

VIEWPOINT

The doula: an essential ingredient of childbirth rediscovered

MH Klaus¹ and JH Kennell²

University of California at San Francisco¹, San Francisco and Case Western Reserve University², Cleveland, Ohio, USA

Klaus MH, Kennell JH. The doula: an essential ingredient of childbirth rediscovered. *Acta Pædiatr* 1997; 86: 1034–6. Stockholm. ISSN 0803–5253

Eleven randomized control trials examined whether additional support by a trained lay person (called a doula), student midwife or midwife, who provides continuous support consisting of praise, encouragement, reassurance, comfort measures, physical contact and explanations about progress during labor, will affect obstetrical and neonatal outcomes. The women were healthy primigravidas at term. Meta-analysis of these studies showed a reduction in the duration of labor, the use of medications for pain relief, operative vaginal delivery, and in many studies a reduction in caesarian deliveries. At 6 weeks after delivery in one study a greater proportion of doula-supported women were breastfeeding, reported greater self-esteem, less depression, a higher regard for their babies and their ability to care for them compared to the control mothers. Observations during labor showed that fathers remained farther away from mothers than doulas, talked and touched less. When the doula was present with the couple during labor the father offered more personal support. The father-to-be's presence during labor and delivery is important to the mother and father, but it is the presence of the doula that results in significant benefits in outcome.

JH Kennell, Rainbow Babies' and Children's Hospital, Division of Behavioral Pediatrics and Psychology, Mailstop 6038, 11100 Euclid Avenue, Cleveland OH 44106, USA

When the location of birth shifted from home to hospital (60–70 years ago), many childbirth practices that had evolved over the centuries were lost or altered, including birth position, obstetric medication, and companionship during labor. In the past, it was common for a woman in labor to be supported by other women (1).

Over the last several years the effects of additional support in labor by a woman have been studied in detail. Eleven separate randomized control trials conducted in Belgium, Canada, Finland, France, Greece, Guatemala, South Africa and the United States have examined whether emotional and physical support in labor by an experienced woman altered obstetrical and neonatal outcomes. The mothers were healthy primigravidous women at term who had a normal pregnancy (2–8).

The "intervention" was the introduction of a trained lay person, student midwife or midwife who provides continuous support consisting of praise, encouragement, reassurance, comfort measures, physical contact (e.g. rubbing the mother's back and holding her) and explanations about her progress and what is happening during the labor. She maintains this support with a positive attitude in an active way that is tailored to the needs and wishes of each woman. She does no medical care giving.

Hodnett (8), as part of the Cochrane pregnancy and childhood group, has analysed 10 of these 11 studies of mothers of full term infants and included a small trial (34 patients) of social support during the labor of preterm mothers. She noted in her results that "the continuous presence of a trained support person who had no prior

social bond with the laboring woman reduced the duration of labor, the likelihood of medication for pain relief, operative vaginal delivery and a 5 minute apgar less than 7." In addition, she noted that "in settings which did not permit the presence of significant others, the presence of a trained support person reduced the likelihood of a caesarean section delivery." She observed that in four trials the supported mothers were more positive about the birth experience. Hodnett commented on the "considerable consistency in the results" even though the hospitals varied in their conditions and practices, the risk status of their patients, and the qualifications of their supporting women.

In the six studies in which the laboring women were accompanied by a family member, the failure to find a significant reduction in the cesarean delivery rate is probably due to the already very low rate. The control group mean rate of 6.1% in the six hospitals where women were accompanied by their male partners is not likely to be reduced significantly by any intervention. This rate in the six hospitals is in contrast to the control group mean cesarean rate of 15% in the five hospitals where a woman labors without the support of her male partner or friend. Most importantly, studies of fathers' presence during labor do not report a decrease in cesarean delivery rates. In addition, in a recent unpublished randomized clinical trial of 555 upper, middle and lower income women, Kennell and McGrath observed a significantly decreased rate of cesarean deliveries (22.5% to 14.2% $p < 0.012$), and need for epidural analgesia (75.7% to 66.3% $p < 0.03$) when

women and their male partners were supported by a doula compared to the partner alone (9).

Another consideration is the work of Thornton and Lilford who have calculated that the reduction in cesarean deliveries using the "Active Management of Labour" is not the result of artificial rupture of the membranes or large doses of oxytocin but the *continuous support* by a midwife during the entire labor (10).

In a review of anthropologic data about birthing practices in 128 representative non-industrialized societies, it is of interest that in all but one, support was provided by a woman (1). To emphasize the value of a woman companion who is warm, supportive and caring, the Greek word "doula" was chosen for a lay woman care giver who provides continuous physical, emotional and informational support to the mother during labor and delivery.

Studies in human and primate mothers have indicated the association between acute anxiety and arrests of labor, and that increased levels of catecholamines (epinephrine and norepinephrine) decrease uterine contractibility and result in a longer labor (11, 12). One possible mechanism to account for the results in the doula (labor support) studies is the effect of the doula as a source of strength and confidence to relax the laboring woman, reduce her anxiety and catecholamine levels.

Another possible mechanism of action to explain the effect of the doula has been suggested by Uvnäs-Moberg, who hypothesized that the close contact, touch and massage of the doula may stimulate the production of oxytocin in the mother's brain resulting in slight drowsiness, euphoria and an increased pain threshold which would help the mother relax and allow the labor to progress more easily.

The observation that in certain animal species such as the elephant, dolphin, bat and cow, a female remains close by the laboring mother-to-be may be helpful in working out the physiological mechanism by which continuous support in the human improves obstetric outcome.

In addition to the direct effects of the doula on the course of labor and delivery, there are effects manifested after the birth of the baby that are of special interest to pediatricians and others who care for children and families. In the first study of doula support in Guatemala, both control and supported mothers and their babies were observed in a standardized situation through a one-way mirror in the first 25 min after leaving the delivery room (2). The doula-supported mothers showed more affectionate interaction with their infants, with significantly more smiling, talking and stroking than the mothers who did not have a doula.

Investigators in Johannesburg observed the psychological health of the women and infants in both the control and supported groups for 6 weeks after the delivery (13). There were favorable effects of doula support on the subsequent psychological health of the women and infants. At 24 h, the mothers in the doula group had significantly less anxiety compared with the no-doula group, and fewer doula-supported mothers considered the labor and delivery to

have been difficult. At 6 weeks there were also impressive behavioral differences postpartum, a significantly greater proportion of women in the doula group were breastfeeding (51% compared with 29%), and feeding problems were significantly less in the doula group (16% vs 63% in the no-doula group). Mothers in the doula group said that during the first 6 weeks after delivery they spent 1.7 h a week away from their baby in contrast to those in the no-doula group, who spent 8.6 h away.

The doula mothers noted that it took an average of 2.9 days for them to develop a relationship with their baby compared with 9.8 days for the no-doula mothers. These results suggest that support during labor expedited the doula group mothers' readiness to fall in love and bond with their babies, and they spent less time away from them. At 6 weeks mothers in the doula group remained significantly less anxious, had scores on a test of depression that were significantly lower than the control group and had higher levels of self-esteem. These maternal qualities would be highly favorable for the development of the infants. The doula mothers also felt significantly more satisfied with their partners 6 weeks post-term (71% compared with 30%). Not only did these supported mothers show more positive behaviors with their babies, but they more often rated their baby as better than a standard baby, more beautiful, clever and easier to manage than did the control mothers, who perceived that their baby was slightly less beautiful and clever than a standard infant. Further studies are needed to confirm these remarkably positive observations in Johannesburg. The similarity of the behaviors and responses of the doula supported mothers in the first 6 weeks to those of mothers who have early contact with their newborn infant is notable.

Because fathers provide support to about 80% of laboring women in the United States, the presence of a doula might be considered unnecessary. However, results from the randomized study of doulas for couples show that the support provided by male partners does not have the same positive impact on perinatal outcome as does that of experienced doulas. Fathers report that they want to be present at the birth of their babies and mothers also want them there (14). However, the role of the father-to-be is not clear and he is not well prepared for the strange sights, smells and sounds including the cries of women in labor. Even more stressful are the changes occurring in his wife. With a doula present the father is never left as the sole, isolated responsible person caring for the laboring woman. Recognition and validation of the father's right and need to be present at the birth of his baby is not only compatible with but also enhanced by the presence of a doula.

In one study fathers and doulas providing the sole support for a laboring woman were observed directly using a time sampling instrument in early and late labor during periods when the laboring woman was uncomfortable. For all behaviors, except talking which increased during late labor from 14% of the time to 38%, fathers spent a greater percentage of time touching and were closer to their partners during early labor than during late labor. In late labor

when the contractions were more severe they were more than 30 cm away 67% of the time, compared to 48% in early labor, and held hands and touched their partners less. Additionally, fathers in this study routinely deferred their place at their laboring partner's side when hospital personnel entered the room for any reason. When fathers' behavior patterns were compared to those of doulas they were found to be significantly different for all behaviors. Fathers remained significantly farther from mothers, and talked and touched significantly less. Fathers were present 78% of the time that their partners were uncomfortable during early labor. This was in contrast to the doulas' continuous, uninterrupted physical and emotional support consisting of maintaining close proximity and frequent touching and talking, which increased during late labor. Three-quarters of the doulas's touching was rubbing, stroking or holding, in contrast to 15% in early and 13% in late labor by the fathers (14, 15). Fathers' participation was rated by mothers as increasing the meaning of the labor experience and by the couple as strengthening their relationship.

In another time-sampling study, when the doula was together with the father during the woman's labor and delivery, the doula touched and held the woman's trunk so the father was freed to offer more personal support, and did more intimate touching of the mother's head and face (25% of the time) compared to the father alone (3%) and doula (1%) (15, 16). The father-to-be's presence during labor and delivery is important to the mother and father, but it is the presence of the doula that results in significant benefits in outcome.

In the future, it will be important to confirm the observation in the Johannesburg study on the psychological health of the mother at 6 weeks postpartum. Although the improved obstetrical outcomes have been reported in multiple studies, there is as yet only one report describing the mother's psychological health at 6 weeks. In addition, many other questions arise. How does continuous emotional support compare with intermittent support? Does continuous support alter the hormonal changes in labor? Further studies to uncover the mechanism by which social support during labor improves maternal outcome are necessary to place this humane intervention on a firmer physiologic basis.

References

- Lozoff B, Jordan B, Malone S. Childbirth in cross-cultural perspective. *Marriage Fam Rev* 1988; 35-60
- Sosa R, Kennell J, Klaus M, Robertson S, Urrutia J. The effects of a supportive companion on perinatal problems, length of labor and mother-infant interaction. *N Engl J Med* 1980; 303: 597-600
- Klaus MH, Kennell JH, Robertson SS, Sosa R. Effects of social support during parturition on maternal and infant morbidity. *BMJ* 1986; 293: 585-7
- Hodnett ED, Osborn R. Effects of continuous intrapartum professional support on childbirth outcomes. *Res Nurs Health* 1989; 12: 289-97
- Hemminki E, Virta AL, Kopinen P, Malin M, Kojo-Austin H, Tuijmalala R. A trial on continuous human support during labor: feasibility, interventions and mother's satisfaction. *J Psychosom Obstet Gyn* 1990; 239-50
- Kennell JH, Klaus MH, McGrath SK, et al. Continuous emotional support during labor in a U.S. hospital. *JAMA* 1991; 265: 2197-201
- Hofmeyr GJ, Nikodem VC, Wolman WL. Companionship to modify the clinical birth environment: Effects on progress and perceptions of labour and breastfeeding. *Br J Obstet Gynaecol* 1991; 98: 756-64
- Hodnett ED. Support from caregivers during childbirth. In: Neilson JP, Crowther CA, Hodnett ED, Hofmeyr GJ, Keirse MJNC, editors. *Pregnancy and childbirth module of the Cochrane database of systematic reviews* [database on disk and CD-ROM]. The Cochrane Collaboration; Issue 2. Oxford: update software, 1997
- Kennell JH, McGrath SK. Labor support by a doula for middle income couples: The effect on cesarean rates [abstract]. *Pediatr Res* 1993; 33: 12A
- Thornton JG, Lilford RJ. Active management of labour: current knowledge and research issues. *BMJ* 1994; 309: 366-9
- Zuspan FP, Cibils LA, Pose SV. Myometrial and cardiovascular responses to alterations in plasma epinephrine and norepinephrine. *Am J Obstet Gynecol* 1962; 84: 841-51
- Lederman RP, Lederman E, Work BA Jr, McCann DS. The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. *Am J Obstet Gynecol* 1978; 132: 495-500
- Wolman W-L. Social support during childbirth: psychological and physiological outcomes. D.Phil thesis, University of Witwatersrand, Johannesburg, South Africa, 1991
- Bertsch TD, Nagashima-Whalen L, Dykeman S, Kennell JH, McGrath SK. Labor support by first time fathers: direct observations with a comparison to experienced doulas. *J Psychosom Obstet Gyn* 1990; 11: 251-60
- Lohn BC, Kennell JH, McGrath SK. Comparison of fathers and doulas as supportive labor companions [Abstract]. *Pediatr Res* 1992; 31: 12A
- Brooks AK, Kennell JH, McGrath SK. Supportive behaviors of men and women during labor. *Pediatr Res* [Abstract] 1995; 37: 17A

Received January 17, 1997. Accepted in revised form May 28, 1997