Imagine husbands and male partners intimately contributing to their partners' prenatal care: listening and recording the fetal heart rate, participating in group discussions, and learning how to support their partners. Is it possible to incorporate the involvement of fathers during pregnancy and childbirth in Botswana, where male partners are traditionally excluded? The exclusion of males from pivotal roles during the reproductive years leads to failures in program initiatives aimed at supporting pregnant women (Auvinen, Suominen, & Välimäki, 2010; Maman, Moodley, & Groves, 2011; Nkuoh, Meyer, Tih, & Nkfusai, 2010), resulting in few advances toward family-centered maternity care. Those involved in discussions in political and health care arenas consider how husbands or partners might successfully invest themselves in women's reproductive health: by participating during pregnancy, childbirth, and active fathering (Iliyasu, Abubakar, Galadanci, & Aliyu, 2010) and by working to prevent mother-to-child transmission of HIV (Auvinen et al., 2010; Maman et al., 2011) and partner violence (Sternberg & Hubley, 2004). Despite international initiatives, few efforts have been undertaken to engage fathers in Botswana, where historically
resources have been focused mainly on pregnant women and their unborn children.

Purpose of the Study

The purpose of the study was to evaluate male partners’ perceptions of and satisfaction with their participation in group prenatal care (GPNC) at a private hospital in Gaborone, Botswana. Group prenatal care (Centering Pregnancy®), was created in the United States by Sharon Shindler Rising, CNM (1998), and is a re-invention of traditional one-on-one prenatal care (Moos, 2006). GPNC challenges the tenets of traditional prenatal care by placing expectant mothers into groups comprised of 10 to 12 women with similar due dates. The group-centered model of care incorporates prenatal risk assessments, education, and support into ten sessions, which encourage women to share their experiences and feelings with each other. In contrast to the traditional client-provider relationship, each woman participating in GPNC is encouraged to own her power and take responsibility for her pregnancy. In countries such as Botswana, programs that incorporate men into programs generally attended exclusively by women are revolutionary and challenge traditional practice. As GPNC incorporates male partnership into the model of care, it challenges conventional gender expectations. Forward-thinking programs, such as GPNC, are likely to make strong impressions on male partners, and an investigation of these avenues was explored by means of the two research questions: “What were the male partners’ perceptions of GPNC at a private hospital in Gaborone, Botswana?” and “What was the level of satisfaction of male partners with GPNC in Botswana?” The answers to these questions allow for exploration into the traditional and developing roles of male partners in women’s reproductive health.

Role of the Male Partner in Women’s Reproductive Health

The effects of male involvement in prenatal care and education are overwhelmingly positive. Previous studies indicate that involving fathers in prenatal care or prenatal education improves relationships between spouses (Friedewald, Fletcher, & Fairbairn, 2005; Luecken, Purdom, & Howe, 2009), communication on health topics such as family planning, and the use of health care programs including prenatal care, prevention of maternal-to-child transmission (PMTCT) of HIV, and postpartum services (Hohmann-Marriott, 2009; Iliyasu et al., 2010; Luecken et al., 2009; Maman et al., 2011). Involving fathers in aspects of their partners’ pregnancy, prenatal care, and education positively affects birth outcomes (Mullany, Becker, & Hindin, 2007). Iliyasu et al. (2010) reported that barriers to fathers’ involvement in prenatal care included the males’ perception that prenatal care was a woman’s issue and that employment did not allow for their participation. However, studies of fathers’ involvement with both one-on-one traditional care and GPNC are sparse. Additionally, a paucity of literature addresses paternal perceptions of and satisfaction with GPNC.

Role of the Male Partner in Women’s Reproductive Health in Botswana

In Botswana’s patriarchal society, men rely on their partners’ pregnancies to demonstrate their masculinity, virility, and fertility. In fact, unproven fertility can deeply affect the status of men in the community (Upton, 2002; Upton & Dolan, 2011). However, once fertility is affirmed, male partners rarely participate in pregnant women’s prenatal care (Iliyasu et al., 2010; Nkuoh et al., 2010; Rakgoasi, 2010). With few exceptions, clinic visits are viewed as the sole responsibility of women, however, when fathers are excluded from prenatal and other reproductive health care, they feel disrespected and marginalized (Maman et al., 2011). As one man from Botswana explained, “Men were left out, forgetting that the man who impregnates a woman is the same man who provides for her,
and who can decide not to listen to that woman” (Rakgoasi, 2010, p. 148). An alternative to the exclusion of fathers is group prenatal care, in which fathers are intimately involved in the care of their partners.

**Group Prenatal Care**

In GPNC, expectant mothers who are at a similar point in their pregnancies convene with expectant fathers for 10 group sessions. During each session, assessments are completed and participants learn about pregnancy, birthing, breastfeeding, infant care, and how to provide support for one another. In this model of care, fathers are equal and active participants, which provides new relationship opportunities between the expectant mother and father and prepares both for parenthood. GPNC encourages men to take responsibility and stand accountable in their partners’ and families’ reproductive health care. Fathers’ involvement in prenatal care and education increases knowledge of childbirth, obstetric emergencies, and the need for skilled birth attendants (Iliyasu et al., 2010). GPNC involves fathers in the educational process so that they do not feel marginalized.

**Calm and Connection**

GPNC provides a context of care that is very different from traditional care, bringing women together with women for support. Physiologically, tending and befriending responses are mediated by oxytocin, opioid, and dopaminergic pathways (Taylor, 2006), as opposed to the fight or flight stress response mediated by catecholamines, epinephrine, norepinephrine, and the sympathetic nervous system (Uvnäs-Moberg, Arn, & Magnusson, 2005). Psychological and biological theories suggest that the patterns of gathering and of tending and befriending are a means of coping under stress (Taylor, 2006). Pregnancy and anticipated parenthood can be stressors, though from non-threatening stimuli. Participants in GPNC experience non-noxious somatosensory stimuli and supportive social interactions; thus the tend-and-befriend stress response leads to a sense of calm, well-being, and connectedness (Uvnäs-Moberg et al., 2005).

While oxytocin has long been solely considered a female hormone due to its role in pregnancy, childbirth, and lactation, more recent research in the United States (Carter et al., 2007; Feldman, Gordon, & Zagorry-Sharon, 2011) identifies oxytocin as exhibiting a broader function in both women and men. In all humans, oxytocin produces a response of relaxation and calm, and aids bonding and attachment between newborns and parents as well as between men and women (Uvnäs-Moberg, 2011). The release of oxytocin can be stimulated by massage, touch, and heat, and through environmental factors including positive group social interactions and calming environments (Uvnäs-Moberg et al., 2005). During the ten sessions of GPNC, the experience of support and affiliation is nurtured in both male and female participants. Partners become more connected and involved in the antenatal and birthing processes, thus promoting family-centered health care.

**Paternal Perceptions of and Satisfaction with GPNC**

The study’s first aim was to evaluate male partners’ perceptions of GPNC. Perception was defined as information linked to value judgments regarding an event. Perception is also filtered through one’s beliefs, and beliefs about an event prompt a response to and an evaluation of the event. A patient’s perception of a health care system determines her level of satisfaction. In this study, patient satisfaction was defined as the patient’s psychological state after evaluating the distinct dimensions of the health care system (Arnold, 2011). Maternal perception of and satisfaction with health care, coupled with low rates of maternal and infant mortality and morbidity, are strong in-
dicators of quality health care in many developed countries (Mann, 2006). The same may be true for male partners’ perceptions, indicating the critical involvement of fathers during the childbearing years.

Methods

Setting and Design

The project was a descriptive study using a questionnaire to evaluate paternal perceptions of and satisfaction with a new stand-alone model of prenatal care that does not require individual prenatal provider visits. The study was conducted at Bokamoso Private Hospital (BPH) in Gaborone, Botswana.

Male partners were invited and welcomed to join their female partners, along with 12 other pairs of expectant mothers and fathers in GPNC sessions. Expectant mothers invited their male partners to attend, and after attending the first session, group facilitators strongly encouraged them to return for additional sessions. The curriculum for each group session was taken from the Centering Pregnancy® program (Rising, 1998) and adapted for cultural differences specific to Botswana (Arnold, 2011). The GPNC program consisted of nine prenatal sessions and one postnatal session guided by nurse-midwives or a women’s health nurse practitioner trained in the facilitation of GPNC. Prenatal care sessions were held on Saturdays, allowing the possibility of more male participation, as Saturday is generally a non-working day. In addition, scheduling sessions on Saturday allowed other family members to care for older children while parents attended GPNC appointments.

A typical GPNC session began with expectant mothers and their partners gathering in a well-lit, airy, private conference room at BPH. The partners and mothers would continue to chat while waiting their turn for weight and blood pressure checks which a facilitator had taught them to do at the initial GPNC session. Male partners ordinarily recorded the weight and blood pressure values in the “Mother’s Notebook,” which were donated by Sharon Shindler Rising, founder of Centering Pregnancy®. The men often sat together, allowing them to compare what had been written in the “Mother’s Notebook” regarding fetal heart rate and growth of the fetus through fundal height measurements. The fetal heart rate was checked by a nurse-midwife or a nurse practitioner in the same room behind a privacy screen.

Following the physical assessment, a teaching, counseling, and information session began. This session covered various topics of concern related to pregnancy, newborn care, and relationships. All participants were encouraged to openly discuss and share their experiences. Because participants had pledged at the initial GPNC session not to disclose what was shared within the group, confidentiality was maintained.

After 1.5 hours, facilitators began a 30-minute tea break, an important ritual in Botswana. The expectant fathers often contributed to the group by handing out the snacks and pouring juice or water for the expectant mothers. The fathers frequently drank their tea in the hospital courtyard while chatting together in the sun.

While GPNC sessions typically focus on topics such as nutrition, exercise, breastfeeding, and the common discomforts of pregnancy, additional topics were specifically aimed at meeting fathers’ needs. These topics included the father’s role in providing labor support, understanding the expectant mother’s disposition and emotional changes during pregnancy, and how to assist the mothers in alleviating common discomforts such as backaches, fatigue, and swollen extremities. Fathers were frequently asked about topics that would help them intimately participate in caring for and supporting their partners. Table 1 displays topics added to the GPNC curriculum in response to fathers’ questions, including conception and stages of fetal development.
Study Sample

Participants who completed evaluations of GPNC were a convenience sample of seven fathers. Fathers attended one of the three cycles of GPNC held between April 2010 and July 2011. Inclusion criteria for fathers’ participation in the study were attendance at a minimum of five sessions and ability to speak and read English at the fourth grade level or higher.

Instrument

To assess fathers’ perceptions of and satisfaction with GPNC, partners completed the same questionnaire as the mothers. The Maternal Participation in and Satisfaction with Prenatal Care Tool was developed by and used with permission from Sharon Schindler Rising, founder of Centering Pregnancy®. The tool is described in detail elsewhere (Arnold, Morrison, Ludington-Hoe, & Cheshire, 2011).

Procedure

Prior to data collection, institutional review board exemption was obtained from the Botswana Ministry of Health (BMOH). At the final session, fathers and mothers in GPNC Group 3 were asked to complete the evaluation questionnaire, and procedures for informing the participants about the study and maintaining anonymity have been previously described (Arnold, 2011). Completion of the questionnaire was considered to be informed consent. Fathers from Groups 1 and 2 were contacted by phone to seek their participation and to complete the questionnaire, as BMOH approval had not been obtained prior to completion of the first two groups. A midwife from Botswana, who was fluent in Setswana and English and had not previously been a facilitator of GPNC, administered the telephone questionnaire. Although the interviewer, who was a midwife at BPH, was aware of the identity of the father while administering the questionnaire, the questionnaires were de-identified at completion of the phone interview.

Results

All seven men who had participated in Groups 1, 2, or 3 attended five or more of the group sessions, met the inclusion criteria, and completed the evaluation questionnaire either in person or by phone. One of six fathers was eligible from the first GPNC group, two of six fathers from the second group, and four of twelve fathers from the third group. The ethnicity of the fathers included five Black Africans (that is, no Caucasian intermarriage), two Afrikaners (Caucasians born and raised in Africa), and no Colored (Black and Caucasian heritage, the official term used in Botswana). As displayed in Table 2, the mean age of participants was 32.33 ± 3.61 years. All the male participants had completed a secondary education, as well as some universi-

<table>
<thead>
<tr>
<th>Session #</th>
<th>Primary Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Conception, nutrition, and fetal development.</td>
</tr>
<tr>
<td>2</td>
<td>Common discomforts and traditional healing remedies.</td>
</tr>
<tr>
<td>3</td>
<td>Relaxation, labor, and breastfeeding: How can a father help?</td>
</tr>
<tr>
<td>4</td>
<td>Non-pharmacological labor support techniques for mothers and fathers.</td>
</tr>
<tr>
<td>5</td>
<td>Family and extended family parenting.</td>
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<tr>
<td>6</td>
<td>Decisions of pregnancy and labor: Nurturing the pregnant woman through prenatal care and labor.</td>
</tr>
<tr>
<td>7</td>
<td>Immediate postpartum period and kangaroo care (for fathers too).</td>
</tr>
<tr>
<td>8</td>
<td>Postpartum adjustment, birth control, and awareness of sexually transmitted diseases for fathers and mothers.</td>
</tr>
<tr>
<td>9</td>
<td>Fathering and how to assist with care of the newborn.</td>
</tr>
<tr>
<td>10</td>
<td>Postpartum visit, sharing of food, and birth stories (all family members are welcome).</td>
</tr>
</tbody>
</table>

Table 1: Discussion topics of sessions of GPNC as revised in response to father’s feedback.
ty or vocational school education. In the males’ questionnaires, Cronbach’s Alpha was 0.92 for the perceptions subscale, 0.90 for the satisfaction subscale, and 0.90 for the questionnaire as a whole, demonstrating good reliability.

Perceptions of GPNC

The mean score for paternal perception of GPNC was 113.0 ± 8.29 out of a possible 125 (range, 97-122). Table 3 displays the questionnaire items rating the four highest mean scores and four lowest mean scores, as well as the mean score and correlation to overall satisfaction of paternal responses to selected perception items. Correlation between the perception subscale score and the overall satisfaction score was 0.65.

Satisfaction with GPNC

Scores for satisfaction with GPNC ranged from 10 to 15 with a mean score of 13.43 ± 1.72 out of a possible 15. The mean score for overall satisfaction items was 4.71 ± 0.49. Correlation between the satisfaction subscale and the overall satisfaction item was r = 0.37. As shown in Table 4, all participants were satisfied or highly satisfied with care within the group and all seven expressed overall satisfaction.

Discussion

Fathers’ perception ratings of the information they were given were very high, which perhaps indicated a need for information had been lacking, as males had generally not attended prior prenatal care with their partners. Once the males began to acquire health care information, they became eager for more information. Male participants asked that specific topics be discussed, such as the mechanics of conception and details regarding fetal development. All partners felt the information regarding pregnancy was helpful, and that the staff was skilled and knowledgeable. From the male participants’ perspective, the only absent information seemed to be “consultation from other health care providers;” with only four participants either agreeing or strongly agreeing. Most participants considered the staff to be easily accessible by phone or in person; only two (17%) designated a neutral response on this questionnaire item. The male partners responded positively when asked about the perception of the context of care; that is, all participants felt privacy was protected and that they had been treated with respect. Additionally, all agreed or strongly agreed that the family’s wishes to be involved were considered.

Arnold et al. (2011) examined the perceptions of and satisfaction with GPNC for the women participating in group care. Overall, the male partners expressed more positive perceptions of GPNC than did the women. While the mean perception score for the women was high at 106.11 ± 11.10, the mean score for the men of 113.0 ± 8.29 was higher. For the individual questionnaire items, men scored higher on 21 of the 25 perception questions. Notably, when asked about consideration of wishes concerning family involvement, the mean score for men was 4.86 ± 0.38, which was significantly higher than the mean score for women of 3.40 ± 0.84. Similarly, when asked if participants were treated with respect, the mean score for men of 4.43 ± 0.79 was significantly higher than the mean score for women at 3.50 ± 1.00.

Regarding satisfaction with GPNC, the mean score for men of 13.43 ± 1.72 was slightly higher than the 12.58 ± 1.83 mean satisfaction score for
women. Men had higher scores than women for each of the three questionnaire items regarding satisfaction. Though men scored higher, both men and women reported high overall satisfaction with GPNC, with mean scores of $4.71 \pm 0.49$ and $4.58 \pm 0.51$, respectively.

**GPNC and the Response of Calm and Connection**

Just as the fight or flight response is triggered by fear and anger, the calm and connection response is customary after sharing food with friends and family and supporting peacefulness and closeness to others. Touching, massage, and breastfeeding also trigger the brain’s release of oxytocin which plays a central role in promoting the body’s calm and connection response (Uvnäs-Moberg, 2011). GPNC is a safe, positive, friendly environment that enhances the behaviors that have been shown to initiate or increase the release of oxytocin in male and female participants. Uvnäs-Moberg describes the calm and connection reaction displayed as “relaxed, happy, companionable, and sensitive” (Uvnäs-Moberg, 2011, pg. 25). As the group continues to meet, the oxytocin effect is compounded and can last for weeks, leading to positive interactions between male and female partners. The sense of connectivity and relaxation could contribute to the explanation of male partners’ positive perceptions of and satisfaction with GPNC. The setting or context in which prenatal care is given contributes significantly to the nature of and results of prenatal care. In Botswana, where men are not traditionally intimately involved with prenatal care, GNPC offers the possibility for their involvement and provides a context of mutual sharing and networking among male participants.

In this study, the calm and connection response (Uvnäs-Moberg, 2011) was demonstrated in males by the attention directed toward female partners. The attention to female partners consisted of intimate stroking and massage during labor support exercises, and meticulous attention to the documentation of details of blood pressure, weight, and gestational age in the Mother’s Notebook. Participants exuded a happy and relaxed manner and often expressed laughter, as when one of the men wore a powder blue, black,
and white wig (colors of the Botswana national flag) to a GPNC session when the national soccer team was playing in Gaborone. The group satisfaction score of “care within the group” (4.71 ± 0.49) may be speculated as having derived from the laughter expressed and happiness experienced as a result of an oxytocin release by some male participants. The overall group satisfaction score (4.71 ± 0.49) demonstrates the calm and connection response documented by Uvnäs-Moberg in 2011, and signals the willingness of males, even in a small sample, to participate in the reproductive care of women

Clinical Implications

Program failures related to male participation in prenatal care (Nkuoh et al., 2010; Maman et al., 2011) indicate that increased attention to male participation is necessary and even vital in women’s reproductive health care. Males also need to be invited and strongly encouraged to participate in the care of female partners in countries where participation is the exception rather than the rule (Figure 1). GPNC is a form of prenatal care that easily allows for active male participation, and once invited to attend, males participate enthusiastically.

The benefits of fathers’ involvement in women’s reproductive health care, especially GPNC, are many. Oxytocin plays a pivotal role in family-centered relationships, which are necessary for childbearing, parenting, and well-being of all family members. Mothers and fathers often touch in GPNC. Touch releases oxytocin and promotes the creation of emotional bonds. Studies show that healthy relationships also help prevent cardiovascular disease and promote breast cancer survival by stimulating the calm and connection response not only through touch, but also through feelings of support, warmth, and love (Uvnäs-Moberg, 2011).

In childbirth, when a woman is surrounded by the father of the baby and other loving family members, elevated oxytocin levels can influence her in deep and sustained ways. “The lessons we have learned about the importance of caring support in childbirth” (Uvnäs-Moberg, 2011, p. 126) may be useful in other situations, including work with autistic children, education, and decreasing domestic violence.

Conclusion

Maternal perception of and satisfaction with health care, coupled with low rates of maternal and infant mortality and morbidity, are strong indicators of quality health care in many developed countries (Mann, 2006). In the same way, health care quality may be improved when male partners experience the benefits that follow full participation in GPNC. Documentation from further research on male participation in GPNC can contribute much to the health of women and babies. Additionally, including male partners within the context of women’s reproductive health care initiatives may revitalize previously unsuccessful programs.

Inclusion of fathers must be a priority in women’s reproductive health care so that men are present, both physically and emotionally, for antenatal care, labor, and birth. Globally, birth and childbearing responsibilities fall solely on women, as is the case in Botswana. Yet when fathers were encouraged by their partners and their partners’ health care providers (midwives)
to participate, their responses were enthusiastic and endearing. Their enthusiasm and willingness to contribute reminds the health care community to continuously search for ways to involve fathers in family-centered care.

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