Prenatal Motivation for Caregiving Issues: A Pilot Study of Mothers Expecting Healthy Infants and Infants With Complex Congenital Heart Disease

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Background and Purpose: The prenatal preparing women do for infant caregiving is understudied. In this pilot, multimethods study, we examined motivation for preparing for infant caregiving of women in their third trimester of pregnancy expecting either a healthy infant or an infant with complex congenital heart disease (CCHD). **Methods:** Eleven women expecting a healthy infant and four expecting an infant with CCHD completed a questionnaire and were interviewed. Preparing was reported in context of expectations, intentions, and goals and in personal, family, and infant conditions. Motivation for preparing was expressed through an interview about caregiving issues women were working on. Intensity of motivation was estimated by self-report of the time infant caregiving issues were in thought or action. Effect sizes were calculated for between group differences in motivation intensity. Interview data were examined with directed content analysis. **Results:** Intensity of motivation was higher for women expecting an infant with CCHD for issues of Knowing What and How to prepare. Women expecting an infant with CCHD reported uncertainty about how they would feed their babies given their health condition. Interviews yielded new motivations encompassing issues of family and working with the parent partner.

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Implications: Assessment of issues women are working on prenatally, indicating motivations for preparing for infant caregiving, and of the intensity of motivations advances culturally-attuned and family-centered preparation. Knowledge of these issues and motivation intensity could orient clinical care to supporting women in developing well-informed expectations, intentions, and goals culturally suited to postnatal learning and infant needs.

Keywords: motivation; prenatal care; infant caregiving; congenital heart disease

Antenatal education is globally important for parenting and infant care, including feeding, safety, prevention of acute illness, and the benefits of breastfeeding (Entsieh & Hallstrom, 2016; Patnode et al., 2016; Riedmann, 2008; Serçekuş & Başkale, 2016; Tulchinsky & Varvikova, 2014). Formal antenatal programs, however, may prioritize preparation for labor and delivery and give limited attention, if any, to parenting and infant care (Entsieh & Hallstrom, 2016). Such a gap was recognized in parents' reported desire for more information than they received prenatally on parenting and infant care (Deave et al., 2008). Additionally, antenatal education programs in developed and developing countries may be lacking focus on preparation for developing a relationship with the infant (Serçekuş & Başkale, 2016). In terms of improving the learning environment, women voiced a preference for greater participation of parents in antenatal education and less didactic teaching (Tighe, 2008). Beyond the expressed needs of women for preparation in formal or structured classes, pregnant women are likely to be preparing for parenting and infant care in the course of everyday life. Little is known, however, about the informal preparing women do in accord with their personally- and culturally-defined understanding of being prepared for infant caregiving. We assert that the motivation women have for preparing for infant caregiving during the third trimester of pregnancy is clinically important to understand for design and implementation of antenatal education, whether in formal programs or offered during clinical prenatal care (Bransford et al., 2000; Pridham et al., 2018).

What women are working on prenatally to prepare for infant caregiving and the intensity of motivation to prepare for commonly known issues have not been examined. Women expecting an infant with a complex, chronic health problem may have different agendas for preparing for infant caregiving than women expecting a healthy infant, and may reveal a different intensity of motivation for preparing for parenting and infant care issues, both represented under the umbrella term "caregiving issues" for this study. Knowledge of the prenatal preparing for infant caregiving that women are doing and the intensity of motivation for preparing for issues known to be on women's minds could put nurses and other clinicians in a better position to support well-informed preparing. Therefore, the purpose of this study was to explore motivation for prenatal preparing for infant caregiving for women expecting either a healthy infant or an infant with complex congenital heart disease (CCHD).

BACKGROUND

Prenatal preparing for infant caregiving is likely to be influenced by the expected infant's health status. Congenital heart disease, the most common type of birth defect, affects nearly 1% of births per year in the United States (Centers for Disease Control and Prevention, 2018). One out of four of these defects is complex, requiring surgical intervention soon after birth. Women expecting an infant with CCHD are prepared prenatally by clinicians for unfamiliar responsibilities of caregiving, including monitoring the infant's physiologic condition, dealing with feeding challenges, supporting infant neurodevelopment in the face of manifested or anticipated delays, and working frequently and closely with the infant's clinicians (McKechnie et al., 2018; Wray et al., 2018). Prenatally, the method of feeding the infant after birth and before and after surgery is uncertain, and women who have chosen to breastfeed must also prepare for feeding by nasogastric tube and by bottle. A sufficient understanding of prenatal preparing for infant caregiving, especially related to feeding, in the context of CCHD is required by both clinicians and parents to recognize clinically relevant needs for support and education, yet remains underdeveloped.

THEORETICAL FRAMEWORK

Motivation for caregiving is a concept central to understanding a woman's preparation in thought and action. Governed by an internal working model (IWM), the caregiving motivational system includes expectations of self, infant, family, and the sociocultural environment and intentions for action (Bowlby, 1982, 1988; George & Solomon, 2008). Caregiving tasks or issues, including feeding and soothing the infant, are functions of the larger goal of infant caregiving that encompasses parenting issues such as knowing how to provide care. The security- and comfort-providing goals of caregiving motivation (Bowlby, 1988) may be expressed in many different issues, including knowing when the infant is hungry and ready to feed and bringing other people into feeding the infant (Mayseless, 2016). The importance of infant feeding to mothers is not only a task that is done multiple times each day, but also a task of emotional importance to a woman, signifying ability to provide sustenance to her baby (Bowlby, 1988).

We aimed to extend what Rubin (1976, 1984) and Mercer (1995) published in respect to tasks of preparing for being a mother by focusing more granularly on what women were working on to prepare for infant caregiving and the intensity of their thought and action in respect to commonly reported issues of infant caregiving. Intensity, defined operationally as the duration of time spent on an issue in thought or action, reveals attention, interest, and investment of energy in preparing. These facets of motivation for infant caregiving could be assessed clinically and applied to interventions to support parent development of well-informed and constructed IWMs for sensitive and responsive caregiving.

The research questions for the study were: (a) What was the intensity of motivation expressed by women for commonly experienced caregiving issues? (b) What

did women expecting a healthy infant and women expecting an infant with CCHD report they were working on to prepare for infant caregiving?

METHODS

This exploratory, multimethods design (Hunter & Brewer, 2016) used two methods to describe maternal motivation for preparing for infant caregiving reported in the third trimester of pregnancy by women expecting a healthy infant or an infant with CCHD. Using two methods increased our understanding of the content and process of maternal preparing. Women were first surveyed with an instrument pilot tested in this study on the intensity of the infant caregiving issues they had in thought or action. At least 1 week later, women were interviewed on what issues they were working on to prepare in the context of personal, family, and infant conditions and in terms of their expectations, intentions, and goals. We did not plan to test hypotheses concerning differences between the two groups, being fully aware of the small sample we were likely to accrue in the time of 1 year we had allotted to the study. We had in mind obtaining effect sizes for caregiving issues that were the subject matter of the intensity survey and identifying in the interview the facets of what women were working on to prepare for infant caregiving. The study was approved by the ethics review board of the participating institution.

Participants

Eligible women were recruited during the third trimester of pregnancy from an obstetrics clinic and from a fetal diagnosis clinic of a large regional medical center. Eligibility included English literacy, age of 18 years or older, and receipt either of a normal ultrasound scan of the fetus or a fetal diagnosis of CCHD expected to require surgical intervention soon after birth to sustain life.

Data Collection Procedure and Instruments

Eligible women were identified by the obstetrics clinic scheduler and by a nurse in the fetal diagnosis clinic of the participating medical center. Informed by ultrasound results, women expecting a healthy infant were contacted by a research assistant after a clinic visit. Women expecting an infant with CCHD were not contacted until the visit following the abnormal ultrasound, respecting parent response to the likely unexpected finding. After the informed consent document for participation in the study was signed, women completed the survey in a private room after the clinic visit. Women arranged for a time to be interviewed in person by the research assistant following a clinic visit at least 1 week after the survey was completed. The two instruments were staggered in time to make data collection in the clinic setting feasible for women to participate in, either before or after the clinic visit for obstetric or fetal care.

The instruments used to collect data in the third trimester of pregnancy were: (a) a demographic data form; (b) a paper-and-pencil questionnaire constructed for this

study with items to elicit the estimated amount of time specific caregiving issues were in a woman's thought and action (i.e., the intensity of motivation); and (c) a semistructured interview to elicit description of the caregiving issues the woman was working on. The survey was administered first so that responses would not be biased by what a woman would tell us, in her own words, she was working on. We expected the interview to inform us of caregiving preparation issues that were not included in the survey, and to reveal details of preparing in respect to personal, infant, and family conditions. Furthermore, the interview would permit a rich description of a woman's expectations and intentions in relation to her caregiving goals and potentially elicit additional infant caregiving issues in women's thought and action prenatally.

Intensity of Motivation for Caregiving Issues. A questionnaire was developed by a multidisciplinary group of researchers, including four research nurses, a clinical psychologist, and a scientist in human development. This collaborative work produced a 109-item survey instrument, broadly focused on caregiving. For the current study, we used the 29 survey items that addressed intensity of motivation in respect to the estimated duration of time in thought or action (see Table 1). The caregiving issues in these items were identified based on clinical knowledge of the research nurses, all of whom had clinical experience with expectant women, as well as data from their prior research studies. Intensity of motivation for preparing for infant caregiving was assessed by the duration of time, estimated categorically, in the previous week a specific issue was in thought or action. To organize data for analysis, the 29 items were grouped by four topical categories of caregiving issues: (a) Knowing What and How (4 issues dealing with learning, figuring things out, and managing difficult situations); (b) Being A Parent (10 issues concerning responsibilities and practices of parenting, including general feeding practice); (c) Taking Care of Baby (7 issues concerning specific tasks of infant caregiving); and (d) Feeding Baby (8 issues dealing with specific tasks and facets of infant feeding).

Instrument response options to the four Knowing What and How issues were binary, either yes, in mind or activity (coded 1) or no, not in mind or activity (coded 0). Response options for the remaining three categories of caregiving issues (Being a Parent, Taking Care of Baby, and Feeding Baby) were coded on a four-point ordinal scale. Each scale estimated time in the past week spent thinking about or taking action on the item with the following ordinal classes: (a) 0 = none of the time, (b) 1 = some of the time, (c) 2 = most of the time, and (d) 3 = all of the time.

Before administration to pregnant women in the sample, the feasibility of the questionnaire was examined by three pregnant staff nurses. These women provided written feedback in response to questions regarding content relevance, clarity, and comprehensiveness of the items. The feedback was used to refine questionnaire items. The content validity of the four issue categories and the items in the revised questionnaire were then evaluated by five nurse experts and one social work expert in maternal child health. Using Lynn's (1986) procedure for computing a content validity index (CVI), endorsement of at least five of the six evaluators on relevance and on clarity was required for an item to be judged as content valid, that is, the CVI was at least 0.83 for both relevance and clarity.

TABLE 1. Being a Parent to My Child Before Birth: Items Concerned With Intensity of Motivation for Preparing for Infant Caregiving

Item #	Categories with corresponding items[a]
	Having a baby: Things I have been thinking about during the past week
1	Dealing with anxiety about the future
2	My confidence in myself as a parent
3	How I am feeling about having a baby—my emotional experience
4	Getting help I will need after the baby is born
5	Getting enough sleep after the baby is born
6	Having time for myself after the baby is born
7	Getting things ready in time
8	Being a good parent to my baby
9	Working together with my partner to care for the baby
10	Preparing myself for difficult times after the baby is born
	What I have been thinking about taking care of my baby in the past week
11	Managing day-to-day care
12	Relating to my baby/Bonding with my baby
13	Keeping my baby healthy
14	Dealing with my baby's crying
15	Feeding my baby
16	Knowing when my baby is sick or getting sick
17	Helping my baby develop
	What I have been thinking about feeding my baby in the past week
18	Figuring out when or how often my baby should feed
19	My baby wanting or needing to feed at night
20	My baby's satisfaction with feeding
21	Knowing when my baby is hungry or full
22	Having a family member or members participate in the feedings
23	Getting help with feeding problems if there are any
24	Developing a relationship with my baby through feeding
25	Making sure my baby gets enough to eat
	Learning, figuring things out and managing difficult situations
26	Learning about what to expect
27	Learning what I can or will need to be doing for my baby
28	Helping my partner or family to understand what is going on or the help I will need from them
29	Figuring out how to get through difficult times

[a]Response options include: None of the time, Some of the time, Most of the time, All of the time.

All of the 29 items but one selected for this study had a CVI of at least 0.83 on both clarity and relevance. The item "Helping my partner or family to understand what is going on or the help I will need from them," scored 0.67 on clarity. Although assessed as containing two issues, this item was maintained in the questionnaire as written because of its relevance. The experts confirmed assignment of each of the 29 issues to one of the four topical categories of infant caregiving issues.

Semistructured Interview. Interview questions were designed to facilitate pregnant women's descriptions of anticipated infant caregiving and what they were currently working on in thought or action within the context of infant, parent, and family conditions. The interview was structured to elicit expectations, intentions, and goals associated with caregiving issues for a fuller understanding of motivation for preparing for infant caregiving. The interview began with asking the woman to describe the infant she was expecting. This question was followed by questions about what she was working on and what she would find particularly satisfying about giving care to her infant. What women were working on concerning infant feeding was explored in depth, including feelings about feeding the infant. Interviews were done in a private clinic room, were audio-recorded, and were generally completed within 30 minutes. Two interviews were done on the telephone to accommodate the women's schedules. Interview recordings were de-identified and transcribed verbatim by trained transcriptionists.

Data Analyses

Questionnaire data for the 29 caregiving issues were grouped in the four topical categories for radar plot analysis. Radar plots (Saary, 2008) were constructed to graphically display the data within each topical category separately for women expecting a healthy infant and for women expecting an infant with CCHD. Radar plots permit presentation for different groups of multivariate data with categorical, ordinal, or continuous measurement scales. For ordinal items, the proportion of values was described with Cliff's delta (Cliff, 1993), which supplies a nonparametric effect size. Cliff's delta effect size is comparable to Cohen's d, with criteria specified as small = 0.147, medium = 0.330, and large = 0.474 (Cohen, 1988). For the four binary items, the proportion of yes codes to no codes was obtained. An effect size was then calculated based on an angular transformation (h), providing a measure of detectability of differences between proportions, a continuous variable, for the two groups. Criteria for the effect size of h were defined by Cohen (1988) as small, 0.20, medium, 0.50, and large, 0.80.

Interview data were examined with directed content analysis (Hsieh & Shannon, 2005). A code book of categories of caregiving issues was constructed for this study using as an initial set of categories those employed in prior studies with postpartum mothers [Pridham et al., 2010; 2012]. We refined and developed these already existing categories with mothers' responses to the interview questions.

Coding was organized as a team approach (Miles et al., 2014), with three research team members. One research team member coded all of the transcripts. The second and third coders each read half of the transcripts. Each transcription was read

initially for identification of issues concerned with preparing for infant caregiving. This identification was followed by naming of the issue with an already existing category or with a suggested name for a newly identified issue. A case summary record (Miles et al., 2014) including infant, parent, and family conditions and expectations, intentions, and goals was completed as part of this process of team coding. Our multimethods approach allowed the qualitative analysis to provide conditions/contexts and new insights for further interpreting survey responses, which could be valuable for informing next steps for survey development.

RESULTS

Description of Participants

During the 1 year of recruitment, we enrolled 11 women expecting a healthy infant and 4 women expecting an infant with CCHD. The protocol-defined process of deferring our approach to the family with a new fetal CCHD diagnosis until the subsequent clinic visit reduced the number of women we were able to recruit during the study timeline. Demographic characteristics of participants are shown in Table 2. Women were primarily White, married, or partnered, and with at least some college education. Most planned to breastfeed. Women expecting a healthy infant (n = 11) were younger, on average, than women expecting an infant with CCHD (n = 4; 28.73 years vs. 33.00 years). All 15 women completed the questionnaire. However, two women expecting a healthy infant could not be scheduled for an interview, resulting in interviews of nine women expecting a healthy infant. One of the four women expecting an infant with CCHD could not be interviewed but wrote extensive notes on her questionnaire. Caregiving issues that she was working on could be discerned from her written report and were, therefore, included in analysis.

Issues of Preparing for Infant Caregiving

Intensity of Motivation for Preparing. Intensity is shown in four radar plots, each structured for a category of caregiving, for women expecting a healthy infant and for women expecting an infant with CCHD (see Figure 1). The plots show effect size for each infant caregiving issue, computed to describe the difference in *delta* or *h* values between the two groups of women.

For the caregiving issue category, Knowing What and How, the intensity effect size was large for three of the four issues: *Learning What to Expect, Learning What I Can/Need to do for my Baby*, and *Engaging Others' Understanding of Needed Help.* Intensity was greater for women expecting an infant with CCHD for the first two of these issues. The plot for Being a Parent indicates *Getting Ready in Time*, was in all of the women's thoughts most of the time. Women expecting a healthy infant rated intensity higher for *Confidence in Self* and *Time for Self*. The plot for Taking Care of Baby showed the issues labeled *Knowing When Baby is Sick* and *Keeping Baby Healthy* were rated higher in intensity and with large effect sizes by women

expecting an infant with CCHD. These women also gave higher intensity ratings, with moderate effect sizes, for *Relating to Baby* and *Dealing with Baby's Crying.* Women expecting a healthy infant gave higher intensity ratings to *Feeding Baby* and *Helping Baby Develop*.

Effect sizes were large for four issues in the plot for the category Feeding the Baby. Women expecting a healthy infant showed higher intensity for *Having Family Members Participate in Feeding, How Often Baby Should Feed,* and *Feeding Baby at*

TABLE 2. Demographic Attributes by Group

	Healthy Mean ± *SD*	CCHD Mean ± *SD*
Age (years)		
Mother	30.07 ± 4.82	33.00 ± 3.37
Father	32.93 ± 4.96	35.75 ± 2.50
Education (years)		
Mother	15.13 ± 2.26	16.50 ± 1.29
Father	14.93 ± 3.49	13.50 ± 1.91
Gestational age at questionnaire (weeks)	26 ± 2 5	29 ± 5.0
Gestational age at interview (weeks)	31 ± 3.8	33 ± 6.3
	Frequency (%)	Frequency (%)
Parity		
Primipara	9 (60)	1 (25.0)
Marital status		
Married	11 (73.3)	4 (100.0)
Partnered	3 (20.0)	
Single	1(6.7)	
Race/Ethnicity		
African American	4 (26.7)	
White	11 (73.3)	4 (100.0)
Income		
<$5,000	1 (6.7)	
$5,000–$9,999	2 (13.3)	
$10,000–$14,999	1 (6.7)	
$25,000–$29,999	1 (6.7)	
$40,000–$49,999	1 (6.7)	
$50,0000–$69,999	3 (20.0)	
$70,000–$89,999	1 (6.7)	1 (25.0)
≥$90,000	5 (33.3)	3 (75.0)

Note. Healthy = 15 mothers of infants expected to be healthy at birth; CCHD = 4 mothers of infants diagnosed prenatally with complex congenital heart disease; *SD* = standard deviation.

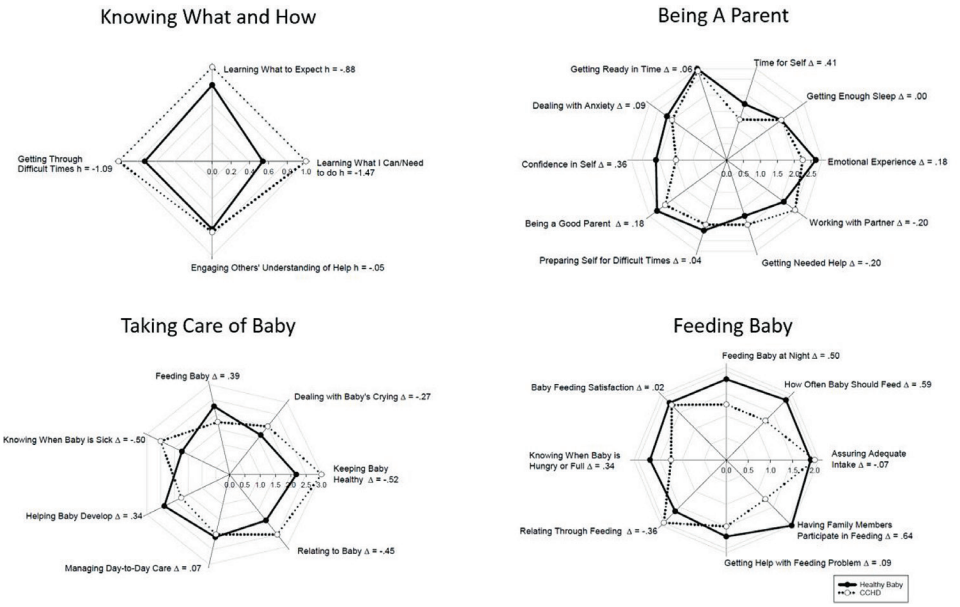

Figure 1. Radar plots of intensity mean scores for caregiving issues categorized by four facets of caregiving motivations. For the four binary issues of Knowing what and How, concentric lines indicate proportional values of 1. For the other three facets of caregiving motivation, concentric lines show ordinal ratings of 0 to 3 (0 = none of the time; 1 = some of the time; 2 = most of the time; and 3 = all of the time). Negative values of the effect sizes *h* and Δ indicate higher values of intensity for women expecting an infant with complex congenital heart disease (CCHD).

Night. Women expecting an infant with CCHD indicated the issue, *Relating Through Feeding*, was in their thoughts "nearly all of the time."

None of the infant caregiving issues surveyed for intensity had mean scores indicative of not being in thought at all. Issues concerning direct infant caregiving and issues that had to do with preparing for being the parent of the expected infant both had a mean intensity score of at least some of the time or greater for women in both groups.

ISSUES WOMEN WERE WORKING ON TO PREPARE FOR INFANT CAREGIVING (INTERVIEW)

Examples of what women were working on are shown in Table 3 for five major categories and subcategories of issues derived from the interview transcriptions. These categories were: (a) *Being a parent*, concerning the mother's preparing of herself physically, cognitively, or emotionally for being a parent; (b) *Taking care of the baby*, including soothing and comforting, keeping the baby healthy, monitoring the baby's health, and relating to/bonding with the baby; (c) *Feeding the baby*; (d)

TABLE 3. Illustrations of Motivations for Preparing for Infant Caregiving Reported by Women Expecting a Healthy Infant or an Infant with Complex Congenital Heart Disease

Being a parent
• Taylor was thinking about setting herself up not to be disappointed when she did not have any time for herself. • Clara, who would be taking care of the baby and two older children on her own, was thinking about how she would remember to do what needed to be done and then getting it done. • *Margo hoped to be able to deal with infant medical and infant temperamental issues. She wanted to be able to meet her baby's needs.* • *Mae was planning on actively participating in the baby's care in hospital as soon as she could learn to do the care.*
Taking care of the baby
• Soothing and comforting Chelsea was hoping she could comfort her baby, and expected her patience to increase. *Delia was thinking about needing to calm her baby to prevent cyanotic spells. "It's all about comforting the baby."* • Keeping the baby healthy Making sure the baby is healthy. • Chelsea and her husband were doing what they could to make sure their first baby was healthy. • *Lily, expecting her fourth child, was learning the behaviors the baby would have that were related to heart disease "so that we can determine when it is time to take the baby in to get help."* • *Mae was taking extra good care of herself and eating more because her baby had to be really strong when born.* Monitoring the baby's health • Relating to/Bonding with my baby Clara wanted to try breastfeeding because of the connection and bonding she expected to develop with her baby. Breastfeeding would help her baby know who she was. *Margo wanted to breast feed to feel close to her baby.*
Feeding the baby
• Setting things up to make breastfeeding successful, easy, or satisfying Taylor, expecting her first baby and trying as much as possible to set herself and husband up for success in breast feeding, bought one of the best pumps available and planned to get information about pumping—--when, how often, and how to store milk. *Margo, expecting her first baby, believed in breastfeeding with the conviction that it was the God-intended method of feeding. She wanted to be successful at breast feeding so as to make sure the baby got enough to eat. She expected to have experienced people to help her with breastfeeding.*

(*Continued*)

TABLE 3. Illustrations of Motivations for Preparing for Infant Caregiving Reported by Women Expecting a Healthy Infant or an Infant With Complex Congenital Heart Disease (*Continued*)

- Preparing for breastfeeding challenges
  Gina expected breastfeeding her first baby would be a little painful and frequent. She was collecting tips on breastfeeding, the thing she was most nervous about, from reading and asking questions.
  Delia was modifying her plan to breastfeed her baby for the first 6 months to accommodate the potential need to feed pumped breast milk by bottle feeding following surgery. She was thinking through how the baby should be introduced to the bottle and how breastfeeding would go, and figuring out which method of feeding would be better and easier for the baby—breast or bottle.
- Preparing for the involvement of others in feeding the infant
  Chelsea intended to pump breast milk so her husband could experience feeding baby. She said: "Breastfeeding is an experience to bond. I can see how Dad could feel left out."

Working together with my partner and/or other family members to care for the baby

- Chelsea said she and her husband would "come up with a schedule for infant caregiving, and do tasks that work best for their strengths and weaknesses."
- Emma was thinking about ways her husband and the extended family could be involved in baby's care.

Managing family life with a new baby

- Sharon was thinking through how she would make sure everything was balanced in the family with three children. She did not want to focus too much on the baby.
- Kayla was thinking about maintaining the desired emotional quality of life within the family with three children. She thought the baby could change the dynamics in the family, and hoped the baby would be happy and not grumpy.
- *Lily, with her husband, was thinking about the best way to organize things to make care as efficient as possible One of the biggest challenges was knowing the steps they would need to take for the baby's care that would be related to the heart disease.*
- *Mae was thinking about how to involve her toddler with the baby. She was planning meals for the toddler and her husband and respite for him while she was with the baby in the hospital.*

Note. Reports of women expecting an infant with complex congenital heart disease (CCHD) are italicized.

Working together with my partner and/or other family members to care for the baby; and (e) *Managing family life with a new baby*. Coding of the interview transcriptions resulted in categories that affirmed the issues that were surveyed and added two new categories of issues that were not included in the 29 questionnaire items: *Working with my partner and/or other family members to care for the baby and Managing family life with a new baby*. The a priori questionnaire issues included in *Knowing what and how* of preparing for infant caregiving were incorporated into the categories of *Taking care of the baby* and *Feeding the baby*.

All 13 women were working on one or more issues of preparing for infant caregiving. The variance in preparing work that women were doing related to feeding is illustrated by Taylor, expecting a healthy infant, who was actively preparing to be a successful breast feeder, and Delia, expecting an infant with CCHD, who was thinking through a process of introducing breastfeeding to her infant while anticipating that she would need to bottle feed prior to and following the infant's surgical palliation. In addition, Margo, expecting an infant with CCHD, expressed wanting to be successful in breastfeeding, yet did not report taking steps to be successful. Developing a relationship with the infant was related to breastfeeding by all of the woman who reported this feeding issue, including two women expecting an infant with CCHD.

Issues related to bringing the baby into the family were reflected by multiparous women in both groups thinking about caring for older children as well as the baby. Women in both groups were also thinking of future involvement of the baby's father during feeding and engaging grandparents in caregiving. Lily reported that knowing what kind and extent of care a baby with CCHD would need was on her and her partner's minds.

Three of the four women expecting an infant with CCHD reported issues concerning the baby's health, but only one woman expecting a healthy infant reported working on an issue concerning the infant's health. Two women expecting an infant with CCHD and one woman expecting a healthy infant were keeping themselves healthy with the thought that it would support fetal health and strength. Lily, who was expecting an infant with CCHD, was thinking about the responsibility she would have for monitoring the infant's health to determine when medical attention was needed.

Being a parent included issues that focused on the woman, herself, and being competent or efficacious—physically, psychologically, and cognitively—for infant caregiving. Women in both groups, including three women expecting an infant with CCHD, were thinking through their strengths and competencies to be the kind of parent they thought they needed to be to care for their infants. Notably, one woman (Mae) revealed she was mentally taking on parental functions related to her plan to be an active participant in her baby's care after heart surgery, and expressed confidence and efficacy through her narrative. Finally, the caregiving issue of soothing or comforting the baby was differently nuanced for women expecting a healthy infant compared to women expecting an infant with CCHD. Among the most clinically relevant descriptions by mothers in the latter group were views of soothing their vulnerable infants as a medical necessity.

DISCUSSION

This study described the motivations women had for prenatal preparing for infant caregiving from two perspectives: (a) the intensity of caregiving issues in thought and action for a selected, surveyed set of issues; and (b) the specific conditions and the IWM context of the caregiving issues interviewed women reported that they were working on. Study findings add to what is already known about prenatal preparing for infant caregiving, provide impetus and direction for further research, and cast a light on what clinical attention might usefully be focused on. Knowledge of prenatal preparing for infant caregiving was advanced in this study by viewing it from a motivation framework, including the intensity of preparing for specific issues identified from clinical practice and the elaboration of caregiving issues women described themselves as working on. The qualitative aspect of the study, pursued through interviews of women, produced motivations for preparing that had not been included in the quantitative aspect of the study, the survey. Our multimethods approach allowed for identification and description of the nuanced motivations that mothers reported, which further advanced knowledge of the variability of motivations included in the survey.

What we learned concerning the level of intensity for the surveyed issues expanded on and quantified findings of Rubin (1984) and Mercer (1995). Although we found the level of intensity was low for many issues, averaging only "some of the time" or less, all women had issues prenatally relevant to infant caregiving in thought or action. In-depth examination of the caregiving issues in the category of Knowing What and How is needed for specific information about what women thought they needed to learn. For example, women expecting an infant with CCHD might have been prepared by clinicians about medical procedures they could expect prior to the time they responded to the questionnaire. These women, however, expressed in the interview that they did not know what they would need to deal with following the infant's birth regarding caregiving, including feeding, monitoring infant physiologic well-being, and developing a relationship with the infant recovering from surgery.

In the interview, women reported expectations, intentions, and goals—aspects of their IWMs of infant caregiving that enlarged our understanding of what prenatal preparing for infant caregiving involves. The women expecting an infant with CCHD reported knowing they had to wait until after the infant's birth to learn what caregiving the infant would need pre- and postoperatively, a finding consistent with that of the findings of McKechnie et al. (2016). Women in the CCHD group reported working on how the infant would be fed and how breastfeeding could be implemented or the supply of breast milk could be maintained. Preparing for issues of infant caregiving that depended on knowing the infant's physical condition and what the infant would be able to manage or permitted concerning feeding before or after an operation on the heart had to be put on hold. These women had to deal with caregiving uncertainty, an issue touched on in descriptive studies concerning how prenatal preparing was approached by women expecting an infant with CCHD (McKechnie et al., 2015) and in profiles of preparing identified by couples expecting an infant with CCHD (McKechnie & Pridham, 2012; McKechnie et al., 2016). The

medium effect sizes for the intensity of preparing for two caregiving issues—*Relating to the Baby* and *Relating Through Feeding,* draw attention to a potential vulnerability these women may have prenatally in respect to forming a relationship with the expected infant.

Future Research

This exploratory study provided new information about the motivation of women in their third trimester of pregnancy for preparing for infant caregiving who were either expecting a healthy infant or an infant with CCHD, and suggests questions for further research with a larger, more diverse sample that would permit drawing generalizable conclusions about intensity of motivation for preparing and about what women are working on in preparation for infant caregiving. Despite the limitations of this sample, both the survey items concerning intensity and the interview about what mothers were working on for preparing for infant caregiving contributed information that could support the mounting of new research studies with a larger sample.

The research has identified routes to improve the questionnaire, including restructuring items to make sure that what is being assessed is the intensity of motivation for a caregiving issue in thought and action. Estimating the time spent thinking about a caregiving issue with ordinal categories was experienced by some women as cumbersome or difficult, and may have been an inefficient route with limited validity to estimating the time women were putting into prenatal preparing for infant caregiving. As an alternative, women could be asked to directly estimate the actual amount of time they were putting into preparing for specific issues of infant caregiving. Time may be spent on worry about an issue without problem solving or other cognitive and emotional processes that would move preparing forward (Erickson et al., 2020).

The issues we assembled to assess intensity of motivation for preparing for infant caregiving are not exhaustive of caregiving issues, as evidenced in what we learned from the interviews with mothers. The 29 survey items, extended with what we learned in the interviews about motivation for preparing for infant caregiving, are an early stage of development of a more thorough understanding of the kinds of issues pregnant women have in thought and action. The qualitative data from the interviews of women about what they were working on can be used to develop a more substantial survey in respect to content of the intensity of motivation for preparing for infant caregiving.

The interview yielded infant caregiving issues that were more nuanced in respect to the woman's situation than the questionnaire items, supporting an in-depth exploration of infant, family, and personal circumstances contributing to motivation for preparing for infant caregiving. How the women's partners were involved in preparing for infant caregiving, although not systematically assessed in interviews, was spontaneously described by a number of women. The reports women gave of the partner's involvement in prenatal preparing for infant caregiving and prior research strongly supports future research on and clinical assessment of the

prenatal preparing for infant caregiving fathers are doing or might be engaged in doing independently or with their partner (Entsieh & Hallstrom, 2016; Pålsson et al., 2017; Pridham et al., 2018).

The interview produced rich information about women's expectations, intentions, goals, and emotions associated with preparing, indicating women's IWM of preparing for infant caregiving could be systematically explored with a focused interview protocol. Assessment of prenatal preparing for infant caregiving at a consistent postmenstrual age could advance study of motivation for preparing at a specific phase of pregnancy. Questionnaire administration and interviews could be staged for designated weeks of pregnancy to identify caregiving issues and motivations specific to those times. A means of estimating the extent to which women were engaged in working on the issues they reported in interviews would extend knowledge of intensity of motivation, assessed in this study only in respect to survey items.

Findings suggest clinically tailoring prenatal preparation for infant caregiving to what was foremost for a woman in the context of her personal, family, and cultural life. Clinically focused research questions that could follow this research concern how formal prenatal preparation, for example, the prenatal education program of Benzies and her colleagues (Benzies et al., 2016), affects motivation for infant caregiving preparation. How partners, family members, friends and coworkers, and clinicians affect motivation for infant caregiving is a question in need of study from both theoretical and clinical perspectives. Longitudinal study of changes in motivation for infant caregiving could aid identification of resources for preparing linked to specific trimesters or phases of pregnancy.

CONCLUSIONS

The theoretical framework of motivation for prenatal preparing for infant caregiving offers concepts and processes of assessment that could strengthen support of women expecting either a healthy infant or an infant with CCHD. Much is yet to be learned about the best times during pregnancy for clinician support of the mother and the work she is doing to prepare for infant caregiving. Prenatal preparing for infant caregiving is assumed to affect parental caregiving after the infant's birth. The methods used to study prenatal motivation for infant caregiving examined in this study lay needed groundwork for addressing questions of effect on postnatal caregiving. This study advances exploration of motivation for prenatal preparing for infant caregiving in infant, parent, family, and cultural contexts that would aid policy and planning for family-centered support (Harrison, 2010).

INTERNATIONAL IMPLICATIONS FOR NURSING

Although our study originates in a developed, Western country, it has been asserted that preparation for parenting and child care should be made available universally to childbearing parents, including in developing countries (Riedmann, 2008;

Serçekuş & Başkale, 2016). Evidence of formal support for prenatal preparation that includes parenting and infant care content and provides for parent participation is shown in international literature (Benzies et al., 2016; Berlin et al., 2016; Entsieh & Hallstrom, 2016; Gao et al., 2012; Hopwood et al., 2018; Kovala et al., 2016; Serçekuş & Başkale, 2016). Our findings suggest the importance of support for women in developing expectations and intentions for infant caregiving that will be functional for themselves and for their infant both prenatally and after birth. Assessment of what parents are working on to prepare for the infant's caregiving, however a parent expresses that work, may be pivotal to managing uncertainty and to thinking specifically and realistically about the infant's feeding and other aspects of care. Prenatal preparing for infant caregiving has implications for the kind of health literacy that Wernovsky et al. (2017) have called for in parents of infants with congenital heart disease and the parental learning that Hopwood et al. (2018) highlight as being central to nurse–parent partnership in the health care of children.

A culturally-informed and sensitive response to a woman's prenatal preparing should be integrated into assessments of her motivation, expectations, and intentions for accomplishing work on infant caregiving in the context of personal, infant, and family conditions (Rogoff, 2003). Through exploration of issues related to infant caregiving that are prenatally in women's thought and action, clinicians will be in a better position to deliver care while building a partnership with women during the prenatal time. Through a culturally-informed healthcare partnership, both the clinician and pregnant woman can be well informed about issues that the woman is working on and can realize growth in competencies for parenting and infant caregiving.

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