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# Factors Associated With Labor Support Behaviors of Nurses

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## ABSTRACT

Labor support is known to support progress of normal labor. Nurses are encouraged to provide labor support yet may encounter barriers to the practice of labor support. The purpose of this secondary data analysis was to examine individual and institutional factors associated with labor support behaviors. Age and experience were individual factors related to labor support. Older and more experienced nurses reported providing more labor support. Institutional factors associated with labor support were lower rates of epidural analgesia use and cesarean surgery. These findings indicate birthing families should understand that the birth environment may influence the care that nurses give during labor. Choosing an environment that supports normal birth may be the best place for receiving labor supportive nursing care.

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Having labor support from a nurse during labor can have benefits for mother and baby. Labor support does not always occur because nurses tend to have coexisting responsibilities for more than one laboring woman, spend large amounts of time managing technology or keeping records, and begin or end shifts in the middle of women's labors (Hodnett, Gates, Hofmeyr, & Sakala, 2007). While providing labor support is an important component of nursing care, only 6.1% of nurses' time was spent in providing supportive care in a work sampling study of intrapartum nurses (Gagnon & Waghorn, 1996). The purpose of the present study was to examine factors associated with labor support behaviors of nurses.

## REVIEW OF LITERATURE

### *What Is Labor Support?*

Labor support is a term used to describe the work of caring or social support that is provided to women during labor and birth (Payant, Davies, Graham, Peterson, & Clinch, 2008). Birth outcomes improve when a trained birth companion (doula), nurse, or nurse-midwife provides supportive care (Sleutel, 2002). When labor support behaviors are implemented consistently, they have the ability to positively affect birth experiences (Adams & Bianchi, 2008).

Hodnett et al. (2007) completed a systematic review to assess the effect of continuous, one-to-one intrapartum support, compared with usual care.

The outcomes of their review included labor events, birth events, newborn events, immediate maternal psychological outcomes, and long-term maternal outcomes. Overall, 16 trials involving 13,391 women met the criteria for inclusion in their review and provided usable outcome data. The results revealed that women who had continuous one-to-one support during labor were less likely to have regional analgesia/anesthesia, an instrumental vaginal birth, or cesarean surgery or to report dissatisfaction with the childbirth experience. Women with continuous one-to-one labor support were more likely to have a spontaneous vaginal birth and tended to have slightly shorter labors. Hodnett et al. (2007) also discovered evidence that strong and prolonged continuous support during labor may be most effective, and continuous support appears to be more effective when it is provided by caregivers who are not employees of the institution. Also, continuous support that begins earlier in labor appears to be more effective than support that begins later in labor. Three meta-analyses provided consistent findings that women in labor who had continuous support were less likely to have a cesarean or forceps birth and receive oxytocin (Hodnett, 2002; Scott, P. Klaus, & M. Klaus, 1999; Zhang, Bernasko, Lebovich, Fahs, & Hatch, 1996). The review completed by Hodnett et al. (2007) provides compelling evidence that continuous labor support is a cost-effective, safe intervention that may be beneficial for many women. Their finding suggests that continuous one-to-one labor support should be the norm for women in labor.

Although labor support can be provided by a variety of individuals (e.g., a family member or friend, a trained doula, a labor nurse, or a nurse-midwife), a labor nurse is always present during hospital labors and birth. Labor support provided by nurses has been examined by many researchers and is the focus of this research. Intrapartum nurses are present at 99% of births and have a unique opportunity to positively affect a laboring woman (Adams & Bianchi, 2008). Because nurses spend more time with women in labor than do other health-care providers, nurses can have a powerful influence on the physiologic and psychosocial outcomes of the childbirth experience (Payant et al., 2008). The theoretical basis for the benefits of labor support is proposed to be the reduction of stress and stress responses a woman may experience in labor (Corbett & Callister, 2000). In addition, the nurse providing labor support may encourage activities

and positions in labor that are known to be beneficial to the progress of labor (Hodnett et al., 2007).

The act of labor support includes three main ideas: emotional support, physical comfort, and advocacy. First, emotional support is directed toward activities such as continuous presence, positive reassurance, and praise (Miltner, 2000; Payant et al., 2008). According to Adams and Bianchi (2008), emotional support can encompass several types of behavior: nursing presence, effective caring attitude, distraction, spirituality, and partner care. Second, physical support and comfort measures enhance labor progress and increase satisfaction with the birth experience (Adams & Bianchi, 2008). To accomplish this, nurses may use environmental control, proper positioning, touch, application of cold and heat, and partner care. During labor and birth, proper positioning can reduce pain, analgesia use, and perineal trauma and enable more effective uterine contractions (Adams & Bianchi, 2008). Providing physical comfort consists of activities such as therapeutic touch, massage, warm baths or showers, and encouraging fluid intake and output (Payant et al., 2008). Interventions that encourage comfort during labor may allow the laboring woman to be actively involved in her labor, giving her confidence and strength (Schuiling & Sampsel, 1999). Last, advocacy for the laboring woman consists of communicating the woman's wishes and offering information about the progress of labor, coping methods, or relaxation techniques (Payant et al., 2008). When advocating for the laboring woman, the nurse must convey respect, acknowledge the mother's expectations, and resolve conflict (Adams & Bianchi, 2008).

In addition to the three main ideas of labor support, Hodnett (1996) proposed that labor support also consists of information/advice and partner support. Instructional/informational labor support behaviors include instruction for relaxation, breathing, and pushing and information about patient care. Providing instruction about breathing awareness and use of different breathing levels can increase a woman's confidence and ability to cope with contractions (Adams & Bianchi, 2008). Nurses also can decrease anxiety and provide support to the partner by offering information about the woman's labor progress (Adams & Bianchi,

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2008). It is also important that the intrapartum nurse assess the partner's expectations related to the labor and birth process; if the expectations are not in conflict with the laboring woman, every attempt should be made to honor them (Adams & Bianchi, 2008).

### ***The Problem***

Concerns about lack of labor support have been growing since the middle of the 20th century when the majority of women began to give birth in a hospital setting as opposed to the home setting (Hodnett et al., 2007). Modern obstetric care in a hospital setting may interrupt the natural process of birth by subjecting women to institutional routines, high rates of intervention, unfamiliar personnel, and lack of privacy (Romano & Lothian, 2008). These harsh conditions may have an adverse effect on the progress of labor and may inhibit the laboring woman from feeling competent and confident in her ability to give birth naturally (Hodnett et al., 2007).

Another concern regarding labor support lies within the ability of the professional nurse to provide effective labor support considering the modern institutional birth environment (Zwelling, 2008). Nurses tend to have coexisting responsibilities for more than one laboring woman, spend large amounts of time managing technology or keeping records, and begin or end shifts in the middle of women's labors (Hodnett et al., 2007). In a study by Barnett (2008), labor and delivery nurses were asked an open-ended question about the factors that interfered with the time they spent with a laboring woman. The majority of nurses reported on the need to care for other laboring patients. The intrapartum nurse is also expected to know what labor support is and how to provide it; however, little agreement about its meaning or its nature is apparent (Sauls, 2006). Collectively, this means one-to-one support by a nurse may be the exception, not the routine.

### ***Intention to Provide Labor Support***

Why is continuous nursing labor support not the norm for providing labor care? Payant et al. (2008) examined nurses' intentions to provide labor support. The study included 97 registered nurses from two birthing units. Nurses' views regarding continuous labor support were measured with a survey that included questions about subjective norms, perceived behavioral control, intention, attitudes, and organizational barriers. Two scenarios were in-

cluded on the survey. Both scenarios involved a 26-year-old healthy female; however, in the first scenario, the woman requested a natural childbirth, while in the second scenario she received a labor epidural. The intentions to provide continuous labor support were higher in the "no epidural" scenario. This intention is suggestive of a common myth that if she is not hurting, the laboring woman does not have emotional needs. Payant et al. (2008) also found that 40% of the nurses who completed the survey were unaware of research evidence that supports the benefits of continuous labor support. Collectively, nurses had lower intentions, subjective norms, and attitude scores to providing continuous labor support to women with epidural analgesia when compared to women without (Payant et al., 2008).

### ***Barriers to Continuous Labor Support***

While nurses may believe that labor support is beneficial, they encounter barriers to providing this support to their patients. Sleutel, Schultz, and Wyble (2007) conducted a qualitative study to examine nurses' views of barriers to continuous labor support. Their study included 416 registered nurses who provided narrative comments. The most frequent comment was that unnecessary medical interventions prevented nurses from providing optimal labor support. Factors that hindered nurses' intrapartum care fell into six themes; (1) hastening, controlling, and mechanizing birth; (2) facility culture and resources; (3) mothers' knowledge and medical status; (4) outdated practices; (5) conflict; and (6) ethical/professional decline. Of these six themes, hastening, controlling, and mechanizing birth was most frequently mentioned (Sleutel et al., 2007). This particular theme was alarming because research does not support that medical management of labor and birth is safer than respecting and facilitating normal physiology (Romano & Lothian, 2008).

Many nurses in Sleutel et al.'s (2007) study also reported that medical interventions were a barrier to optimal nursing care and to professional labor support techniques. On the other hand, it is not just health-care professionals who seem to hasten and control the labor and birth experience. Many nurses in Sleutel et al.'s (2007) study wrote that patients and families had unrealistic expectations to have a scheduled birth on demand with no pain. Nurses also reported that patients had their minds made up before labor to get an epidural and often declined trying nonpharmacologic methods of pain reduction.

Sleutel et al. (2007) found that barriers within the birthing culture included architectural limitations such as not having whirlpools, rocking chairs, birthing balls, or showers. On a more positive note, the nurses in their study also said that teaching hospital environments influenced the nurses' ability to provide labor support techniques because more emphasis was placed on evidence-based care. Poor staffing and lack of midwives and doulas were also obstacles. Outdated practices were reported as frustrating and included physicians not allowing nurses to use intermittent fetal monitoring or have mothers labor in chairs. Another frustrating topic, conflict, occurred mainly when physicians or other nurses undermined the respondents' attempts to use evidence-based care including labor support techniques. Ethical decline was extremely frustrating to the respondents and consisted of working with colleagues who preferred monitoring laboring patients from the nursing station rather than providing bedside labor support. The findings from Sleutel et al.'s (2007) study are consistent with another study of intrapartum nurses who reported inadequate staffing, negative attitudes of other staff, the physical environment, and lack of management support as factors preventing labor support (Davies & Hodnett, 2002).

### ***Facilitators of Labor Support***

Sleutel et al. (2007) found four themes that helped nurses provide labor support: (1) teamwork/collaboration; (2) philosophy of birth as a natural process; (3) facility culture and resources; and (4) nursing impact, experience, and autonomy. Respondents highly valued teamwork with physicians and nurse-midwives; nurses reported labor support was enhanced when physicians respected their judgment and professional opinion. Respondents testified to the normality of birth if it is allowed to progress without harsh, unnecessary medical interventions. One nurse said, "For 90% of women, labor can be a natural, normal, beautiful experience" (p. 209). Another nurse stated, "Time. Let nature take its course" (p. 209). For this philosophy to be practiced, the facility needs to have beliefs that match the philosophy of labor care. One nurse said, "I am fortunate to work in a facility that provides a lot of natural childbirth and labor support. It makes this job much more gratifying" (p. 209). Some nurses reported experiencing dissatisfaction, disillusionment, and distress from working with providers

who were outdated, unethical, or interventionistic. Findings from Sleutel et al.'s (2007) study suggest that nurses want to provide labor support but encounter factors that discourage them. Sleutel et al.'s (2007) study is consistent with facilitators reported by Davies and Hodnett (2002).

### ***Mothers' Perceptions of Labor Support***

In exploring mothers' experiences of labor support, Bowers (2002) reviewed and synthesized findings from qualitative research of women's perceptions of professional labor support. The 17 studies included in Bowers' (2002) review were dated from 1990 to 2001. The findings indicated that women expected to have pain during labor and birth, and they also expected to have culturally appropriate interventions to help them control and manage pain. Pregnant women expected nurses would support them during labor by making them as comfortable as possible, keeping them calm, keeping their coaches calm, providing reassurance that everything would be alright, providing assistance with breathing and relaxation techniques, and providing comfort measures that would assist in relieving pain. Another expectation was that they would have the continuous presence of a nurse during labor. In an earlier study by Bryanton, Fraser-Davey, and Sullivan (1994), women reported similar nursing behaviors as supportive, including giving praise, being calm and confident, helping with breathing and relaxation, and treating the woman with respect. Women in a qualitative study of the meaning of nursing presence in labor assumed that nurses would be available to them and know and understand them (MacKinnon, McIntyre, & Quance, 2005). Also, a positive perception of childbirth, including satisfaction with childbirth and care, may be promoted by fewer interventions such as inductions, forceps/vacuum extraction, and episiotomies, by participation in decision making, and by a positive perception of partner, nurse, midwife, and doula support (Bryanton, Gagnon, Johnston, & Hatem, 2008). These studies all suggest that women expect nurses to provide labor support to them.

According to findings in the literature, labor support provided by a nurse is beneficial to the progress

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of normal labor and valued by laboring women. There are factors, however, that may interfere with the provision of labor support by nurses. The purpose of this secondary data analysis was to examine factors associated with labor support behaviors of nurses who provide labor and birth care. Two research questions guided this study. First, is there a relationship between nurses' demographic characteristics and labor support? And second, is there a relationship between labor support behaviors of nurses and characteristics of the birthing units in which they provide care?

## METHODS

The current study was a secondary analysis of data reported by Stark and Miller (in press). In the original study (completed in December 2006), intrapartum nurses who had provided care to laboring women in the previous 24 months were recruited from three hospitals. The institutional review boards of the three hospitals and a university approved the study. Nurses were recruited via hospital e-mail distribution lists. Members of a local chapter of the Association of Women's Health, Obstetric, and Neonatal Nurses were also recruited via e-mail. Nurses who chose to participate in the study completed an online survey generated by the 2006 version of SurveyMonkey.com. A total of 65 nurses completed the survey. Data from one subject were excluded because she indicated she had not provided labor care in the previous 24 months.

To measure the concept of labor support, Stark and Miller (in press) used the Labor Support Scale (LSS). Developed by Sleutel (2002), the LSS is a 28-item instrument in which higher scores indicate greater labor support behaviors. Sleutel (2002) tested the scale for validity and reliability (Cronbach's  $\alpha = .90$ ). For Stark and Miller's (in press) study, the internal consistency (Cronbach's  $\alpha$ ) of the LSS was .94. In addition to the LSS, Stark and Miller (in press) used a demographics questionnaire, which they developed for their study. The questionnaire included queries about the participating nurses and the hospitals where they worked. In the current study, data collected from the LSS and the demographics questionnaire in Stark and Miller's (in press) investigation were analyzed to examine factors associated with labor support behaviors of nurses.

Of the 64 nurses who completed the online survey, all were females with a mean age of 43.5 ( $SD = 10.6$ ) years. Most ( $n = 54, 84.4\%$ ) worked as staff

nurses and had worked for a mean of 14.3 ( $SD = 9.3$ ) years with laboring women. The highest degree in nursing among the participants was a master's degree in nursing ( $n = 6, 9.4\%$ ), with more than one third ( $n = 23, 35.9\%$ ) holding a bachelor's degree in nursing; most of the participants had a diploma or associate's degree ( $n = 35, 54.7\%$ ). The facilities where they worked had mean epidural rates of 53.2 ( $SD = 21.2$ ) percent; most births were attended by either obstetricians ( $n = 28, 43.8\%$ ) or certified nurse-midwives ( $n = 30, 46.9\%$ ).

## RESULTS

To address the first research question for our study, we examined relationships between the nurses' LSS scores, which measured the level of their labor support behaviors, and demographic characteristics. A positive relationship existed between labor support behaviors and age ( $r = .39, p = .004$ ) and experience giving care to birthing women ( $r = .31, p = .022$ ). Age and experience were the only two individual characteristics of the nurses that were associated with labor support behaviors, as measured by the LSS. No difference was found in the LSS scores when examined by education (less than a bachelor's degree and bachelor's degree in nursing or higher) ( $t = .92, df = 53, p = ns$ ).

To address the second research question, we examined relationships between characteristics of the nurses' birthing units where they worked and their LSS scores. A negative relationship existed between labor support and use of epidural analgesia ( $r = -.47, p = .000$ ) and cesarean surgery ( $r = -.38, p = .005$ ). Nurses who worked in birthing units with higher epidural rates or higher cesarean surgery rates reported fewer labor support behaviors. A positive relationship was found between the use of hydrotherapy and labor support ( $r = .46, p = .000$ ). No difference was found in LSS scores when primary care providers (physicians or nurse-midwives) were considered ( $t = -.36, df = 52, p = ns$ ). No associations existed between labor support behaviors, as measured by the LSS, and other hospital attributes.

## DISCUSSION AND IMPLICATIONS

In the current study, the nurses' demographic variables of age and experience caring for laboring women were related to their providing labor support. Older and more experienced nurses were more likely to have developed labor support skills. This finding has been reported previously. Sleutel et al.

(2007) suggested nurses' experience and autonomy are critical to their effectiveness and use of labor support behaviors. In Sleutel et al.'s (2007) qualitative study, one nurse said, "Lots of experience enables me to provide great alternatives to patients and influence care providers" (p. 210). The relationships between age/experience and increased labor support are reasonable. Nurses who have more experience giving labor care have had the opportunity to become more confident and competent in giving care than younger, less experienced nurses. Birthing units may benefit from having experienced nurses who can mentor and support younger nurses developing labor support behaviors. Because some nursing curricula have decreased obstetrical nursing content in recent years, new graduates may have less formal education in providing labor support. Although the younger generation of nurses may be comfortable with technology, they may lack skills in providing labor support.

In our study, nurses who worked in facilities with high rates of epidural use and cesarean surgery were less likely to use labor support behaviors than nurses who worked in facilities with low rates of medical intervention. This finding not only demonstrates that the birthing environment can positively or negatively influence individual nursing care, but also suggests that medical interventions may negatively influence labor support behaviors of nurses. Our study's finding is consistent with similar results from previous research. In Sleutel et al.'s (2007) study, nurses reported the most frequent barrier to providing labor support was unnecessary medical interventions. According to Hodnett et al. (2007), when there are high rates of medical interventions, nurses may be caught up in attending to technology, keeping records, and monitoring the laboring women in order to safely carry out the procedure rather than giving comfort and providing labor support. In addition, laboring women who receive medical interventions (e.g. an epidural or labor induction) have more limitations (e.g. limited movement, confined to bed, limited oral intake). The interventions and subsequent limitations may give the nurse the perception that less labor support can be provided. In a study by Payant et al. (2008), nurses reported lower intentions to provide continuous labor support to women with epidural analgesia than to women without epidural analgesia. Payant et al. (2008) suggested nurses may perceive that labor support is not needed when pain is relieved by epidural analgesia. Thus, as indicated in

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previous studies and the current investigation, the birthing environment in which labor and birth care is provided can positively or negatively influence labor support behaviors of nurses.

The current study's findings present several implications for perinatal educators and for birthing women and their families. Perinatal educators who are nurses are valuable role models and potential mentors to other nurses who are less experienced and confident in providing labor support. In addition, perinatal educators can work with hospitals to host labor support workshops for nurses who provide birth care. All nurses, especially those who work in environments with high rates of medical interventions, may benefit from labor support workshops. Some nurses may lack knowledge of the evidence supporting labor care, as reported by Payant et al. (2008). Encouraging nurses to read the literature and attend workshops on the topic of labor care would be beneficial.

Perinatal educators can maintain contact with birthing units to track changes in rates of medical procedures. Rising rates of medical procedures such as epidurals and cesarean surgery may also indicate that labor support may decrease, even for patients who do not receive the interventions. Educators can inform couples selecting birthing care providers and environments that facilities with higher rates of medical interventions may also provide less labor supportive care. Finally, perinatal educators can encourage women and their partners who want a normal labor and birth to have a doula present to provide labor support. Although women may expect nurses to provide continuous labor support (Bowers, 2002), this may not be a realistic expectation.

Limitations to the present study must be acknowledged. The study was a secondary analysis of data. Consequently, the variables and measures were limited by the original study. The sample was small and homogenous. Future research is recommended on a larger more diverse sample.

In conclusion, evidence shows that continuous labor support and the facilitation of normal birth is the best option for laboring women (Romano & Lothian, 2008); however, continuous labor support by nurses is not routinely provided. Perinatal

educators can be advocates for nursing labor support while also educating pregnant women and their partners on the value of labor support and how to attain it.

## REFERENCES

- Adams, E., & Bianchi, A. (2008). A practical approach to labor support. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37, 106–115.
- Barnett, G. V. (2008). A new way to measure nursing: Computer timing on nursing time and support of laboring patients. *Computers, Informatics, Nursing*, 26(4), 199–206.
- Bowers, B. B. (2002). Mothers' experiences of labor support: Exploration of qualitative research. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 31, 742–752.
- Bryanton, J., Fraser-Davey, H., & Sullivan, P. (1994). Women's perceptions of nursing support during labor. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 23, 638–644.
- Bryanton, J., Gagnon, A., Johnston, C., & Hatem, M. (2008). Predictors of women's perceptions of the childbirth experience. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37, 24–34.
- Corbett, C. A., & Callister, L. C. (2000). Nursing support during labor. *Clinical Nursing Research*, 9, 70–83.
- Davies, B. L., & Hodnett, E. (2002). Labor support: Nurses' self-efficacy and views about factors influencing implementation. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 31, 48–56.
- Gagnon, A. J., & Waghorn, K. (1996). Supportive care by maternity nurses: A work sampling study in an intrapartum unit. *Birth (Berkeley, Calif.)*, 23(1), 1–6.
- Hodnett, E. D. (1996). Nursing support of the laboring woman. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 25(3), 257–264.
- Hodnett, E. D. (2002). Caregiver support for women during childbirth. *Cochrane Database of Systematic Reviews (Online : Update Software)*, (Issue 1), CD000199 10.1002/14651858.CD000199.
- Hodnett, E. D., Gates, S., Hofmeyr, G. J., & Sakala, C. (2007). Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews (Online : Update Software)*, (Issue 3), CD003766 10.1002/14651858.CD003766.pub2.
- MacKinnon, K., McIntyre, M., & Quance, M. (2005). The meaning of the nurse's presence during childbirth. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 34, 28–36.
- Miltner, R. S. (2000). Identifying labor support actions of intrapartum nurses. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 29, 491–499.
- Payant, L., Davies, B., Graham, I. D., Peterson, W. E., & Clinch, J. (2008). Nurses' intentions to provide continuous labor support to women. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37, 405–414.
- Romano, A., & Lothian, J. (2008). Promoting, protecting, and supporting normal birth: A look at the evidence. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37, 94–105.
- Sauls, D. (2006). Dimensions of professional labor support for intrapartum practice. *Journal of Nursing Scholarship*, 38(1), 36–41.
- Schuiling, K. D., & Sampselle, C. M. (1999). Comfort in labor and midwifery art. *Journal of Nursing Scholarship*, 32, 77–81.
- Scott, K. D., Klaus, P. H., & Klaus, M. H. (1999). The obstetrical and postpartum benefits of continuous support during childbirth. *Journal of Women's Health and Gender-Based Medicine*, 8(10), 1257–1264.
- Slutel, M. (2002). Development and testing of the Labor Support Scale. *Journal of Nursing Measurement*, 10(3), 249–262.
- Slutel, M., Schultz, S., & Wyble, K. (2007). Nurses' views of factors that help and hinder their intrapartum care. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 36, 203–211.
- Stark, M. A., & Miller, M. G. (in press). Development and testing of nurses' perceptions of the Use of Hydrotherapy in Labor questionnaire. *Journal of Nursing Measurement*.
- Zhang, J., Bernasko, J. W., Lebovich, E., Fahs, M., & Hatch, M.C. (1996). Continuous labor support from labor attendant for primiparous women: A meta-analysis. *Obstetrics and Gynecology*, 88, 739–744.
- Zwelling, E. (2008). The emergence of high-tech birthing. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*, 37, 85–93.

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