Trained as Labor Doulas: Outcomes at 6 to 8 Weeks Postpartum

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ABSTRACT: Background: Data collected on more than 12,000 women in 15 randomized controlled trials provide robust evidence of the beneficial effects of doula support on medical outcomes to childbirth. The objective of this paper was to examine the association between doula support and maternal perceptions of the infant, self, and support from others at 6 to 8 weeks postpartum. The doula was a minimally trained close female relative or friend. **Methods:** Six hundred low-risk, nulliparous women were enrolled in the original clinical trial and randomized to doula support ($n = 300$) or standard care ($n = 300$). The mother-to-be and her doula attended two 2-hour classes about providing nonmedical, continuous support to laboring women. For the secondary study, presented here, research participants ($N = 494$) were interviewed by telephone using a 42-item questionnaire. **Results:** Overall, when doula-supported mothers ($n = 229$) were compared with mothers who received standard care ($n = 265$), they were more likely to report positive prenatal expectations about childbirth and positive perceptions of their infants, support from others, and self-worth. Doula-supported mothers were also most likely to have breastfed and to have been very satisfied with the care they received at the hospital. **Conclusions:** Labor support by a minimally trained female friend or relative, selected by the mother-to-be, enhances the postpartum well-being of nulliparous mothers and their infants, and is a low-cost alternative to professional doulas. (BIRTH 34:3 September 2007)

Key words: doula, postpartum, maternal, outcomes, training

Doula, a word of Greek origin, refers to an experienced lay birth attendant who provides continuous nonmedical physical, social, and informational support to

a woman and her partner during labor and delivery. Data collected on more than 12,000 women in 15 randomized controlled trials provide robust evidence of the beneficial effects of doula support on medical outcomes to childbirth (1). These 15 trials have shown that the continuous presence of a doula shortens the length of labor and reduces the need for analgesia, epidurals, forceps deliveries, and cesarean sections.

Only four trials, however, have examined the long-term effects of doula support (2–7). An additional trial used female relatives as doulas but did not examine long-term outcomes (8). The present study adds to this limited body of knowledge by examining the impact of doula support at 6 to 8 weeks postpartum. It is distinct in that the doulas were female relatives or friends chosen by the mother-to-be, and both the chosen doula and the mother-to-be participated in a brief doula training.

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That female relatives and friends might positively affect long-term outcomes is based substantially on the findings of previous doula trials and the literature on the physiologic benefits of labor support. Campbell et al reviewed this literature in the primary report for this clinical trial (9). In addition, the authors hypothesized that a strong, healthy bond may exist before labor and delivery between the mother-to-be and the female friend or relative that she has selected to accompany her. As a result of this bond, the mother-to-be may have greater trust in her chosen doula, heed her advice more readily, and feel more secure and relaxed in her presence than she would with a doula who is unknown to her. The chosen doula, particularly after she has received training, may provide support that is equally as beneficial as the support demonstrated in previous studies. The implications of this potential finding would be very important for improving access to doula support for low-income women, since professional doula support can cost hundreds of dollars (9).

Three of the four trials that examined long-term outcomes found significant differences between the doula group and controls from 1.5 to 2.5 months postpartum (2–6). A randomized controlled trial conducted in Johannesburg, South Africa, studied outcomes at 6 weeks postpartum among 189 primiparous women (2). The doulas were lay women, unknown to the mothers, who had received a weekend of training on the topic of support during labor and delivery. At 6 weeks postpartum, doula-supported mothers were most likely to be breastfeeding, feeding on demand, reporting fewer feeding problems, and to have a higher average number of days of exclusive breastfeeding. Doula-supported mothers were also most likely to report fewer infant health problems, spend less time away from their babies, and to be satisfied in their relationships with a partner.

In the same study, significant differences were found in mothers' perceptions of their babies. More doula-supported mothers than standard care mothers stated that their babies cried less often than the average baby and were easy to manage and that the mothers communicated well with their child. Supported mothers were most likely to describe their babies as special, beautiful, and clever, and they felt close to the baby and were pleased about having had the baby. Supported mothers had significantly higher self-esteem scores and lower depression and anxiety ratings than standard care mothers (3).

Gordon et al conducted a doula study among enrollees in a group-model health maintenance organization (4). At 4 to 6 weeks postpartum, women in the doula group were most likely to report that they had a good birth experience, they had coped very well with labor, and that the birth experience had a positive

effect on their feelings as women and on their perceptions of their bodies' strength and performance. The doula and standard care groups showed no significant differences with respect to their expectations or descriptions of their labors, their self-worth, and feelings about whether they would be good mothers. The two groups also did not differ in measures of overall mental health or self-esteem.

A study in Houston, Texas, found robust differences in 2-month postpartum mother-infant interaction scores among three groups of women (5). Thirty-five participants were selected from each of three groups used in a larger study of 414 women: a doula-supported group, a group receiving narcotic analgesia, and a group who received epidural analgesia (6). Researchers made home visits at 2 months postpartum to conduct infant development tests and to score mother-infant interactions. Ratings were made on five occasions during the home visit. No differences were found across the three groups for the developmental tests, but doula-supported mothers demonstrated greater positive affectionate interaction with their infants than the other groups.

Hodnett et al conducted the fourth trial that examined long-term effects of doula support in Canada (2). This large trial of 6,000 women, which used registered nurses as the doulas, found no beneficial long-term effects. Debate exists over whether the doula group received continuous support in this study (10); continuous support has been shown to be an essential component of doula support (11). The possible lack of continuous support may have influenced the study's findings on long-term outcomes.

The present report is a secondary study to the randomized clinical trial by Campbell et al that examined medical childbirth outcomes (9). For the analysis performed on participants who maintained eligibility for the primary study, Campbell et al found significantly shorter length of labor, greater cervical dilation at the time of epidural anesthesia, and higher Apgar scores at 1 and 5 minutes in the doula group, but no differences in cesarean section between the doula group (10.6%) and standard care group (15.5%) ($p = 0.09$) (9). The present study examined the association between doula support and maternal perceptions of the infant, self, and support from others at 6 to 8 weeks postpartum. The doula was a minimally trained close female relative or friend.

Methods

Sample Selection

Details of the original trial can be found in Campbell et al (9). In brief, the site of the study was a woman's

ambulatory care center at a tertiary perinatal care hospital in New Jersey, United States. Approximately 1,000 women, primarily underinsured, received prenatal care at the center annually. A sample group of 600 women (nulliparous, low-risk, and singleton pregnancy) was selected based on the study hospital's 18 percent cesarean section rate. From 1998 to 2002, women who received care at the center and met the study criteria were approached for participation by the research assistant. The intent of the study was explained to the potential participant, and she was informed that if she joined the study, she would still be permitted to bring other support people of her choosing with her for the birth.

After informed consent was obtained, research participants were randomly assigned to doula support ($n = 300$) and standard care ($n = 300$) during their clinic visits. To be included in the study, participants had to be nulliparous, have a low-risk pregnancy, and have a female friend or relative who agreed to accompany them in labor. Women with the following characteristics were excluded from the study: multigravida, high-risk pregnancy, multiple gestation, contraindication to labor, or no female companion available to act as a doula.

Seventy participants were not included in the analysis for the larger study. Some participants were lost to data collection because they delivered at a different facility, withdrew their consent, received incomplete doula training, or became high risk due to obstetrical complications. For the present study, eight additional participants were not included in the analysis because they were privately insured; all other participants were publicly funded patients. Two participants were removed from the analysis because their babies spent more than 21 days in the hospital, and one participant was not included in the analysis because her child was not living with her at the time of the interview. Twenty-eight participants were lost to follow-up or were not included in the analysis due to incomplete follow-up interviews. The final sample for the present study comprised 494 research participants, 229 participants in the doula group, and 265 participants in the standard care group.

Intervention

The intervention consisted of two 2-hour classes taught to participants in the doula group and their doulas about the role and expectations of support provided by lay birth attendants to laboring women. The instructor was a master's degree-prepared social worker who had been certified as a doula by the organization Doulas of North America before the start of

the study. The classes took place at locations of participants' choosing to improve compliance with attendance and 1 month before participants' anticipated dates of delivery. No other interaction occurred between the instructor and the women in the doula group and their doulas between the intervention and delivery.

The instructor met with one to two pairs of pregnant women and their doulas during each session. Topics covered in these sessions included basic information about a pregnant woman's anatomy and the birth process. In addition, doulas received instruction on how to assess the stages of labor through observation and direct questioning of the participant and in ways to help women cope with labor. Doulas were also taught to provide anticipatory guidance, praise and reassurance, and comfort measures. These measures included maternal positions for labor and pushing, and relaxation techniques such as massage. Doulas were given reference materials that included a card with comfort suggestions for labor, a pamphlet on support during labor and delivery, and an 11-page handout. Doulas were also told to bring enough food for 24 hours since they needed to stay with the laboring mother continuously with only short breaks for toileting. Participants were also encouraged to take traditional childbirth education classes. Attendance at these classes was not tracked.

Interview

Interviews that required about 20 minutes to complete were conducted by telephone with participants, on average, 48 days after childbirth. Eighty percent of the total sample was interviewed at 36 to 58 days postpartum. The research assistant conducting the interviews was not fully blinded to the purpose of the study. She helped to enroll and train participants but had no further contact with them until the interview, often 4 months after enrollment; she learned of the participants' group assignments near the end of the interview.

A standardized 42-item questionnaire was used for the study. The items, which were similar to those used by Hofmeyr et al (2) and Gordon et al (4), were employed to allow for comparison of results with these two studies. A series of single items with multiple responses was used to measure expectations about labor and delivery, breastfeeding (e.g., initiation, duration), postnatal support received from others, maternal perceptions of the baby, and relationship satisfaction with a partner/spouse (i.e., before, during, and after delivery). Four items about the effects of labor and delivery on maternal self-worth were used

to measure this concept; participants were asked to rate their responses on a scale of 1 to 5 (1 = very positive and 5 = very negative). Internal consistency for these four questions was good (Cronbach's $\alpha = 0.89$).

Data Analysis

Data were entered into and analyzed using SPSS (version 9.0). Chi-squared statistics were used to test for differences in the proportion of an outcome across the intervention and standard care study groups. *T* tests were used to test the difference in means (i.e., age, scores for self-worth items) between doula-supported and standard care groups.

Results

Table 1 presents the demographic characteristics for the sample, who comprised primarily unmarried, non-Hispanic pregnant women. No significant difference was found in mean age between the two groups. The mean age of the doula group was 21.9 years (range = 14–40 yr), and the mean age of the standard care group was 22.5 years (range = 14–37 yr). Significantly, fewer whites, more African Americans, and

fewer persons of other racial backgrounds were found in the doula group compared with the standard care group, suggesting that loss to follow-up may have weakened the effect of randomization.

On average, 1.8 persons (including the doula) attended the doula births, whereas 1.3 persons attended the standard care births ($t = 8.9$, $df = 492$, $p < 0.001$). Male partners were present significantly more often in the standard care group (56%) than in the doula group (44%) ($\chi^2 = 5.2$, $df = 1$, $p < 0.05$). African American participants (67%) were less likely to have a male partner present at the birth than whites (77%) and participants of other races (85%) ($\chi^2 = 8.2$, $df = 2$, $p < 0.05$). In the doula group, 56 percent of the doulas were the participants' own mother, 23 percent were a female friend, and 21 percent were another female relative. As Table 1 indicates, no significant differences were found for the number of women who had a partner or spouse at the birth or at 6 to 8 weeks postpartum.

Table 2 shows results with respect to mothers' expectations about labor and delivery along with descriptions of their childbirth experiences. As the table indicates, twice as many standard care participants, compared with participants who received doula support, stated that they had planned to ask for anesthesia during labor. Similarly, significantly more standard care than doula participants had planned to ask for epidural analgesia, although the primary study found that the two groups were equally likely to receive an epidural.

Overall, women who were supported by doulas were the most satisfied with their labor and delivery. Compared with standard care women, a higher percentage of doula-supported women described the actual labor as fairly or very easy, and significantly more of them stated that their labor was much better than they had imagined, that they coped very easily with labor, and they were also more likely to rate their childbirth experience as very good.

Table 3 presents differences between the two groups with respect to mothers' perceptions of their infants. Most women in both groups were satisfied with the amount of time spent away from their babies; however, doula participants, when compared with standard care participants, preferred to spend less time away from their babies. No statistically significant difference was found between the two groups in the actual amount of time spent away from their babies each week.

Women in both groups were equally likely to describe their babies as very special (98% for the doula group and 96% for the standard care group). A large majority of both groups also stated that they felt very close to their child, although the difference

Table 1. Demographic Characteristics by Study Group (N = 494)

Characteristic	Doula	Standard Care	χ^2 (df)
	(n = 229) No. (%)	(n = 265) No. (%)	
Race			
White	122 (54)	153 (58)	7.7 (2)*
African American	88 (38)	75 (28)	
Other	19 (8)	37 (14)	
Ethnicity			
Non-Hispanic	180 (79)	195 (74)	n.s.
Hispanic	49 (21)	69 (26)	
Marital status			
Married	33 (14)	51 (20)	n.s.
Not married	194 (86)	207 (80)	
Partner/spouse present at birth			
Yes	164 (72)	199 (75)	n.s.
No	63 (28)	66 (25)	
Partner/spouse present at birth also present 6–8 wk postpartum			
Yes	149 (91)	183 (92)	n.s.
No	15 (9)	16 (8)	

Note. All participants were nulliparous as a condition of the study's inclusion criteria.

* $p = 0.05$.

was statistically significant between the two groups. Doula-supported mothers were also more likely to describe their babies as crying less often compared with other babies. When participants were asked what they do when their baby cries even though he or she has been fed and the diaper is dry, more doula-supported than standard care mothers stated that they picked up the baby every time he or she cried, and in addition, were also more likely to state that they sensed their babies' needs very well.

Table 3 also presents participants' perceptions about themselves as mothers. Doula-supported women were more likely than the standard care participants to state that they felt very happy about having a baby, were most likely to describe themselves as managing their babies very well, and to describe becoming a mother as very easy.

Among those who had the same partner at delivery, no differences occurred between the two groups of women in their level of satisfaction with these relationships before pregnancy, during pregnancy and labor, and since pregnancy. Although most women

in both groups felt supported by others at least most of the time, more doula-supported participants felt that other persons were supportive of them at all times compared with standard care participants.

Significant differences in breastfeeding were noted between the two groups. Fifty-five percent of the doula group had breastfed their baby at some point since their child's birth compared with 42 percent of women in the standard care group ($\chi^2 = 8.1$, $df = 2$, $p < 0.05$). Fifty-one percent of the doula-supported mothers started breastfeeding within the first hour after delivery compared with 35 percent of the standard care mothers ($\chi^2 = 5.7$, $df = 1$, $p < 0.05$). No difference was found between the two groups with respect to the numbers of days that the babies were breastfed exclusively.

The two groups differed significantly about their feelings of self-worth (Table 4). Doula-supported participants were most likely to give higher positive scores about the experience of labor and delivery with respect to their feelings about being a woman, their self-worth, their bodies' performance, and their ability to be a good mother.

Table 2. Maternal Prenatal Expectations and Perceptions of Childbirth (N = 494)

Outcome	Doula (n = 229)		Standard Care (n = 265)		χ^2 (df)
	No.	(%)	No.	(%)	
Planned to ask for anesthesia					
Yes	51	(22)	118	(45)	28.2 (2)†
Undecided	161	(74)	143	(54)	
No	9	(4)	4	(1)	
Planned to ask for epidural analgesia					
Yes	80	(36)	161	(62)	34.8 (2)†
Undecided	136	(62)	90	(35)	
No	5	(2)	9	(3)	
Described labor as					
Very easy	64	(28)	43	(16)	18.0 (4)*
Fairly easy	88	(38)	87	(33)	
A little difficult	56	(24)	93	(35)	
Fairly difficult	11	(5)	25	(9)	
Very difficult	10	(4)	17	(6)	
How labor compared with what participant imagined					
Much better	110	(48)	63	(24)	40.0 (4)†
Somewhat better	75	(33)	95	(36)	
About what was expected	19	(8)	51	(19)	
Somewhat worse	16	(7)	39	(15)	
Much worse	8	(4)	17	(6)	
Coped with labor					
Very easy	85	(37)	51	(20)	25.7 (2)†
Fairly easy	103	(45)	121	(46)	
Adequately/poorly	41	(18)	89	(34)	
Overall rating of birth experience					
Very good	134	(59)	68	(26)	55.2 (2)†
Good	75	(33)	149	(56)	
Average/poor/very poor	20	(8)	48	(18)	

* $p < 0.01$; † $p < 0.001$.

Table 3. Mother's Perceptions of Her Infant and Support from Others (N = 494)

Outcome	Doula	Standard Care	χ^2 (df)
	(n = 229) No. (%)	(n = 265) No. (%)	
Describes baby as			
Very easy	91 (40)	59 (22)	17.9 (2)‡
Easy	129 (56)	190 (72)	
Difficult/very difficult	9 (4)	16 (6)	
Would like to be away from baby			
More often	8 (4)	32 (12)	13.3 (2)†
Less often	8 (4)	5 (2)	
Satisfied as is	213 (93)	225 (86)	
Feelings toward baby			
Very close	223 (97)	245 (93)	6.4 (1)*
Fairly close	6 (3)	20 (7)	
Compared with other babies, baby cries			
More often	10 (4)	19 (7)	7.1 (2)*
Less often	45 (20)	31 (12)	
The same as others	174 (76)	215 (81)	
When baby cries, picks up baby			
Every time	123 (54)	92 (35)	15.8 (1)‡
Usually/sometimes/always lets baby cry it out	106 (46)	173 (65)	
Senses baby's needs			
Very well	107 (47)	74 (28)	19.8 (2)‡
Fairly well	107 (47)	159 (60)	
Somewhat/not at all well	15 (6)	32 (12)	
Felt about having a baby			
Very happy	208 (91)	206 (78)	15.5 (1)‡
Happy	21 (9)	59 (22)	
Feels about managing the baby			
Very well	100 (44)	76 (29)	15.5 (2)‡
Fairly well	123 (54)	169 (64)	
Somewhat or very difficult	6 (2)	20 (7)	
Becoming a mother has been			
Very easy	57 (25)	39 (15)	17.8 (2)‡
Fairly easy	161 (70)	188 (71)	
Difficult/very difficult	11 (5)	38 (14)	
How often others supportive over past week			
All the time	173 (76)	144 (54)	27.5(2)‡
Most of the time	52 (23)	103 (39)	
Some/a little/none of the time	3 (1)	18 (7)	

* $p < 0.05$; † $p < 0.01$; ‡ $p < 0.001$.**Table 4. Mean Scores for Maternal Perceptions of Self-Worth (N = 494)**

Outcome	Mean Scores		t (df)
	Doula (n = 229)	Standard Care (n = 265)	
Mother's feelings about			
Herself as a woman	1.4	1.9	-8.1 (492)*
Her self-worth	1.5	2.1	-8.1 (492)*
Her body's physical strength and performance	1.3	1.8	-7.2 (492)*
Her ability to be a good mother to her baby	1.4	1.8	-6.3 (492)*

* $p < 0.001$.

Doula-supported participants were also significantly more likely to be very satisfied with the care they received at the medical center than the standard care group (94 vs 67%, respectively) ($\chi^2 = 55.8$, $df = 1$, $p < 0.001$). In addition, the doula-supported group was also more likely to state that their labor and delivery experience had a very positive effect on their feelings about the medical center than the standard care group (92 vs 64%, respectively) ($\chi^2 = 57.4$, $df = 3$, $p < 0.001$).

Discussion

Before childbirth moved from the home to the hospital, it was common practice to have female family members and close friends attend to laboring mothers along with a trained or untrained midwife (13). The findings of this study support this practice. The study was distinguished by three characteristics that acknowledge the special role of family and friends in the birth process; that is, the doula was a close female friend or relative, she underwent a brief training with the mother, and she was selected by the mother to act as her doula. All previous studies, except for one (8), used doulas who were unknown to the mother, had more extensive training, and were selected by the researcher. The present study is also only the fifth in over a decade to examine long-term outcomes to doula support. From a clinical perspective, the findings support further examination of how best to train and engage close female friends and relatives to enhance immediate and long-term childbirth outcomes.

Bias from four sources may have influenced the findings. First, a significant difference was seen in the two groups for race, most likely as a result of loss to follow-up among participants; it is not clear to what degree and in what manner a difference in race may have influenced the results. Second, the research associate who conducted the interviews was not blinded to the purpose of the study. The effect of this bias is considered minimal since the research associate interviewed participants as much as 4 months after their initial enrollment into the study. Third, recall bias may have influenced some of the responses about childbirth expectations. Fourth, the study would have benefited from the use of additional standardized measures of known validity and reliability. Future studies, while replicating the unique characteristics of this study's design, should take steps to control for these sources of bias.

The results reinforce and extend the findings of Hofmeyr et al (2) with respect to 6-week outcomes, suggesting that a mother's view of her baby and world is

positively influenced by doula support. In both the present study and that by Hofmeyr et al, doula-supported mothers reported more positive perceptions of labor and childbirth, enjoyment of their babies, greater confidence in their mothering skills, and more breastfeeding than nonsupported women. In the present study, doula-supported mothers also had very positive perceptions of their self-worth and reported that they were helped by the support of others.

The body of literature on this topic would benefit from additional studies that examine the mechanisms underlying doula support and beneficial outcomes. Biologically, it has been suggested that the relationship between stress reduction and the release of the woman's natural oxytocin plays a significant role in doula support (12). Researchers could also draw from sociological studies on social support to determine whether it is the nature of the relationship (e.g., relative vs friend vs professional), the quality of the relationship, or the duration or provision of emotional or functional support (e.g., help with chores, finances, babysitting) that influence beneficial postpartum outcomes. Orenstein has begun to look at doula support using social support theory (13).

The chosen doula may have an advantage over a professional doula in influencing outcomes. She likely knows the new mother's likes, dislikes, and life history, and the bond between the mother and chosen doula may be strengthened as a result of her efforts to become trained and provide support. These efforts may validate the mother in her new role and enhance her self-esteem. At the same time, the doula is rewarded by being present at the birth of the baby. The chosen doula may form a strong bond with the child, given the nature of her relationship with the infant's mother and the birth experience, and become a second nurturing adult presence in the child's life. The doula who is a close relative or friend may provide emotional and functional support long after the birth, which may be particularly beneficial for first-time mothers if their partners are not actively involved in parenting.

This study showed a positive association between doula support and patient satisfaction. Thus, hospitals that compete for obstetrical patients may benefit from offering these brief doula-training classes. As noted by Campbell et al (9), the cost of maintaining a cadre of professional doulas is likely prohibitive for a hospital; the cost of training friends or relatives, however, may not be a deterrent.

In this study, training sessions were limited to one or two pairs of prospective doulas and the mothers-to-be at a place of their choosing. The value of holding trainings for larger groups is uncertain. The intimate

nature and setting of the smaller training sessions may be essential to producing beneficial outcomes. One quality of doula support that should remain integral to any training is emphasizing the need for continuous support because of its demonstrated beneficial effects (11).

Conclusions

Mothers-to-be, who might not be able to afford the fee of a professional doula, may now experience the benefits of doula support. Labor support by a minimally trained female friend or relative, selected by the mother-to-be, enhances the postpartum well-being of nulliparous mothers and their infants, and is a low-cost alternative to the use of professional doulas.

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