

"Effects of Social Support During Parturition on Maternal and Infant Morbidity" (1986), by Marshall Klaus, John Kennell, Steven Robertson, and Roberto Sosa ^[1]

By: Darby, Alexis Keywords: [Marshall Klaus](#) ^[2] [John Kennell](#) ^[3] [Steven Robertson](#) ^[4] [Roberto Sosa](#) ^[5] [Emotional Support](#) ^[6] [labor companion](#) ^[7] [infant morbidity](#) ^[8]

In 1986, researchers Marshall Klaus, John Kennell, Steven Robertson, and Roberto Sosa in the United States published "Effects of Social Support During Parturition on Maternal and Infant Morbidity," hereafter "Effects of Social Support..." in the *British Medical Journal*. In that article, the authors describe their efforts to determine if the presence of a supportive companion during a pregnant woman's labor, or parturition helped to either shorten her labor or reduce negative health outcomes for both mother and infant, also called morbidity. After conducting the study in Guatemala, the researchers concluded that the presence of a supportive labor companion, whom they call doula, resulted in shortened duration of labor for pregnant women and reduced health risks during and after childbirth.

Prior to the 1986 publication of "Effects of Social Support..." physicians Klaus and Kennell worked together to examine maternal-infant bonding at Case Western Reserve University in Cleveland, Ohio. Maternal-infant bonding is the process of the chemical and emotional bonds forged between the mother and her infant. Scientists Robertson and Sosa both worked as clinical researchers affiliated with different children's hospitals in the United States. The four researchers all studied bonding between mothers and their infants, and began publishing their findings together in the late 1970s on variables affecting maternal-infant bonding.

In 1980, during a study on maternal-infant bonding, Klaus, Kennell, Robertson, and Sosa serendipitously discovered that pregnant women experienced shortened durations of labor when a female research assistant accompanied them throughout the childbirth process. In the research, the female research assistant did not intend to be present for emotional support. However, throughout the process, she talked with and inadvertently comforted the pregnant women in the study. As a result, the researchers observed the pregnant women's labor durations shorten from an average of 19.3 hours without companionship to an average of 8.7 hours with the presence of the female companion. The authors later called such supportive female companions doulas, which is a word derived from the Greek language that means woman servant. Those observations led the researchers to perform the 1986 study documented in "Effects of Social Support..." to determine the effects of doulas on pregnant women's labor durations and outcomes.

The authors divide "Effects of Social Support..." into four sections, including an introduction, methods, results, and discussion. In the introduction, the authors discuss the need to test new techniques to improve the birthing process for both mothers and their infants. The authors detail the overall experimental setup of the research study in the methods section. In the results section, they describe the findings, which include a [reduction](#) ^[9] in duration of labor and birth-related complications in mother and infant within the experimental group that received care from a doula. Finally, the authors discuss their overall findings and possible applications of those findings to other studies.

In the introduction, the authors of "Effects of Social Support..." detail the need for new techniques to aid in the birthing process and the overall purpose of their study. As the four researchers indicate, their purpose was to determine the effects of companionship on a pregnant woman's labor duration and risk of complications. They emphasize that, with the development of new birthing technologies at the time, such as the use of synthetic [pregnancy hormones](#) ^[10] ^[11] to facilitate a woman's birthing process, scientists should be open to new strategies to help women during [pregnancy](#) ^[10] and delivery. The authors also cite the use of doulas during labor as another such strategy.

The authors summarize their methods in the next section of "Effects of Social Support..." They explain that they assessed 465 full term pregnant women in early labor at the Social Security Hospital in Guatemala. The researchers did not provide a time frame or length during which they conducted the study. However, they did mention that the hospital where they conducted the study had over fifty infant deliveries per day. The authors treated the control group of pregnant women with regular hospital protocol. At that hospital, hospital protocol dictated that women in early labor be kept in a large waiting room together with no family members present. Once those women moved into active labor, hospital staff would bring them into another group delivery room, again with no family members permitted per hospital policy. As the authors explained, one of three nonmedical female doulas accompanied each of the women in the experimental group at the start of their participation in the study through the entire childbirth process. The doulas provided support to the laboring women with comfort techniques such as back rubs, hand-

holding, and verbal encouragement.

Klaus, Kennell, Robertson, and Sosa also discuss the specifics of what they looked for among participants and whom they excluded from the study in their methods section. The key differences the authors analyzed between the control and experimental groups of pregnant women included the women's duration of labor, the use of synthetic birth [hormones](#)^[11] to expedite labor, any instances of cesarean section due to fetal distress, and the infant's Apgar score upon birth. The Apgar score is a scale that physician Virginia Apgar designed in 1952 to assess an infant's health upon birth based on its heart rate, breathing rate, stimuli reaction, muscle activity, and color on a scale from zero to ten. The researchers considered an infant's Apgar score at less than eight out of ten as a poor health condition. The authors excluded women from the study's final results if their infants weighed less than 5.5 pounds or more than 8 pounds, or if the mother had twins. The researchers also excluded women from the study if they had to use synthetic birth [hormones](#)^[11] or have a cesarean section. Overall, the study began with 465 women, with 279 in the control group without doulas and 186 in the experimental group with doulas. After the authors made the exclusions, the study's final results encompassed 249 pregnant women in the control group and 168 pregnant women in the experimental group that totaled 417 women.

Within the results section of "Effects of Social Support..." the authors state their data on the effects of doulas on pregnant women's durations of labor and any overall complications involved in the birthing process. They found that 59 percent of pregnant women in the control group experienced problems while in childbirth, while only 27 percent of pregnant women in the experimental group experienced problems during childbirth. The researchers considered labor problems to be the use of synthetic [hormones](#)^[11] to expedite the mother's birthing process, the use of cesarean section due to fetal distress, and a low infant Apgar score. The authors further specify that 17 percent of women in the control group underwent a cesarean section, while only 7 percent of women in the experimental group received a cesarean section. Additionally, 7 percent of infants born to women in the control group had complications that required their admission to the neonatal intensive care unit or the ICU. Only 2 percent of infants born to women in the experimental group needed to be transferred to the neonatal ICU. Based on those findings, the authors concluded that the experimental group of women with doulas experienced fewer problems with labor than those women without doulas. Among the women who had no identifiable problems associated with their labor, the duration of labor differed between the women in the control and the experimental groups. In the control group, the average duration of labor for pregnant women was 15.5 hours. In the experimental group, 7.7 hours was the average duration of labor for pregnant women with supportive companions, which supported the perception that doulas helped make labor shorter and easier than when doulas were not present. Therefore, the researchers' results indicated the presence of doulas was beneficial for both mother and infant.

In the discussion section of "Effects of Social Support..." the four researchers compare their results with other studies and state their overall conclusion that the presence of a doula during labor results in beneficial effects on a mother's labor duration and health outcomes. Klaus, Kennell, Robertson, and Sosa mention prior studies that found similar results when using trained medical nurses called midwives during a pregnant woman's labor rather than doulas. Those studies found that a midwife's presence significantly shortened labor duration and resulted in more desirable outcomes for both mother and infant.

In their article, the authors concede that they can only speculate about the exact mechanics by which doula support reduces a woman's labor duration and complication risk. However, the authors cite two studies conducted on pigs and monkeys that tested the effects of adrenaline, a stress [hormone](#)^[12], on labor. The researchers in those animal studies looked at how physiologically stressed the pregnant animals' bodies became while in labor. In those studies, researchers found that increased adrenaline in the pregnant animals was correlated with increased psychological stress, and led to a [reduction](#)^[9] in uterine contractions and a resulting increase in labor duration. Those complications were furthered by a resulting [reduction](#)^[9] in blood flow from mother to [fetus](#)^[13] in the [uterus](#)^[14], which limited the amount of oxygen the [fetus](#)^[13] received. Therefore, the authors of "Effects of Social Support..." summarize that they found that doulas reduced the levels of stress among pregnant mothers, which minimized the number of negative side effects related to those same variables scientists found in the animal studies.

In "Effects of Social Support During Parturition on Maternal and Infant Mortality," the authors found that pregnant women were more likely to have shorter and safer birthing experiences with the support of a doula. The article's publication led to further research, primarily conducted by Klaus and Kennell, on the functionality and benefits of pregnant women using doulas during labor. In 1991, Klaus and Kennell went on to co-found the [organization](#)^[15] DONA International, an agency that certifies doulas to provide the same outcomes as seen in "Effects of Social Support..." to pregnant women around the world.

Sources

1. Adamsons, Karlis, Eberhard Mueller-Heubach, and Ronald E. Myers. "Production of Fetal Asphyxia in the Rhesus Monkey by Administration of Catecholamines to the Mother." *American Journal of Obstetrics and Gynecology* 109 (1971): 248–62.
2. Barton, Malcolm Dennis. Allen Killam, and Giacomo Meschia. "Response of ovine uterine blood flow to epinephrine and norepinephrine." *Proceedings of the Society for Experimental Biology and Medicine* 145 (1974): 996–1003.
3. Klaus, Marshall Henry, John Kennell, Steven Robertson, and Roberto Sosa. "Effects of Social Support during Parturition on Maternal and Infant Morbidity." *British Medical Journal* 293 (1986): 585–7.

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1341377/pdf/bmjcred00250-0015.pdf>^[16] (Accessed March 20, 2018).
- O'Driscoll, Kieran, John M. Stronge, and Maurice Minogue. "Active management of labour." *British Medical Journal* 3 (1973): 135–7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1586344/pdf/brmedj01567-0029.pdf>^[17] (Accessed March 20, 2018).
 - Sosa, Roberto, John Kennell, Marshall Klaus, Steven Robertson, and Juan Urrutia. "The Effect of a Supportive Companion on Perinatal Problems, Length of Labor, and Mother-infant Interaction." *New England Journal of Medicine* 303 (1980): 597–600.

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