Published in final edited form as:

MCN Am J Matern Child Nurs. 2017 ; 42(1): 50–55. doi:10.1097/NMC.0000000000000305.

Supporting Rural Women during Pregnancy: Baby BEEP Nurses

Emily C. Evans, PhD, RN, WHNP and

Assistant Clinical Faculty, University of Virginia, School of Nursing, Charlottesville, Virginia

Linda F. C. Bullock, PhD, RN, FAAN

Jeannette Lancaster Alumni Professor of Nursing and Associate Dean for Research, University of Virginia, School of Nursing, Charlottesville, Virginia

Emily C. Evans: emilyccevans@gmail.com; Linda F. C. Bullock: lcb2u@virginia.edu

Abstract

Purpose—The aim of this study was to characterize nursing care provided by the research nurses from the Baby Behavioral Educational Enhancement of Pregnancy (Baby BEEP) study as they delivered a telephone social support intervention to low-income, pregnant women in the Midwestern United States.

Study Design and Methods—This was a descriptive qualitative study that used Peplau's Theory of Interpersonal Relations to frame and interpret the analysis.

Results—Research nurses from the Baby BEEP study found a novel way to reach a vulnerable population through weekly telephone interactions. Acting in several of Peplau's nursing roles, the care they provided led to a remarkable retention rate and therapeutic nurse-patient relationship. The Baby BEEP study demonstrated the provision of a well-received psychosocial support intervention that can be used to help underserved women throughout pregnancy.

Clinical Implications—Tele-nursing care provided to low-income, rural women was well received and reflected the principles in Peplau's Theory of Interpersonal Relations. Nurses may use this type of nursing care to support women that are difficult to reach and typically experience low levels of support. This paper describes the nursing care provided by the Baby BEEP nurses and provides a model for future, novel approaches to social support in a vulnerable and difficult to reach population.

Keywords

Nursing Theory; Social Support; Rural Population; Pregnancy; Non-Pharmacologic

Introduction

Women living in rural settings with low-income experience high rates of health disparities and poor pregnancy outcomes (Bloom, Glass, Curry, Hernandez, & Houck, 2012). Poor outcomes have been linked to high levels of stress, psychiatric disorders and inadequate

Conflicts of Interest

The authors have no conflicts of interest to disclose.

prenatal care (Gaynes et al., 2005). Typical prenatal care is rushed, brief, and focused on the health and development of the fetus, making it difficult to develop a trusting relationship. Trust is an important component of the patient- provider relationship, but has not been adequately studied in vulnerable populations (Peters, Benkert, Templin, & Cassidy-Bushrow, 2014). Determining how to interact with a healthcare provider to obtain optimal support has become a priority in rural health research (Price & Proctor, 2009).

Peplau's theory of Interpersonal Relations emphasizes the importance of the nurse-patient relationship in providing therapeutic nursing care (Peplau, 1997). Peplau suggests that through high quality nurse-patient interactions, nurses can aid individuals under psychological stress and help them become well (Haugan, Innstrand, & Moksnes, 2013). Nurse-patient interactions have been demonstrated over time as an effective means of supporting mental health and facilitating well-being (Peplau, 1997; Shattell, 2004). Although described decades ago, this theory is still relevant today, especially in light of the new United States Preventative Services Task Force guidelines recommending appropriate care and follow-up for women screening positive for depression during pregnancy (O'Connor, Rossom, Henninger, Groom, & Burda, 2016).

The Baby Behavioral Education Enhancement of Pregnancy, or Baby BEEP study, was a randomized controlled trial addressing the issues of stress support, and smoking during pregnancy. The low-income, rural women who enrolled in the study received weekly telephone calls from a baccalaureate prepared registered nurse (RN). Nurses received education in research protocols, how to respond to the women experiencing a wide variety of stressors, and community resources available in the vast array of counties participating in the study (Bullock et al., 2009). Building a relationship of trust through consistent interaction over the telephone was evident in the Baby BEEP study and may have contributed to its remarkable retention rate (Bullock et al., 2009).

The aim of this study is to characterize nursing care provided by the Baby BEEP nurses as they delivered a telephone social support intervention to low-income pregnant women experiencing high levels of stress. Peplau's theory of Interpersonal Relations is used to describe the findings and situate them within the context of nursing theory and psychiatric care.

Study Design and Methods

Original Data

Original data for this study was obtained through grant NR05313: Nursing Smoking Cessation Intervention during Pregnancy (Baby Behavioral Education Enhancement of Pregnancy or Baby BEEP) (Bullock et al., 2009). The primary outcome measures for the Baby BEEP study were smoking status, patterns of abstinence and partner influence on smoking status. Inclusion criteria for the original study were women 18 years of age or older, less than 24 weeks pregnant, a smoker, English speaking, and had access to a telephone. The sample ($N=695$) was recruited from Women Infants and Children (WIC) clinics in rural Missouri, United States. Using the Federal Office of Management and Budget rural definition #5, all the clinics were located in regions outside urban areas with 10,000 or

more people (Service, 2015). Bullock et al. (2009) provides a full description of the methods and procedures of the Baby BEEP study.

As part of the Baby BEEP study, 345 women were randomly selected to receive weekly phone calls from a RN, in addition to 24-hour access to the nurse via “beeper” as part of the intervention. The purpose of these phone calls was to “use empathetic listening skills and provide social, emotional and/or informational support in response to each woman’s individual needs, such as stressors she was facing and ways she could manage her stress responses” (Bullock et al., 2009). Nurses kept detailed records of what took place during each and every contact with the patient, creating ‘phone logs’ that span the entire course of the pregnancy and 6 weeks postpartum. On average, there were 19.5 phone calls per patient throughout the course of the study, each lasting an average of 10 minutes (Evans, Deutsch, Drake, & Bullock, 2016). Another qualitative study of the telephone logs identifies the common concerns and stressors in this population as: “finances, lack of social support, legal issues, transportation issues and abuse by partners” (Bhandari et al., 2008, p.492).

Sample Selection

Six research nurses provided consistent telephone support to Baby BEEP participants throughout the entire course of pregnancy. Four phone logs were randomly selected from each nurse for qualitative analysis, generating a total of 24 logs evaluated in this study. Women in the sample were predominantly Caucasian, living in a marriage-like relationship and had a high school equivalent education. Mean age was 23 years. Participants were all classified as low-income according to the Women’s Infant and Children (WIC) guidelines (Evans et al., 2016). This project was classified as “exempt” by the University of Virginia Internal Review Board, in alignment with the Code of Federal Regulations.

Qualitative Methodology

The approach to coding was guided by Bazeley (2013) and Miles, Huberman, and Saldana (2014). Miles et al., (p. 73) note that the purpose of codes is to allow the researcher to “retrieve and categorize similar data chunks” and then use the organized chunks to relate to the “research question, hypothesis, construct or theme.” Each case was read in its entirety and a narrative summary of what occurred between nurse and patient was written. Additional quantitative data for each case were generated by creating a timeline, plotting the interactions and the lengths against weeks of gestation. NVivo was used to code each case using provisional codes generated from Peplau’s Theory of Interpersonal Relations. These codes identified nursing roles used by the Baby BEEP nurses as they provided nursing care throughout the pregnancy.

Validity

Validity and trustworthiness of the qualitative research was enhanced through a variety of methods. Retention of all study materials and documentation of the process by which the data were reduced, displayed and analyzed occurred through the use of analytic memos and a reflective journal. Potential biases were kept in check through reflection and memoing, as well as ongoing discussion of findings with co-authors. Throughout the coding process, data

were approached from a constructivist perspective, trying to make meaning of interactions and discern values from the patients' perspective.

Results

Peplau's Nursing Roles

Peplau identifies six nursing roles: stranger, surrogate, resource, teacher, counselor and leader. The majority of nursing care occurred within the roles of resource, teacher or counselor. A description of how nurses acted in these three roles with supporting data is provided in the following sections. Italicized text represents nurses' thoughts whereas regular text represents participants. Participant study numbers are given after each excerpt.

Resource—Nurses often acted as a resource to the patient, providing specific health-related information. Nurses provided information on smoking cessation, interpersonal dynamics, as well as obstetric issues. In the following excerpt, the patient expressed concern about feeling the baby move. The nurse gave reassurance and specific information to help alleviate the patient's worry.

She is a little worried about the baby though. She is concerned b/c she hasn't felt the baby move. *I told her that usually most of my clients (and in the literature that I have read) say that it's usually around 20 weeks when you feel the baby move. So it could be another whole month before she feels the baby move.* She was relieved. *I told her that some women can feel it sooner. Every pregnancy is so different.* (#214)

Some nurses gave specific direction about health-related concerns, while others deferred to the patient's obstetrician. In several important cases, nurses helped patients recognize and respond to critical events in the pregnancy, such as when to go to the hospital, what to watch for in preterm labor, preterm rupture of membranes or, in this case, pre-eclampsia:

She had a doctor's appointment scheduled today to check her blood pressure, but she cancelled it because she was really tired. *I asked when her next appointment is,* and she said next Tuesday. *I cautioned her to be very conscious of any changes in her vision or of any headaches, or epigastric pain, and to call her doctor immediately if she felt any of this.* She denied these symptoms, and said that she would call if they showed up. (#333)

When acting in the role of resource, nurses alleviated patient anxiety, promoted healthy behavior, motivated the patient to act, and provided confidence in the patients' ability to make positive changes in their lives.

Teacher—Peplau claims that nurses act in the role of teacher when they discuss general principles and direction with individuals, and help them learn from their own life experiences. In the excerpt below, the nurse helps the woman think through her childcare issues:

Explored the possibilities for babysitting-client thinks her half-brother's grandmother (who sits for other children) would watch him without charge for job hunting. *Discussed local employment opportunities*: client has experience as a CNA

and thinks she could get hired at the local nursing home. Had not considered checking with unemployment office. (#525)

Nurses helped patients with difficult relationships and family dynamics. They expressed encouragement, sympathy and confidence to the patients, but they also spent time listening and clarifying what was occurring in a difficult relationship. In this case, the patient has become involved helping a friend who she believes has AIDS:

She looked up a whole lot of information on AIDS, it's medicines and how it's transmitted and will go over it w/ Dawn. *I told her that she is one smart woman and that Dawn is so lucky.* She said that she stripped the room of things that Dawn could use to hurt herself. She took shoe laces and cords. *I told her that was good. I encouraged my client to get Dawn some help by calling the hotline or involving her family so that she is safe.* She said that she will watch her. *I told her to be very careful b/c she could escape or hurt someone else in the process of Dawn hurting herself.* (#127)

In this case, the patient's friend did not have AIDS, but was using the patient as a place to "hideout" from a bounty hunter. The nurse used this opportunity to discuss such principles as personal boundaries, interpersonal dynamics, self-preservation and mindfulness.

Counselor—The nursing role that most directly dealt with the emotional health of the patient was that of counselor. In this role, nurses used their interpersonal skills and professional knowledge to help the women respond to what was happening within and around them. They did this by addressing the patients' feelings directly, restating what the patient had told them, asking probing questions that further explored how the patient felt, helping the patient reframe the situation or look at things from another perspective, and pointing out the successes that the patient had experienced.

The degree to which nurses were able to act as counselors was determined by the patients' willingness to share personal information and the nurses' desire to follow-up on information given. Some nurses were very likely to inquire further and explore topics, whereas others may have simply stated their sympathy and offered (but not pursued) further discussion as needed, as in this excerpt:

I asked how things were going otherwise. She said that she had been "blue" lately. *I asked her what was bringing her down.* She said that it was the holidays, and that she was going to have to go to her work party alone. *I sympathized with her feelings, and told her that when she is feeling low, she can always page me, and I would be happy to help her.* (#333)

The patient does not continue to discuss the topic, nor bring it up later, further limiting the amount of counseling that occurs. When patients responded favorably, nurses were able to further the discussion and even address other issues. Topics that nurses and patients addressed when counseling were hopes for the future, personal relationships, the pregnancy, personal health, smoking, family dynamics, work and housing.

One of the most poignant examples of counseling occurred when the nurses assisted the patients through a personal tragedy. In this excerpt, the nurse helps the patient recognize and begin to deal with her feelings of loss after her grandfather's suicide. The nurse records:

Client was crying. She said her grandfather had committed suicide over the weekend. *We talked about this for a few minutes and how hard this is for her and for her grandmother. I told her I was so sorry...* She told me the funeral was during the time we were to meet on Thurs. *I told her not to worry, we could do her T2 over the phone sometime next week if she felt up to it, or I would come back to her area later in the month and we could do it then...* She asked me how to lower her BP. She said her BP was up yesterday at her dr appt. *I suggested maybe it was up because she was upset about her grandfather and she said she thought that was probably true. We talked about some relaxation techniques and resting more on her left side...* I offered to get her a phone number to arrange counseling if she felt like she needed it, and reminded her she could page me anytime if she needed to talk. I also encouraged her to give the phone number for CMAAA to her grandmother if she had not already done this so her grandmother could see about counseling also if she needed it. (#406)

These interactions are initiated by the patient "beeping" the nurse. The nurse returns her page and has four more interactions over the course of the next eight days. The nurse listens to the patient and then responds very sensitively, helping the patient process her feelings, think through how to obtain help, prioritize taking care of herself, and reflect on her coping process.

In another case, a nurse helps a woman deal with her experience of being incarcerated during pregnancy. The record of the interaction is brief and includes details about smoking, pregnancy labs and coordination of the study. However, the nurse records that "*Remaining conversation was spent... listening to client reflect on her experiences related to incarceration.* Handcuffs and shackles were especially difficult for her emotionally" (#525). This phone call lasted for an hour, and it is reasonable to assume that the nurse spent the majority of the time listening to her patient describe a very difficult event. The fact that the patient used the interaction to address this subject reveals the confidence that the patient had in the nurse, the value of the nurse's presence in her life, and her need to process a very emotional subject.

This interaction laid a foundation of trust, increasing likelihood that the woman would use the nurse in a counseling role again. In subsequent interactions, she continued to confide in the nurse and use her as a counselor, discussing sensitive topics such as concern for her children's care if she dies. The nurse includes more detail about what was said during this interaction, and the strategies she used to counsel her:

Client abruptly "What if I die?"

Nurse "Well, let's think about that for a while. What is it that concerns you most when you consider the possibility of dying?"—

CLIENT “My kids-What would happen to my kids?”

NURSE “Have you ever thought about how you’d want them to be taken care of if you weren’t able to be involved?”

CLIENT “They’d definitely stay in the family—no strangers are going to take care of my kids. My aunt said ‘maybe one more but two?’”

NURSE “*Sounds to me like you really care about seeing that your kids are well taken care of—that’s a good sign that you are just getting your act together more all of the time; good for you.*” *Mentioned possibility of having a will drawn up to specify guardianship etc. but client was ready to hop to other subjects. [sic] (#525)*

The nurse helped the patient to understand her feelings, clarify her concerns, think through potential solutions, and recognize the strength the patient possesses in coping with difficult circumstances. She also offers practical advice, but leaves decision making and control of the situation in the patient’s hands.

Clinical Nursing Implications

Tele-nursing is the provision of nursing care using technology and includes mobile, telephone, internet and distance care provision. It has been used in a variety of disciplines, including oncology, HIV, cardiac and primary care, but has not been examined as a means to provide prenatal care or psychosocial support to women experiencing depression during pregnancy (Schlachta-Fairchild, Elfrink, & Deickman, 2008). Tele-nursing offers advantages in time and cost efficiency, as well as ability to access difficult to reach populations during more accessible hours. An important aspect of the telephone support provided by the Baby BEEP nurses was the high rate at which it was used by the patients. The Baby BEEP study had very high retention rates, losing only 10 participants to follow up over the course of the study. This demonstrates the feasibility and desirability of this type of intervention when working with rural women. Further research is needed to determine if the depth and breadth of interaction supported by telephone interaction is possible via other means, like texting, tweeting and social media.

One dimension of this type of intervention that made it desirable for the participants was the distribution of power to the patients. Power in nurse-patient relationships has been studied for decades, with classic studies indicating that power is typically held by the nurse and brokered to the patient through use of language and involvement in decision making (Hewison, 1995; Millard, Hallett, & Luker, 2006). Several characteristics of the Baby BEEP interactions reflect the nurses’ desires to provide the patients with significant power in the interaction. Deference to the patients’ preferences for interaction times, which was not always during regular business hours; duration and content of the telephone call; interest in what was happening in the patients’ lives; and reassurance that they were available to listen or respond to a page all demonstrate the nurses’ desires for the patients’ involvement in the interactions and the power available to the patients to affect the course of the interactions. Over time, this distribution of power to the women helped them to trust the nurses and confide in them.

Nurses in this study provided significant support to women who typically experience isolation and helplessness. Nurses sought to empower them to make choices and changes that would improve their health. They used reflection to increase patients' self-awareness and build up the sense of power. This may have enhanced the patient's self-efficacy. In one instance, the nurse praises the patient and then asks if she is "proud of herself." This invites the patient to reflect what has caused her to make important changes in her life in the past and begin to consider action in the present. Although patients pursued change to varying degrees, indicating that they felt empowered to differing degrees, the control and respect they were afforded in the intervention made it an acceptable, and even desirable, means of support throughout their pregnancies and postpartum period.

Millard et al. (2006, p. 148) point out that social interaction is what set the nurse and patient on equal footing and "affirmed to each other their individuality and their essential 'humanity', significantly shaping the power dynamic within the interaction and creating a therapeutic relationship. In suggesting the social dimension as a critical component in shaping the nurse-patient relationship, Millard et al. provide a concrete strategy for establishing a therapeutic, patient-centered relationship where emotional care is provided. By concentrating on the social dimension, the Baby BEEP study nurses established the foundation for a meaningful relationship to develop, placing the interaction in a comfortable dimension for the patient, and continually reaffirming to the patient their importance as a person. Although the social dimension was not the arena in which nursing care was formally provided, it was a necessary precursor to the provision of nursing care and may be an important part of the identification phase as explained by Peplau. This may be especially meaningful to low-income, rural women, who may receive little societal reinforcement of their worth and value.

Conclusion

This study illustrates the feasibility, acceptability and possibilities of tele-nursing to provide meaningful nursing care and relationships of trust between patient and provider during pregnancy. Low-income women living in rural settings can benefit from this type of nursing care in which childcare and work obligations can be accommodated. They have a high risk of experiencing poor pregnancy outcomes, including poor mental health, in part related to their lack of support from partners and others. The Baby BEEP nurses were able to act in several of Peplau's roles, providing essential and effective nursing care that was well received by this underserved and difficult to reach population.

Acknowledgments

Source of Funding

The authors would like to acknowledge NIH grant NR05313: Nursing Smoking Cessation Intervention during Pregnancy (Baby Behavioral Education Enhancement of Pregnancy or Baby BEEP).

References

- Bazeley, P. Qualitative Data Analysis Practical Strategies. Seaman, J., editor. Thousand Oaks, CA: Sage Publications; 2013.

- Bhandari S, Levitch AH, Ellis KK, Ball K, Everett K, Geden E, Bullock L. Comparative analyses of stressors experienced by rural low-income pregnant women experiencing intimate partner violence and those who are not. *Journal of Obstetric, Gynecologic, and Neonatal Nursing*. 2008; 37(4):492–501. DOI: 10.1111/j.1552-6909.2008.00266.x
- Bloom T, Glass N, Curry MA, Hernandez R, Houck G. Maternal stress exposures, reactions, and priorities for stress reduction among low-income, urban women. *Journal of Midwifery & Women's Health*. 2012; 58(2):167–74. DOI: 10.1111/j.1542-2011.2012.00197.x
- Bullock L, Everett KD, Mullen PD, Geden E, Longo DR, Madsen R. Baby BEEP: A randomized controlled trial of nurses' individualized social support for poor rural pregnant smokers. *Maternal and Child Health Journal*. 2009; 13(3):395–406. DOI: 10.1007/s10995-008-0363-z [PubMed: 18496746]
- Evans EC, Deutsch N, Drake E, Bullock L. Nurse-patient interaction as a treatment for antepartum depression: A mixed-methods analysis. *Journal of the American Psychiatric Nurses Association, Review*. 2016
- Gaynes, BN.; Gavin, N.; Meltzer-Brody, S.; Lohr, KN.; Swinson, T.; Gartlehner, G.; Miller, WC. Evidence Report/technology Assessment. Rockville, MD: 2005. Perinatal depression: Prevalence, screening accuracy, and screening outcomes. AHRQ Publication No. 05-E006-2
- Haugan G, Innstrand ST, Moksnes UK. The effect of nurse-patient interaction on anxiety and depression in cognitively intact nursing home patients. *Journal of Clinical Nursing*. 2013; 22:15–16. 2192–205. DOI: 10.1111/jocn.12072
- Hewison, a. Nurses' power in interactions with patients. *Journal of Advanced Nursing*. 1995; 21(1): 75–82. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/7897081>. [PubMed: 7897081]
- Miles, MB.; Huberman, AM.; Saldana, J. *Qualitative Data Analysis: A Methods Sourcebook*. 3rd. Thousand Oaks, CA: Sage Publications; 2014.
- Millard L, Hallett C, Luker K. Nurse-patient interaction and decision-making in care: Patient involvement in community nursing. *Journal of Advanced Nursing*. 2006; 55(2):142–50. DOI: 10.1111/j.1365-2648.2006.03904.x [PubMed: 16866806]
- O'Connor E, Rossom RC, Henninger M, Groom HC, Burda BU. Primary care screening for and treatment of depression in pregnant and postpartum women evidence report and systematic review for the US Preventive Services Task Force. *Journal of American Medical Association*. 2016; 97227(315):388–406. DOI: 10.1001/jama.2015.18948
- Peplau H. Peplau's theory of interpersonal relations. *Nursing Science Quarterly*. 1997; 10(4):162–167. [PubMed: 9416116]
- Peters RM, Benkert R, Templin TN, Cassidy-Bushrow AE. Measuring African American women's trust in provider during pregnancy. *Research in Nursing & Health*. 2014; 37(2):144–154. DOI: 10.1002/nur.21581 [PubMed: 24395526]
- Price SK, Proctor EK. A rural perspective on perinatal depression. *The Journal of Rural Health*. 2009; 25(2):158–166. [PubMed: 19785581]
- Saldana, J. *The Coding Manual for Qualitative Researchers*. Second. Thousand Oaks, CA: 2013.
- Schlachta-Fairchild, L.; Elfrink, V.; Deickman, A. Patient safety, telenursing, and telehealth Patient safety and quality: An evidence-based handbook for nurses. Rockville, MD: Agency for Healthcare Research and Quality; 2008. Retrieved from <http://www.ahrq.gov/professionals/clinicians-providers/resources/nursing/resources/nursesfdbk/index.html>
- Service, ER. Economic research service. *Rural Definitions: Data Documentation and Methods*. 2015. Retrieved September 15, 2015 from <http://www.ers.usda.gov/data/ruraldefinitions/documentation.htm>
- Shattell M. Nurse-patient interaction: A review of the literature. *Journal of Clinical Nursing*. 2004; 13(6):714–22. DOI: 10.1111/j.1365-2702.2004.00965.x [PubMed: 15317511]

Callouts

- The Baby BEEP study demonstrates that tele-nursing is a viable means of providing meaningful and supportive nursing care.
- Nurses acted in several of Peplau's roles when providing nursing care to low-income, rural, pregnant women.
- Support, counseling and education were part of the nursing care given over the phone throughout the course of pregnancy.
- This intervention provides a template for a well-received, psychosocial program that may reach difficult to access, underserved populations.

Suggested Clinical Implications

- Nurses can use tele-health to access difficult to reach populations, providing an extension of prenatal care to women at risk for health disparities.
- Nurses can affect the power dynamic in the nurse-patient relationship by letting the patient dictate the timing and topics of communication.
- Trust is developed when the nurse invests in a long-term nurse-patient relationship that includes frequent communication and effective use of Peplau's nursing roles.
- The social-dimension of the nurse-patient relationship may lay important groundwork that allows for the development of trust and future ability to act in Peplau's nursing roles.