

**Three Studies of Fathers' Adaptation to Pregnancy and Parenthood:**  
**(1) Moving up the 'magic moment': Fathers' experience of prenatal ultrasound**  
**(2) The longitudinal development of paternal-fetal attachment**  
**(3) Fathering after military deployment: Parenting challenges and goals of fathers of young children**

**by**

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## **DEDICATION**

*To Chris Peterson, with thanks for all you taught me about what makes life worth living. And to all the members of my dissertation committee- I am grateful for the opportunity to work with and learn from you. Your mentorship and friendship have guided my work and enriched my life over the course of my six years in the doctoral program. May it long continue!*

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## **DISSERTATION ABSTRACT**

Fathers' positive and negative interactions impact the health and wellness of mothers and children beginning in the prenatal period and extending across the lifecourse, yet little is known regarding opportunities to engage fathers and encourage patterns of supportiveness. In three discrete, but connected, empirical papers, in my dissertation I use a mix of qualitative and quantitative methods to investigate such opportunities. I use a grounded theory approach to analyze data collected in interviews with expectant fathers after attending a routine prenatal ultrasound, and I find that the period of pregnancy, and the moment of ultrasound in particular, may offer a potent teachable moment when men are feeling hopeful about the future, examining their behaviors and life choices, and may be receptive to outreach. I use data from cross-sectional surveys administered three times across pregnancy to men expecting their first child to examine trajectories of development of paternal-fetal attachment, and find that paternal-fetal attachment increases with time, and is consistently higher among fathers who considered the pregnancy both wanted and well-timed. I examine interview data collected from fourteen male service members, each returned from deployment to a combat zone and parent to at least one child under age seven, to identify specific parenting challenges and goals of fathers of young children post-deployment. Collectively, my three dissertation papers expand the knowledge base on men's thoughts, feelings and behaviors during the transition to fatherhood, and advance understanding of how to support emerging competencies in early fatherhood and promote nurturing father-child relationships.

## INTRODUCTION

A landmark report from the National Research Council and Institute of Medicine determined that a focus on intervention beginning at birth “begins too late” (2000, p.7). Expectant and new parents negotiate significant developmental demands as part of adapting to pregnancy and parenthood, and, as “a time of enormous transition and reorganization... [pregnancy and early parenthood] present a rich opportunity for intervention” (Slade, et al., 2009, p.34). The three studies that comprise my dissertation center on the development of theoretical and empirical knowledge relevant to the design of preventive interventions with expectant and new fathers to promote positive parenting and partnering behavior.

My dissertation uses the multiple manuscript format. Fathers’ positive and negative interactions impact the health and wellness of mothers and children beginning in the prenatal period and extending across the lifecourse, yet little is known regarding opportunities to engage fathers and encourage patterns of supportiveness. In three discrete, but connected, empirical papers, in my dissertation I use a mix of qualitative and quantitative methods to investigate such opportunities. I use a grounded theory approach to analyze data collected in interviews with expectant fathers after attending a routine prenatal ultrasound, and I find that the period of pregnancy, and the moment of ultrasound in particular, may offer a potent teachable moment when men are feeling hopeful about the future, examining their behaviors and life choices, and may be receptive to outreach. I use data from cross-sectional surveys administered three times

across pregnancy to men expecting their first child to examine trajectories of development of paternal-fetal attachment, and find that paternal-fetal attachment increases with time, and is consistently higher among fathers who reported that the pregnancy is wanted and well-timed. I examine interview data collected from fourteen male service members, each returned from deployment to a combat zone and parent to at least one child under age seven, to identify specific parenting challenges and goals of fathers of young children post-deployment.

All three studies develop knowledge to inform the design of innovative intervention strategies. Learning more about fathers' experience of ultrasound will allow identification of areas to improve the ultrasound experience for expectant fathers, and will inform the design of motivational interventions to promote positive fathering to be implemented in future at the time of ultrasound. Understanding the longitudinal development of paternal-fetal attachment among expectant first-time fathers, and whether and how that attachment is influenced by fathers' pregnancy intention, will have important clinical implications; for example, identifying trajectories of development of paternal-fetal attachment may suggest optimal timing to engage expectant fathers in intervention – fathers may be most open to such efforts when they have attained a strong sense of affection and affiliation toward their future child – and specifying the relationship of pregnancy intention to attachment may facilitate opportunity to identify fathers who would most benefit from receiving support during pregnancy aimed at enhancing their development of emotional attachment to their unborn child.

Understanding the experiences of service members who return to parenting young children after deployment and the individual and family support needs perceived by these

fathers will inform the provision of timely and relevant support for fathers and their families during reintegration.

In writing three dissertation papers aimed at informing the design of innovative intervention strategies with expectant and new fathers, I am motivated by my professional commitment to learn about, strengthen and create conditions within families that enable the well-being of children, and my particular interest in primary prevention efforts – interventions designed to promote positive parenting and partnering behavior, and to prevent child maltreatment before it occurs. Further, I am motivated by an important gap in the literature – relatively little empirical research specifically examines the transition to fatherhood (Cowan, Cowan, Cohen, Pruett, & Pruett, 2008).

Collectively, my three dissertation papers expand the knowledge base on men's thoughts, feelings and behaviors during the transition to fatherhood, and advance understanding of how to support emerging competencies in early fatherhood and promote nurturing father-child relationships.

**CHAPTER 1**

**MOVING UP THE ‘MAGIC MOMENT’:  
FATHERS’ EXPERIENCE OF PRENATAL ULTRASOUND**

**Abstract**

Expectant fathers in the U.S. frequently accompany their partner to a prenatal ultrasound, yet little is known about how fathers experience ultrasound attendance. This is an important knowledge gap because studies have shown strong and consistent associations between a father’s prenatal and postnatal involvement, and efforts to actively engage fathers at ultrasound may have longitudinal impact. We conducted semi-structured interviews with 22 fathers after ultrasound, analyzed data using principles of grounded theory, and built a conceptual model of how fathers experience ultrasound. Results suggest that ultrasound attendance contributes to paternal feelings of connection to the unborn baby and motivation to change behavior. Ultrasound appointments may offer an opportunity to engage men to promote positive partnering and parenting across the lifespan.

**Introduction**

Evidence has accumulated demonstrating that fathers’ parenting has an important influence on children's development and that fathers’ influence on child development is distinct from that of mothers (Grossman et al., 2002; Lamb, 2004; NICHD Early Child Care Research Network, 2008). As such, expectations for men as fathers have changed.

The former, conventional ideal of a father as a man who contributed to his family as financial provider, has given way to a new ideal of fatherhood centered on men's hands-on involvement with their children (Deutsch, 1999; Pleck & Pleck, 1997). Compared to five decades ago, men today are spending significantly more time on the day-to-day care of their children (Dienhart, 2001; Sayer, Bianchi, & Robinson, 2004), though still significantly less time than do women (Sayer, 2007).

The change in gender expectations for fathers extends to the role of fathers during pregnancy, labor and delivery. Sixty years ago, fathers did not play an actively engaged role during pregnancy and were rarely present during the delivery and birth of their children. Beginning in the 1960s and 1970s men were encouraged to take part in prenatal education and participate during labor, and today upwards of 90% of fathers are present at birth, where they are expected to reinforce what has been taught in childbirth education and act as advocates for the mother (Chan & Paterson-Brown, 2002; Enkin, Kierse, Renfrew, & Neilson, 2000; Premberg & Lundgren, 2006). Men are increasingly interested to be involved in their partner's pregnancy, and their increased involvement facilitates both enhanced support for their partners and opportunities for the couple to jointly navigate their transition to parenthood (Draper, 2002; Ekelin et al., 2004).

One emerging setting for paternal involvement is the prenatal ultrasound. To date, men's involvement in and experience of the routine prenatal ultrasound appointment has received limited attention. This gap is significant because a routine prenatal ultrasound between 15 and 20 weeks' gestation is an integral component of prenatal care in most institutions (Breathnach et al., 2007), and existing research suggests that expectant fathers wish to be more involved in prenatal care (Draper, 2002; Finnbogadottir, 2003; Boyce,



2007). Ultrasound attendance may already be a normative experience for expectant fathers. For instance, in a survey of a nationally representative sample of households with children aged 10 and under, overall 76% of mothers reported that their youngest child's father was present at a prenatal ultrasound (Davis et al., under review). This means that prenatal ultrasound is a critical opportunity for contact with men in a health setting. Of note, mothers were less likely to report fathers' attendance at prenatal ultrasounds if parents were non-cohabiting, and if mothers had low household income. This substantial disparity warrants further investigation and suggests a potential opportunity to develop interventions that address the complex causes of men not attending a prenatal ultrasound.

Maternal-fetal attachment – conceptualized as including cognitive (understanding fetal development), affective (feeling for the fetus as “one’s own child/kin”), and altruistic (desire to care for the fetus) components (Shieh & Kravitz, 2002) – has been shown to increase following prenatal ultrasound (Boukydis 2006). However, we know little of how attending the prenatal ultrasound may impact men’s motivations to parent actively and to support their partners or how this attendance may impact paternal identity or paternal-fetal attachment. Qualitative studies, predominantly based on small samples in European countries, have shown that the prenatal ultrasound is an important milestone for expectant fathers as well as mothers (Sjogren, 1992; Sandelowski, 1994; Ekelin et al., 2004). Fathers may consider the prenatal ultrasound as stronger evidence of the reality of expecting a baby than other pregnancy events such as a positive pregnancy test, feeling the baby’s movements, or visualizing the partner’s growing abdomen. Fathers may experience an escalation of paternal-fetal bonding and feelings of “becoming a family”

after viewing the fetus on the ultrasound screen (Draper, 2002; Ekelin et al., 2004; Freeman, 2000). Ekelin et al. (2004) found that immediately after seeing the image of the fetus, fathers “began to think of it as their baby and started to imagine themselves ... [in the role of] father.”

Developing feelings of connection to the unborn baby during pregnancy foreground the parent-infant relationship after birth. The extent of an expectant mother’s feelings of attachment and connection to her unborn baby has been associated with pre- and post- birth parental behavior, the mother’s experience of the baby after birth, the quality of her involvement with the baby after birth, and infant security (Benoit et al., 1997; Condon & Corklindale, 1997; Huth-Bocks et al., 2004; Leifer, 1980; Siddiqui & Haggloff, 2000; cited in Slade, et al., 2009). Substantially less is known about the process of psychological preparation experienced by expectant fathers (Slade, et al., 2009), and expanding this knowledge base can inform the development of effective strategies that engage expectant fathers and create positive relationships with their partners and children. More than thirty years of research shows that prospective fathers can offer their pregnant partner important psychological, emotional, and moral support (Early, 2001). Promoting men’s positive support toward their pregnant partners is essential because women with supportive partners have fewer health problems in pregnancy, and the quality of mothering provided to an infant is associated with the support the mother receives from her partner. Additionally, the quality of the partner relationship predicts how both mother and father will nurture and respond to the needs of their child, as well as how involved fathers will be with their child (ACOG, 2009; Carlson, McLanahan, & Brooks-Gunn, 2006; Gibbins & Thomson, 2001; Guterman &

Lee, 2005; Landale & Oropesa, 2001; Laughlin, Danielle, & Fagan, 2009). Conversely, lack of partner support is associated with adverse maternal and child health outcomes. For example, lack of intimate partner support is a consistent predictor of women's depression during pregnancy, maternal smoking, delayed maternal prenatal care, and adverse birth outcomes such as preterm birth, low birth weight, and infant mortality (Gaudino et al., 1999; Lancaster et al., 2010; Martin et al., 2007; Ngui et al., 2008).

Men's support of their pregnant partner also leads to beneficial child health outcomes. Expectant fathers who engage in supportive prenatal behaviors are much more likely to establish a trajectory of future positive involvement with their families, and consistent positive father involvement has been associated with increased child and adolescent health and wellbeing, including improved social, emotional, and cognitive functioning (Bronte Tinkew et al., 2006; Lamb, 2004; Rushton et al., 2002; Sarkadi et al., 2008; Yogman, Kindlon, & Earls, 1995). Positive parenting by fathers (encompassing sensitivity and responsiveness to the child, and timely support for the child's emerging autonomy) is protective against behavior problems and health risk behaviors, whereas negative parenting (harsh discipline, unstable presence) increases risk for behavior problems (Trautman-Villaba et al., 2006; Verlaan & Schwartzman, 2002).

It is becoming increasingly clear that fatherhood is meaningful to men, even those who may exhibit problem behaviors or face significant social distress. The transition to fatherhood is a time when men may be particularly open to participating in programs designed to increase their support of partner and child. Birth has been identified as a "magic moment" (McLanahan, Garfinkel, Mincy, & Donahue, 2010) and the period when a family has a new baby as "a window of opportunity" (Dubowitz, 2002). Efforts to

strengthen and support fathers and families may be particularly effective as well as cost-effective, in light of high parental motivation to make health and other behavior changes that increase their ability to support their child. Dubowitz and colleagues (2000) describe the possible efficacy of modest preventive interventions conducted by health care providers at the time of birth. Noting that pediatric health care providers frequently focus on mothers and ignore fathers, they recommend that pediatric health care providers actively invite fathers to participate in visits, nurture fathers' involvement in their children's lives, and promote fathers' support of their children's mothers. If ultrasound attendance powerfully enhances men's feelings of connection to partner and child, it stands to reason that the magic moment could be moved up from the time of birth to the prenatal ultrasound. Similar preventive interventions could be developed by prenatal health care providers for the active engagement of fathers, building on men's attachment during pregnancy, and specifically at ultrasound. Effective engagement would require a shift in climate in prenatal care settings; studies have found that many fathers feel marginalized and peripheral in their contact with prenatal care – they perceive that information is not directed at them, and they are uncertain of their role (Finnbogadóttir et al., 2003; Henderson & Brouse, 1991; Ingram, Johnson, 2004).

Pregnancy and the transition to fatherhood can be viewed as an important developmental period for men (Cabrera et al, 2008; Shannon et al., 2009; Bronte Tinkew et al., 2007), yet we know very little about how men experience pregnancy and how that experience impacts their physical and psychological well-being. Pregnancy has received relatively little attention as the context during which men's attitudes toward fatherhood

may be taking shape. The purpose of this study is to understand the meaning and impact of prenatal ultrasound attendance for expectant fathers.

In this paper, we examine emerging attitudes toward fatherhood and emerging salience of paternal identity at the time of routine prenatal ultrasound, at approximately 16-20 weeks' gestation. Men's own voices are largely absent in much of the literature on fathers and fathering, which frequently presents mother's reports of father behaviors (Teitler, 2001); here we examine how men themselves view their own nascent fatherhood during the prenatal period. Research on men and pregnancy – and specifically ultrasound – is under-examined in the United States, in comparison to research conducted in Australia and Europe. We employ a US sample in this investigation to examine how men experience prenatal ultrasound and understand the impact of this experience on their self- perceived role as both partner and expectant father. Better understanding the processes of that influence will help shape effective, future interventions with men at the time of ultrasound.

## **Method**

### **Participants**

We recruited a convenience sample of participants from the obstetrics clinic at a university medical center that provides comprehensive care for women with both low and high-risk pregnancies. The clinic performs fetal ultrasounds throughout the gestational period, including routine prenatal ultrasounds, or “fetal surveys”, at approximately 16-20 weeks. Over the summer of 2010, on the one day of the week that the clinic primarily performs routine prenatal ultrasounds, a member of the research team was on site and, guided by clinic staff, sequentially approached eligible couples. Eligibility criteria

included (1) biological father, (2) over eighteen years of age, and (3) English-speaking, (4) accompanying pregnant partner scheduled for a routine prenatal ultrasound.

Researchers informed both mother and father of the aims of the study, and asked permission to observe the ultrasound and to conduct an interview with the father after the ultrasound appointment was complete. Fathers were enrolled in the study only if both the mother and father were willing for him to participate. Two men who consented to participate were not interviewed because an abnormality was identified during the ultrasound and this prompted a more extended appointment and additional consultation with clinicians after the ultrasound.

The sample consisted of 22 expectant fathers who attended their partner's routine prenatal ultrasound. Fathers ranged in age from 23 to 41 years with mean age of 31 years. Sixteen out of twenty-two fathers were married to the mother of the baby, and half of the fathers (n=11) were expecting their first child while half (n=11) were already fathers. The majority of the sample was Caucasian (n=15), half had completed a four-year college with Bachelors Degree or more (n=11), and two-thirds reported annual household income greater than \$50,000 (n=14). Additional demographic characteristics of the sample are presented in Table 1.

### **Data Collection**

For those couples who gave consent, a member of the research team observed the prenatal ultrasound and conducted a semi-structured interview with each participant immediately upon completion of the ultrasound appointment. No notes or recordings were taken during the observation. The researcher utilized the observation to guide prompts during the interview, for example, asking a participant to describe what he was

feeling when he learned he and his partner were expecting a daughter. Interviews lasted from 15 to 30 minutes and were conducted in a private room at the clinic. The research team consisted of three physicians (one OB-GYN physician, one pediatrician, and one family medicine physician) and two social workers; each researcher conducted between three and five interviews. Researchers followed a flexible semi-structured interview guide informed by study goals, relevant preliminary work, and the research literature (see Appendix 1). Each interview opened with the broad prompt, “Describe for me what it was like for you to be there during the ultrasound.” Follow-up prompts addressed if and how thoughts or feelings about the pregnancy or becoming a father were affected in any way by the ultrasound, and how fathers felt about the care they and their partners had received. Each interview was audio-recorded with the participant's permission and was transcribed verbatim. Fathers were assured that their identities and responses would remain confidential. Both fathers and mothers were given a gift card worth \$10 in exchange for participation. The Institutional Review Board at the University of Michigan Medical School approved this study, and all participants provided written informed consent.

### **Data Analysis**

We conducted a thematic analysis, drawing on principles of grounded theory (Glaser, 1978; Glaser & Strauss, 1967; Strauss, 1987; Strauss & Corbin, 1998), to identify themes from fathers’ accounts of their experience attending prenatal ultrasound. We performed constant comparison of participant responses concurrent with data collection. The team of researchers used an iterative process to develop codes for data interpretation. Two researchers reviewed every transcript independently, and the full

team met to develop preliminary codes. Two researchers independently applied these codes to the data and then the full team met again, repeating this process until we reached agreement on code definitions, which we documented in a qualitative codebook that we then used to code all transcripts. The final coded transcripts were entered into NVIVO (QSR International) software to assist with data analysis. We conducted within-case and cross-case analyses and met regularly to discuss cases and identify emerging themes, which we verified by going back to the data. We built a conceptual model to represent the meaning and impact of these themes on fathers' experiences of prenatal ultrasound. We verified the model by returning repeatedly to the data to search for disconfirming evidence.

## Results

The following conceptual model (Figure 1) for understanding fathers' experience attending routine prenatal ultrasound was developed based on emergent themes reflective of patterns across interviews. Representative quotations have been selected because they illustrate the rich, textured data generated by this study.

The following is a description of themes and their inter-relationships. Fathers valued the ultrasound experience for providing *reassurance that the pregnancy was proceeding normally*. This reassurance, in turn, seemed to allow fathers to engage in a near tangible perception *of the reality of the pregnancy and child*. Together, reassurance of a normally proceeding pregnancy and a rich perception of the reality of the unborn baby served as a stimulus for the *rapid expansion of thoughts and feelings about becoming a parent*. The father's ultrasound experience, and the thoughts and feelings that took shape as result of that experience, both influenced and were influenced by the



contextual environment of his *relationships with his partner and within his social network* and the *clinic setting*. The following sections will illustrate each theme.

Theme 1: *Reassurance That the Pregnancy is Proceeding Normally*

Universally, fathers in our sample described the ultrasound as fundamentally fulfilling the purpose of providing reassurance that the pregnancy was proceeding normally and the baby was healthy. They described their primary hope coming into the ultrasound as “Just to make sure everything is on track.” One father elaborated on this idea by saying:

With all the, like, different things that can go wrong that you worry about, to be able to see that there’s five fingers on every hand and all the toes are there and everything – I definitely think that it gives you peace of mind... seeing that everything seems to be going the way it should be going.

Fathers who had prior experience with adverse pregnancy outcomes described the special meaning for them and their partners of receiving reassurance from the ultrasound.

She was pregnant a couple of years ago and right about this time, at about 18 weeks, she had problems with the pregnancy and became very sick and they came in and diagnosed that there was a condition where the baby wasn’t developing properly... So it was a relief [today] to see in the first couple minutes that there were no gross deformities. I guess everyone has that, but in our case, you know, we were more concerned.

Fathers experienced “that affirmation, confirmation ... assurance that everything looked okay” as license to deepen their feelings of connection to the baby and expand their vision of their future parenting role.

So now I have this big reassurance, like, we have a normal size kid, ten toes and ten fingers and four chambers of a heart and I can continue being happy and excited and start thinking about all those fun things about being a dad.

## Theme 2: *Perceiving the Reality of the Pregnancy and Child*

For the expectant fathers in our sample, the ultrasound experience was a powerful catalyst for perceiving the reality of the pregnancy and child.

I mean you can't contest it, you know you're having a baby. So the ultrasound is the biggest indication that your life is changing.

The "reality boost" provided by ultrasound was salient for men who were already fathers, as well as those expecting their first child.

Seeing the baby really kind of- really hit home that we have another child on the way... Seeing the baby on the screen ... really made it clear that we're going to have another member of the family.

Fathers conceived the heightened reality imbued by the ultrasound as meaningful to them in a way that, from their perspective, was distinct from the mother's experience, because her physical experience had already demonstrated to her the reality of the pregnancy.

Obviously she's pregnant, but then when you actually get to see it you're like holy cow, you know I'm going to be holding that thing in my arms in like you know six months or less... The baby's inside her and she can feel the baby, like, all the time, and moving around. That like makes it tangible to her right away. But, for me, to be able to like, see it... definitely makes it more tangible or real.....more a 'whoa' experience.

Fathers variously identified hearing and seeing the heartbeat, witnessing movement, and seeing the baby's face or profile as particularly compelling or significant for heightening the sense of the child's reality. With rare exceptions, most fathers described finding out if they are having a boy or a girl as singularly important for making the child feel more real and allowing them to imagine their future relationship with their child.

I think definitely finding out the sex makes it feel more real. Makes it feel more like a person. As soon as we found out, she told us it was a girl, then all of these thoughts started running through my head about, you know, a girl and bringing up a daughter...

For all fathers in our sample, experiencing a heightened perception of the reality of the pregnancy and child was accompanied by powerful emotion. The emotional component of the experience ranged along a continuum from quiet, seemingly moderate excitement to outright and expressive euphoria. The latter is exemplified in these excerpts.

It was one of the most amazing things, if not the most amazing thing I've ever seen in my life... the baby's foot, the baby's hand, the baby's heart, the baby's face. Finding out that it's going to be a girl. It's just something...it's hard to describe it unless you're there... It's a lot of thoughts and emotions to go through in a 15 minute time span!

You're just kind of like blown away... just kind of like wow, like a piece of you is just about to be here. That's really basically how I felt. I was just like so many emotions, I was just like happy, sad, excited, worried. It's just like all emotions just flash through your mind... My heart started beating faster just to hear a life-boom, boom, boom, boom, boom. It just felt like- the feeling's indescribable, I was just blown away, like my eyes filled up but it's like I won't cry, I just be so happy to hear it... The heartbeat is like letting me know it's on the way, get ready.

### Theme 3: *Rapid Expansion of Thoughts and Feelings about Becoming a Parent*

Fathers expressed an expansion of thoughts and feelings about becoming a parent, following from the reassurance that the pregnancy was proceeding normally and the increase in their perceived reality of the child. This manifests in the articulation of self expectations and plans to provide for the child, and in the expression of broad hopes and dreams for the child and for the relationship they will share. Plans and dreams alike extended beyond the immediate future of infancy and across the child's lifespan.

I need to make sure I have a steady job because my child eating depends on me. If I don't work, he don't eat. And I'd rather my child eat before I do... I'm gonna do whatever it takes right now, no matter what it takes, to make sure that when it comes to that time money's saved up so they can go to school even if they can't get a scholarship. It's like I don't think so much about young, when my child's young. I'm thinking about when the child's older because you gotta start preparing for that now.

Now that we know that it's a girl, you know, now I'm thinking about... [laughter]. I've even thought about, like, walking her down the aisle someday, you know, [I'm] thinking that far ahead. [More laughter.] Which is crazy, but I mean, it's like my brain went from bringing her into the world and taking care of her and making sure she is taken care of to her future and everything...

For 20 out of 22 fathers in our sample who chose to learn if they were having a boy or a girl, visions of their future relationship frequently reflected differentiated beliefs about a father's role in the life of a son versus a daughter.

To have a son is like, you're gonna have to teach him how to be, how to be a man. That's what you're supposed to do. If it would be a girl that would be her [mother's] job. I mean, yeah, mine too, but with a son, you've got to build a foundation. When he gets to that certain age [to ask] "dad, what's it like to be a man?" [then] you've got to be able to tell him and be honest with him... I gotta make sure he's tough, 'cause it's a cruel world, life ain't fair. Gotta make sure that he know to treat women right...

Embedded in fathers' representations of their desired future relationships with their children were attributions of motivation. Fathers frequently referenced their experiences as sons of their own fathers, alternately expressing the desire to live up to the example of their own father and, more often, to be a different and better father to their child than their own fathers had been for them.

"I think about everything I wanted to do with my dad, we never really had father-son time and stuff like that... I don't want it to be like that with my son... I went through it where my dad didn't really tell me [things] so I just had to learn by myself. I want to make sure me and my son are close so any time, anything he need to tell me, he will."

Fathers also described deeply rooted values related to parenting.

For me, I mean, coming from a large family and having more traditional family values in me since I was really very young, I knew that my biggest achievement in life would be to be a successful father.

In the case of experienced fathers, motivation often derived from the experienced rewards of parenting, the desire to improve on past parenting performance, or insight gained from past experience.

I mean I don't want to miss any second of any of the growth anymore. I feel like I missed too much with my daughter, and they grow up so fast.

#### Theme 4: *Influence of Partner and Social Network*

According to fathers, all aspects of the ultrasound experience – from their motivations to attend, to their in-the-moment experience, to their plans to share the experience with others – were shaped by and would further shape their relationships with their partner and within their social network. Fathers described sharing the ultrasound experience with their partner as one of its most meaningful aspects. It was rewarding to them to be there with and for their partner, and it was important to them to provide support to their partner through the experience. Fathers also believed that the shared experience would serve to strengthen their relationship.

[The best part of the experience was] just to see my wife's face... Just to see her face, you know, just made me the proudest man, husband, father.

I think me being there makes me more a part of the process. I think if she went to the ultrasound without me it would feel a little bit...I don't know the right word, I don't know if the right word is abandon her. I mean not that strong? But I think certainly there is a sense of being part of it and being a team by me coming. And if I didn't come to something like this it would make it seem like maybe I'm not excited about it, maybe I'm not fully invested... I do know that she appreciates it.

I think it's bringing us closer experiencing this together... This is a new experience for both of us and we are going through it together, so I mean, just like with anything, you share an experience with somebody it's bound to draw you closer.

Fathers highlighted their recognition and appreciation of the mother's experience going through pregnancy, as well as their own commitment to providing her emotional and

material support; the latter was conceived as both important for the partner relationship and the best way for a father to contribute to a successful pregnancy.

Look how much she is doing for our family! I mean I see her exhausted, I see her... tired and sick and sore. And all these different bodily changes... It's like think of the things that she's going through for our family. ... [My role now is] making sure she's taking care of herself and doing what the doctor says.

In addition to describing the meaning of the ultrasound experience in the context of their relationship with their partner, some fathers described ways in which family, friends and colleagues played a role in their ultrasound experience. Some expectant fathers explained that other fathers they know had told them that ultrasound is an experience not to be missed.

My one friend, ... [with his first baby], he didn't really know what he should do or what he shouldn't do... But when they had their second baby, ... he just went the completely the opposite way. Because he wanted to, he realized that, and he told me this, he said, you know, I, I missed out on a good experience and, you know, knowing that now, I'm not going to miss it again, you know. So. He was like all—all about it. Involved in everything. And he, he kinda encouraged me.

They spoke of what it meant to them to be able to share pregnancy experiences and ask questions specifically of other men.

My boss' baby is due next month... this will be his fourth, a girl. And um, so he's imparted some information to me and... knowing that he's been through it helps me, having somebody to be able to talk to. To say, you know, "Did you feel like this when, you know, your wife was pregnant?" or "Did this happen when you guys were..." It's nice to have somebody to bounce questions off of...

Every participating father mentioned one or more people in addition to his partner with whom he looked forward to sharing the ultrasound experience *post facto* by talking about it and showing pictures. Most commonly mentioned were plans to share the experience with other family members, and plans to share the experience with friends and co-workers were also frequently mentioned. In addition to sharing pictures and stories in

person, some fathers planned to scan pictures from the ultrasound and upload them to Facebook or make them screensavers on their cell phones and computers. They suggested that doing so would elicit welcome comments and conversations within their social networks about their impending fatherhood.

#### Theme 5: *The Clinic Setting*

In addition to the partner relationship, the clinic setting provided a context for the ultrasound experience. All of the fathers interviewed were generally satisfied with the treatment they and their partner received, but fathers diverged in feeling variously included and excluded by healthcare providers. Some felt that they and their partner were treated with equal care.

They treated me like they actually cared, and when I said something they answered my questions right away instead of just not paying attention to them. It's like everything we said mattered.

Approximately half of the fathers in our sample noted a lack of attention directed toward expectant fathers, and a few felt truly excluded.

You kind of feel like you're not really needed there. Nobody talks to you, nobody explains what's going on to you...I would like it if they would explain what they're doing or what they're using to us fathers a little better because the mothers, they go through it all so they know oh this gel does this, and the ultrasound works this way and does that because they've already been talking about it with all the other medical people and then every other mother that's ever had a child. But no one ever talks to us fathers about that.

Among fathers who acknowledged feeling secondary, some expressed understanding: "Seems pretty mom and child oriented. Which I, you know, I get." Others expressed conviction that the experience for expectant fathers could be substantially improved with minimal effort through explicit acknowledgement of fathers.

I was like expecting like a, ‘Hey how are you doing? Are you pretty excited about it?’ Like asking me, ‘How you feeling about this?’ I’d probably feel more welcome [if someone had asked].

Most fathers saw the ultrasound as an opportunity to learn, and the role of fathers at ultrasound as asking questions and eliciting as much information as possible. Many expressed the desire for more explanation from the sonographer, and some expressed frustration at not receiving as much explanation as they would have preferred.

[I wouldn’t mind] a little more commentary. You know, I’m not looking for a play by play. But just, you know, okay, now we’re going to try to look for this, or now we’re looking for that. Instead of just kind of [leaving us] sitting there and wondering what’s going on.

Some fathers described their strategies for creating a role for themselves in a setting that treated them more as bystanders than parents in their own right.

I’d say overall that, as a man, as a father, I don’t get the attention... I never wait for them to say “do you have any questions, sir?” Um, I learned early on that that doesn’t happen, so I just ask questions.

### **Discussion**

We propose a conceptual model (Figure 1) to explain the processes involved in fathers’ experience of attending routine prenatal ultrasound. Results indicated that the ultrasound experience made an important contribution to an expectant father’s developmental trajectory as a parent. By providing reassurance that the pregnancy was proceeding normally and by contributing substantially to fathers’ perception of the reality of the pregnancy and child, the ultrasound experience served as a stimulus for the rapid expansion of thoughts and feelings about becoming a parent. In essence, the ultrasound experience strengthens the development of prenatal paternal attachment. Many fathers in our sample explicitly suggested that the ultrasound experience led to a deepening of their “attachment,” “connection,” or “bond” with the baby, and all offered implicit evidence of



this effect. This suggests the timeliness of intervening at ultrasound to nurture men's development in their father role. That the *shared* aspect of the experience is central to fathers' accounts suggests the supplemental richness of the opportunity to intervene to promote enhanced positive support between partners and building of strong social networks to serve as a source of ongoing support for men as they enter fatherhood.

### **Developmental Implications**

Many of the fathers who indicated what we have labeled as "*Rapid Expansion of Thoughts and Feelings about Becoming a Parent*" focused on future interactions with a child older than a baby, sometimes even with their child as an adult. This extended focus by fathers may be an important aspect of development of paternal prenatal attachment, but one that has been relatively unexamined in the literature to date. The current measures used for assessing prenatal attachment (Paternal Fetal Attachment Scale and Paternal Antenatal Attachment Scale; Cranley, 1981; Condon, 1993) do not include items that focus on thinking about the future child as older than a baby, whether as an older child or adult, and as such may fail to capture a fundamental component of men's psychological preparation for fatherhood. Focusing on the future for their fathering beyond infancy may be productive or adaptive for fathers in many ways, perhaps because it fosters planning or preparation for long term care of their child, or motivates them to prepare for the difficult tasks that will lead to a gratifying stage of their relationship with their child. On the other hand, a lack of focus on the baby-to-be as an infant may not be optimal for preparing fathers for an intimate role in care for their baby in the early postnatal period. The lack of focus on their role in their infants' lives in the moments immediately following ultrasound appointments may not, in itself, be problematic. To

the extent that men are often unprepared by their previous life experience for care of an infant, rapidly moving to thoughts about an older child may reflect this lack of familiarity with infants and may indicate that father's roles in infancy may be more murkily defined than father's roles with older children.

A limited literature on paternal prenatal attachment has investigated differences between the process of maternal-fetal bonding and paternal-fetal bonding while relying on measures emerging from conceptualizations of the paternal-fetal attachment process as largely parallel to the maternal-fetal attachment process (e.g., Weaver & Cranley, 1983). In research utilizing the Paternal Fetal Attachment Scale (PFAS), an adaptation of the preexisting Maternal Fetal Attachment Scale, men scored higher than women on the subscales "Differentiation of self" and "Role-taking," while women scored higher than men on "Interaction with the fetus," "Attributing characteristics to the fetus," and "Giving of self" (Cranley, 1981). In interpreting these results, attention must be paid to the timing of the study's implementation and the trend in recent decades toward increasing and increasingly diverse forms of father involvement. More recent research has yielded mixed findings, with some studies finding maternal prenatal attachment scores to be higher than paternal prenatal attachment scores (Lorensen, Wilson, & White, 2004; Pretorius et al., 2006), and others identifying no differences between the two.

Among mothers, strong prenatal attachment has been associated with positive health behaviors during pregnancy (e.g. on-time prenatal care, avoiding alcohol, healthy diet and exercise) and learning about pregnancy, childbirth, and infant care (Lindgren, 2001). Correlates of paternal prenatal attachment have received less attention; the bearing of paternal prenatal attachment on paternal health behaviors and preparation for

parenthood is an area ripe for research. Both maternal and paternal prenatal attachment have been associated positively with the quality of the marital relationship (Weaver & Cranley, 1983), suggesting that efforts to enhance prenatal attachment or enhance the quality of the relationship between partners may have reciprocal effects.

### **Practice Implications**

Viewing the experience of ultrasound attendance through fathers' eyes provides insight into the meaning and impact of ultrasound attendance for fathers and illuminates the strong possibility that pregnancy, and in particular the pregnancy milestone of routine ultrasound, could be a time when men are more open to preventive interventions that could positively shape their partnering with the mother and parenting of their child across the lifespan. This study provides preliminary evidence to suggest that the routine prenatal ultrasound presents a window of opportunity when men may be particularly open to preventive intervention; indeed, many participants expressed appreciation for the opportunity to be interviewed for this study, stating that, "it was a really positive part of this [ultrasound] experience that you guys are actually, like [interested in] how does this affect the man." This finding of receptivity is particularly important in light of a widely acknowledged gap in the knowledge base on how to successfully engage fathers in preventive intervention efforts (Lee, Bellamy, & Guterman, 2009). However, in order to effectively engage expectant fathers at or around the time of ultrasound, prenatal care providers must examine the ways in which the clinic setting is and is not conducive to, and actively encouraging of, fathers' full participation. As characterized by many fathers in our sample, their experience in the environment of the prenatal clinic was akin to "benign neglect." These findings should prompt reconsideration of how prenatal care

providers perceive and interact with fathers. As previously recommended to pediatric healthcare providers (Dubowitz, et al., 2000), prenatal care providers could actively encourage fathers' participation in visits and seek to support fathers as positive parents and partners.

Fathers' accounts of the ultrasound experience evidenced strong motivation to be good fathers and partners, and demonstrated that the ultrasound experience is often replete with positive emotion. These findings imply that health care and other providers who engage with fathers and families during pregnancy could consider the potential of positively-valenced preventive intervention efforts beginning before birth, at the time of ultrasound. Such interventions can use a positive, empowering perspective and build on fathers' strengths to elicit positive changes in expectant fathers' commitment to their child, and increase ability of fathers to understand and respond appropriately to the child's needs. Such interventions might also seek to strengthen the adult partner relationship that will constitute the child's most influential emotional environment.

Attending an ultrasound or other prenatal care visit may be a first-time father's debut into the healthcare system on behalf of his (future) child. If he feels excluded in this first foray, he may be discouraged from continuing his engagement in prenatal care and, subsequently, pediatric care. Conversely, a positive experience may promote continued engagement, and, moreover, may lead a father to encourage other fathers to attend an ultrasound or find other means of active engagement in pregnancy and support for his pregnant partner. Results of this study demonstrate that 'word of mouth' is a powerful vehicle for shifting norms related to fathers' prenatal behaviors.

This study found that ultrasound attendance was powerful for experienced as well as first-time fathers, suggesting an opportunity to strengthen engagement or reengage experienced fathers as needed, at the time that they are again adjusting to the anticipated arrival of a new baby. Across these statuses, fathers' reflections at ultrasound indicated an unfolding process of (re)assessing many life components and choices (e.g. quality of relationship with partner, professional choices), aligned with the personal and often the joint-with-partner processes of practical and psychological preparation for parenthood.

### **Limitations**

Our findings should be interpreted in the context of study limitations. Qualitative research methods provide an opportunity to develop deeper theoretical understandings of important psychological phenomena in specific contexts and with specific populations (Elliot, Fischer & Rennie, 1999), and these methods suited the goal of gaining in-depth understanding of fathers' experience of ultrasound attendance, however results cannot be generalized to all fathers-to-be. The small sample size does not allow for the investigation of possible differences between the experience of first-time fathers and men who have previously negotiated the transition to fatherhood, or variation associated with demographics. The study did not collect data on the partner relationship, and the duration and quality of that relationship are likely important factors to consider in deepening understanding of the ultrasound experience and men's transition to fatherhood. By definition, fathers included in this study attended the ultrasound and this precludes examination of possible difference between attenders and non-attenders. This study does not allow for assessment of the possible impact on developing prenatal paternal attachment of hearing about the ultrasound from the mother and seeing pictures, rather

than attending. This study cannot address the possibility that the act of attending ultrasound may be conflated with higher motivation to be a good father and partner. It is important to note that this study included only men who are both biological and social fathers, and thus does not engage with the complex reality that multiple, one, or no men may take on a fathering role in the life of a child, and those who take on a fathering role are not always biological fathers.

Another limitation pertains to the cross-sectional nature of this project. We asked fathers to describe how their ultrasound experience had affected their thoughts and feelings about the pregnancy and the child, and to discuss where the shift in perspective might lead them. We cannot conclusively determine whether the fathers showed any change in behavior after the ultrasound and, if so, whether or how long after the ultrasound any resultant change was maintained.

### **Future Studies**

To build on the important contribution of this preliminary study, our next study seeks to address some of the identified limitations of the current work through the use of quantitative methods and a larger sample with greater demographic diversity and variability in relationship status and fathering history. The next study utilizes a longitudinal design that is more suitable for situating the ultrasound experience in the developmental trajectory of expectant fatherhood, to complement the present study's contribution of a snapshot of fathers' in-the-moment experience of ultrasound.

This study was designed to fulfill the aim of understanding fathers' experience, so fathers were the sole reporter of information about the ultrasound. Importantly, additional future studies could include mothers and investigate how fathers' involvement

in ultrasound may enhance or potentially diminish mothers' experience. Critically, some fathers may exert coercive control over their partners reproductive health and decision-making (Gee et. al, 2009; Moore, Frohwirth & Miller, 2010) and their presence might diminish safety and comfort for expectant mothers and impede opportunities for intimate partner violence screening and other interventions.

To probe the divergent findings regarding fathers' sense of inclusion or exclusion by the sonographer, future research could include data on the sonographer's behavior to examine what aspects of the ultrasound experience might be modified to improve fathers' engagement and overall experience. In addition, exploration of group differences between ultrasound attenders and non-attenders could illuminate the meaning and impact of attendance versus only hearing about the ultrasound and seeing pictures afterward.

### **Summary**

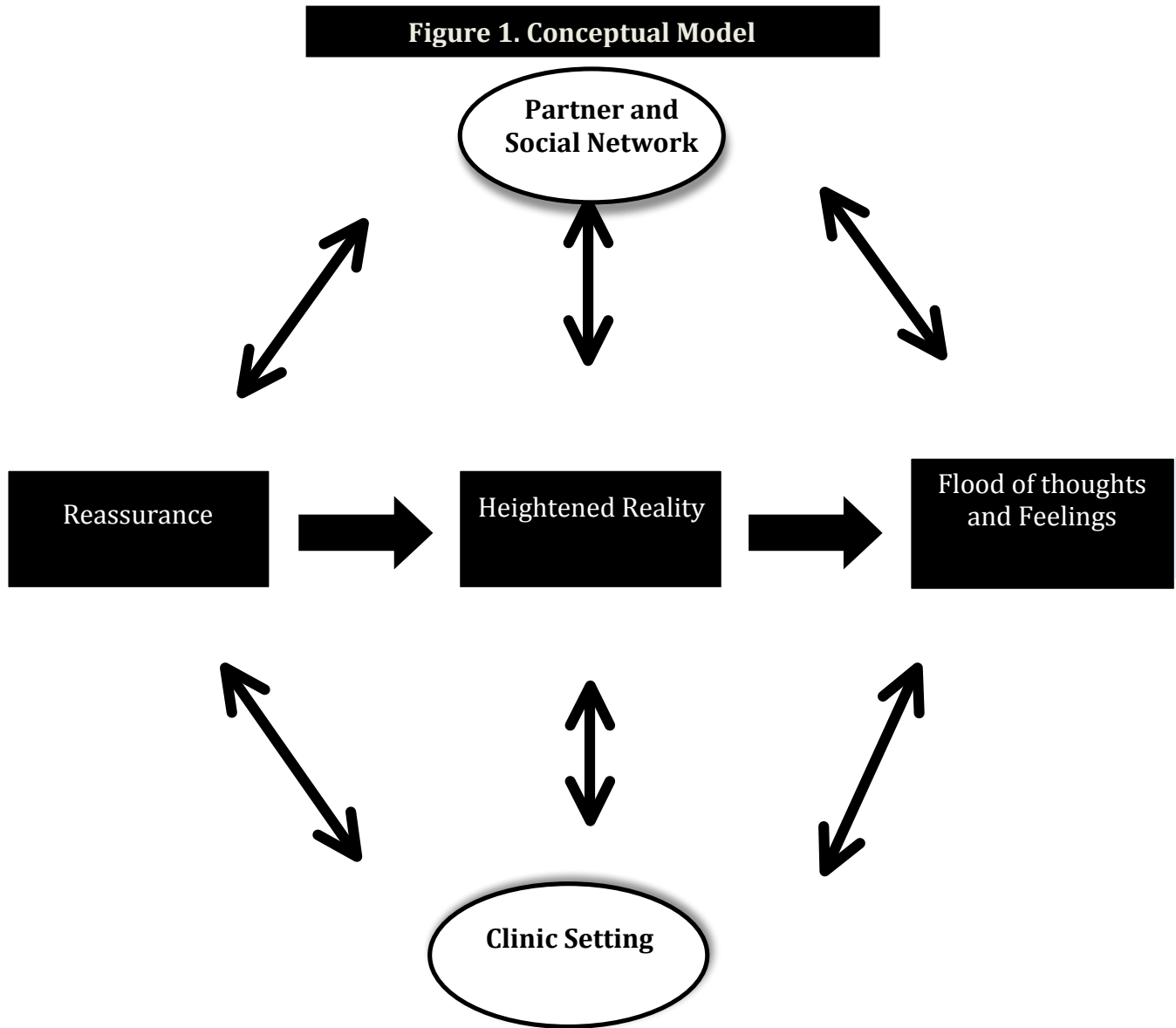
Enriched understanding of the meaning and impact of ultrasound attendance for fathers can inform clinical practice and policy for engaging fathers at ultrasound and guide the development of preventive interventions. A focus on opportunities for building fathers' positive motivations and strengths should be maintained, including the design of assessment tools to clarify what motivates men to be positively involved as partners and parents, and the design of strategies to support men to achieve these ends. Engaging expectant fathers in preventive intervention at ultrasound holds promise and potential for the men themselves, for their partners, for their children and families.

**Table 1.**  
*Demographic Characteristics of the Sample*

<b>Characteristic</b>	<b>Father (N=22)</b>
<b>Age</b>	
20-29	7
30-39	11
40+	3
<b>Married to mother of the baby</b>	
Yes	16
No	6
<b>First-time father</b>	
Yes	11
No	11
<b>Ethnicity</b>	
Caucasian	15
African-American	2
Hispanic	1
Asian-American or Pacific Islander	3
<b>Education</b>	
Some High School	1
Completed High School	2
Some College	7
Completed college	11
<b>Employment</b>	
Full-time	16
Part-time	2
Unemployed	3
<b>Income</b>	
<\$25,000	5
\$25,000-\$49,999	2
\$50,000-\$74,999	5
>\$75,000	9



Figure 1. Conceptual Model



## **Appendix 1. Semi-Structured Interview Guide**

In this interview, I am very interested in your experience during the prenatal ultrasound. *Your perspective is very valuable in providing insight into* how expectant fathers feel about this event. There are no right or wrong answers to any of these questions. Feel free to talk about whatever comes to mind.

### **1. Describe for me what it was like for you to be there during the ultrasound.**

- What was the most meaningful or important part of the ultrasound for you?
- What was it like when you saw the image of the baby? When you saw the baby move? When you heard the heart beat? When you found out what gender the baby was (if applicable)?

### **2. Were your thoughts or feelings about the pregnancy or becoming a father affected in any way today as a result of the ultrasound? Tell me more about that.**

- How did it/will it affect your feelings about your child-to-be?
- How did it/will it affect your relationship with your partner?
- How did it/will it affect your expectations of being a father?
- Does becoming a father motivate you to make any changes in your life? Did the ultrasound today affect that at all?

### **3. How do you feel about the treatment you and your partner got today?**

- Is there anything you would change? Any improvements you would suggest?
- Was there anything about the visit that you found particularly “father-friendly”?
- Anything that made you feel unwelcome or unimportant?

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## CHAPTER 2

### LONGITUDINAL DEVELOPMENT OF PATERNAL-FETAL ATTACHMENT

#### Abstract

Using survey data collected at three time points across pregnancy from a sample of expectant first-time fathers ( $N=116$ ), this study examines the longitudinal development of paternal-fetal attachment and factors that may influence paternal-fetal attachment across pregnancy. Paternal-fetal attachment was found to increase as pregnancy progressed. Paternal-fetal attachment was lower across pregnancy among fathers who reported that their partner's pregnancy was unwanted, mistimed, or they were unsure of how they felt about the pregnancy, relative to those who reported that they wanted their partner to be pregnant now. Greater perceived partner support was associated with higher paternal-fetal attachment across pregnancy. Paternal depression symptoms and demographic variables were not significantly related to paternal-fetal attachment across pregnancy, with the exception that paternal-fetal attachment was lower among fathers in their forties compared to fathers in their twenties. Better understanding the normative process of development of paternal-fetal attachment and the factors that influence this process should inform efforts to support this developing bond, to the benefit of the subsequent father-child relationship.

## Introduction

The term ‘attachment’ traditionally refers to the attachment of infant to parent, most often mother, as assessed by observing the infant’s behavior in specific situations (e.g., the Strange Situation paradigm; Ainsworth, Blehar, Waters, & Wall, 1978). The role of the parent as attachment figure is understood as providing a secure base from which the infant can explore, and to which the infant can return for safety and comfort. The term ‘bonding’ was traditionally used to describe the parent’s feeling of an emotional tie to the infant, but a growing body of literature considers Bowlby’s (1969) conceptualization of attachment as an “enduring affective tie” that has a “reciprocal” quality and elects to use the term attachment more expansively, to describe parent-to-infant as well as infant-to-parent attachment (Condon, Corkindale, & Boyce, 2008). Another expansion of the conceptualization of attachment has been the elucidation of a parent-to-fetus attachment relationship that develops during the prenatal period, preceding and informing the subsequent parent-to-infant relationship that begins at birth (e.g., Condon, 1993; Condon & Corkindale, 1997; Cranley, 1981, 1984; Weaver & Cranley, 1983).

This study examines the longitudinal development of the father-to-fetus attachment (hereafter referred to as ‘paternal-fetal attachment’) relationship during pregnancy among a sample of 116 men expecting their first child, enrolled with their pregnant partner in a larger investigation of experiences across the transition to parenthood. This study also examines the relationship of paternal pregnancy intention (father’s perspective on whether the pregnancy was wanted and if the pregnancy is well timed or mistimed), depression symptoms, perceived support, and demographic

characteristics to paternal-fetal attachment. Very little is known about how paternal-fetal attachment develops and the factors that may influence its course of development.

Learning about trajectories and correlates of paternal-fetal attachment is important because this emotional tie provides the foundation for the father-infant relationship, and children benefit when their relationship with their father is secure, sensitive, warm, nurturing, and reciprocal (Biller, 1993; Easterbrooks & Goldberg, 1984; Lamb, 1997, 2010; Radin, 1986).

### **Theoretical Framework**

This study is informed by a life course theoretical perspective (Elder, 1994, 1998). A life course theoretical perspective suggests that the experience and effects of a life event such as the transition to fatherhood must be understood in context, taking into account influences including the timing of the event (i.e. when it occurs in a man's life) and the man's network of social relationships. The current study centers on expanding understanding of a developmental process embedded in the transition to fatherhood, the process of development of paternal-fetal attachment. Guided by the life course framework, we expect that this process may vary in accordance with the context within which it unfolds. Specifically, we examine the influence of paternal pregnancy intention on paternal-fetal attachment across pregnancy to understand the way in which the trajectory of development of paternal-fetal attachment may be affected by men's view of their partner's pregnancy as "on time" or "off time" within their life course.

Additionally, complementary to life course theory, we account for men's perception of the support they receive from their partner, experience of depression symptoms, and demographic characteristics, as life course theory suggests that these variables may

further contribute to the unique context within which individual men undergo the transition to fatherhood.

The life course framework also posits that the life course of individuals is embedded in and shaped by social and historical contexts. The design and implementation of this study, and interpretation of its results, have been informed by evolution in the social context for the transition to fatherhood. Relative to fifty years ago, fathers' involvement, responsibility and provision of care to children have increased, as the ideal of the father as a distant breadwinner has shifted to an expectation of greater hands-on involvement and a role as co-parent (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Pleck & Pleck, 1997; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001). Expectant fathers are also increasingly actively engaged during pregnancy (Chan & Paterson-Brown, 2002; Enkin, Kierse, Renfrew, & Neilson, 2000; Premberg & Lundgren, 2006), and the extent and form of such engagement provides important context for the development of paternal-fetal attachment.

## **Background**

Attachment theory (Bowlby, 1969; 1973; 1980) and supporting empirical research (NRC-IOM, 2000) indicate that stable, nurturing, parent-child relationships provide the most advantageous context for infant development and foundation for development throughout life. The emergence of an emotional connection to the future child during pregnancy provides a foundation for the parent-infant relationship after birth. The extent of a pregnant woman's feelings of attachment and connection to her future child has been associated with pre- and post- birth parental behavior, the mother's experience of the baby after birth, the quality of her involvement with the baby after birth, and infant

security (Benoit et al., 1997; Condon & Corklindale, 1997; Huth-Bocks et al., 2004; Leifer, 1980; Siddiqui & Haggloff, 2000; cited in Slade, et al., 2009). Relatively little is known about the experience or influence of developing feelings of connection to the future child during pregnancy on the part of expectant fathers (Slade, et al., 2009).

Condon (1985) documented the historical development of the concept of prenatal attachment between parent and fetus. The idea that a woman develops some form of emotional attachment to her unborn baby during pregnancy was first proposed as early as 1944 by Deutsch on the basis of psychoanalytic observation, and by 1970, Kennell et al. suggested that the mourning reaction they observed in women bereaved by stillbirth offered evidence of prenatal emotional attachment (Condon, 1985). Multiple empirical investigations conducted during the 1970s added evidence of the existence of a maternal-fetal relationship during pregnancy, and in 1983 the first empirical investigation of paternal-fetal emotional attachment was published. Weaver and Cranley (1983) found substantial support for the validity of the construct, challenging the traditionally held view that fatherhood “commences with visual and tactile contact with the child” (Condon, 1985, p. 271).

As noted by Condon (1985), “The investigation of a relationship with an object whose nature is a curious mixture of fantasy and reality is no easy task” (p. 273). He operationalizes the construct of prenatal attachment by defining the characteristics of “attachment behavior” and defining prenatal equivalents. For example, one form of attachment behavior is the desire to know or understand the object of attachment; in a prenatal framework, Condon suggests that this would correspond to seeking information about the fetus to clarify one’s internal representation (Condon, 1985). Other behavioral

manifestations of prenatal attachment include enjoyment from feeling the movements of the fetus and speaking to the fetus; fear/pain associated with imagined or actual miscarriage; efforts to protect the fetus, for example, through attention to nutrition and seeking appropriate prenatal care; and personal sacrifices in the interest of fetal wellbeing (Condon, 1985).

Condon (1985) was the first to directly compare expectant mothers and fathers in terms of their thoughts, feelings and behaviors towards the fetus, by administering a questionnaire assessing prenatal attachment to 54 first-time expectant couples. Condon found that pregnant women and expectant fathers are strikingly similar in their thoughts and feelings about the fetus, but they differ markedly in the behavioral expression of this prenatal attachment; specifically, expectant fathers talk less about the baby-to-be and seek less information. The time course of the development of thoughts and feelings about the fetus was parallel in men and women, with the first experience (or palpation) of fetal movements being a significant milestone in the attachment process for both (Condon, 1985).

Three focused investigations of paternal-fetal attachment published in the 1980s all used a modified version of a 24-item self-report questionnaire developed by Cranley (1981) for assessing *maternal*-fetal attachment. Two of the three studies (Weaver & Cranley, 1983; Cranley, 1984) found a significant, positive association between paternal-fetal attachment score and quality of the marital relationship. Mercer et al. (1988) derived conflicting findings. They concluded that this was due to deficiencies of the questionnaire for measuring paternal-fetal attachment, rather than the true absence of an association between paternal-fetal attachment and quality of the marital relationship.

Recognizing the need for an improved instrument for assessing paternal-fetal attachment, Condon (1993) developed a 16-item paternal questionnaire with a high level of internal consistency. This measure – the Paternal Antenatal Attachment Scale (PAAS; Condon, 1993) is used in the current study (see Appendix 2).

As described in reviews by Cannella (2005), Alhusen (2008) and DiPietro (2010), there has accrued a significant body of literature examining maternal-fetal attachment, though there are yet relatively few studies of paternal-fetal attachment. Maternal-fetal attachment has been associated with maternal health behaviors, the relationship between mother and father, maternal depressive symptoms, and the postpartum mother-infant relationship (Alhusen, 2008; Cannella, 2005; DiPietro, 2010), suggesting its relevance for clinicians aiming to improve maternal and child health outcomes. Factors that have been associated with higher levels of maternal-fetal attachment include family support, positive psychological well-being, and having an ultrasound performed, whereas depression, substance abuse, and higher anxiety levels have been associated with lower levels of maternal-fetal attachment; demographic characteristics have not been associated with maternal-fetal attachment (Alhusen, 2008; Cannella, 2005; DiPietro, 2010). Existing studies are typically limited by small, homogenous samples and cross-sectional designs.

Maternal-fetal attachment during the third trimester of pregnancy has been associated with the postnatal maternal-infant relationship, and thus maternal-fetal attachment has been identified as a potential diagnostic aid for identifying women who would benefit from early intervention to support strong mother-infant relationships (Muller, 1996; Siddiqui & Hagloff, 2000). Further, Goecke et al. (2012) found that



greater maternal-fetal attachment is associated with less depression during the third trimester and postpartum, and have suggested that promoting maternal-fetal attachment might be a pathway to improving postpartum depression. Greater maternal-fetal attachment is generally reported later in pregnancy (Lerum & LoBiondo-Wood, 1989; Reading, Cox, Sledmere, & Campbell, 1984), and it has been frequently suggested that this corresponds with increased fetal movements (DiPietro, 2010). This speculation is supported by results of an intervention study described by DiPietro (2010); pregnant women randomized to an intervention in which they were asked to engage in routine periods of fetal movement reported increased maternal-fetal attachment compared to women who did not receive these instructions (Mikhail, Freda, Merkatz, Polizzotto, & Merkatz, 1991).

Substantially less is known about paternal-fetal attachment. Intrinsicly, the experience differs from maternal-fetal attachment in that expectant fathers do not share expectant mothers' experience of an inextricable physiological relationship with the fetus. Additionally, gender norms and cultural customs may contribute to different expectations for, and experiences of, prenatal bonding on the part of some expectant fathers, as compared to their pregnant partners. Several studies using Cranley's measures of maternal-fetal attachment and paternal-fetal attachment to compare maternal-fetal and paternal-fetal attachment among expecting couples have suggested that women typically score significantly higher than their partners (e.g., Mercer et al., 1988; Ustunsoz et al., 2010); however, Mercer and others have questioned whether the paternal measure, adapted from the maternal measure, is an effective instrument for assessing the attachment between father and fetus. Interestingly, in a comparison of maternal-fetal

attachment and paternal-fetal attachment among a sample of 144 pregnant women and their partners in Ankara, Turkey, Ustunsoz et al. (2010) found that maternal-fetal attachment scores for pregnant women were significantly higher than the paternal-fetal attachment scores of their partners, except in the case of unemployed partners. It is possible that when circumstances allow for a greater centrality of focus on the pregnancy, men may experience greater attachment.

Paternal-fetal attachment has been positively correlated with the strength of the relationship between mother and father as perceived by the expectant father during pregnancy (Brandon et al., 2009; Condon, 2008; Weaver & Cranley, 1983) and with postpartum paternal-infant attachment (Ferketich & Mercer, 1995). Ferketich and Mercer (1995) compared experienced and inexperienced fathers and found that inexperienced fathers (i.e. those becoming fathers for the first time) reported higher prenatal attachment. They suggest that this difference is reflective of higher involvement by men in the first pregnancy than in subsequent pregnancies. Recognizing that paternal experience could be a significant influence on our primary measures, we limit our sample to fathers with no prior children.

There remains much to learn about paternal-fetal attachment, and about the measure of paternal-fetal attachment (the Paternal Antenatal Attachment Scale; PAAS) used in this study. Condon (2008) describes numerous studies supporting the construct validity of the Maternal Antenatal Attachment Scale (MAAS), demonstrating, for example, that MAAS scores increase with gestation (Righetti et al., 2005; Tsartsara & Johnson, 2006); increase following ultrasound (Righetti, Dell'Avanzo, Grigio, & Nicolini, 2005; Sedgemen, McMahon, Cairns, Benzie, & Woodfield, 2006); are inversely

associated with depression symptoms and problems in the marital relationship (Colpin, De Munter, Nys, & Vandemeulebroeke, 1998); and that pregnant smokers' preparedness to quit was significantly related to MAAS score (Slade, Laxton-Kane, & Spiby, 2006). However, comparable validity for the PAAS has yet to be established.

Studies examining parental-fetal attachment have typically been conducted cross-sectionally, at a single time-point usually in the third trimester, and only with mothers (see reviews by Cannella, 2005 and Alhusen, 2008). The few studies that have examined changes in parental-fetal attachment have examined change spanning a specific event hypothesized to affect attachment, such as prenatal genetic screening (e.g., Georgsson & Waldenstrom, 2010; Kleinveld et al., 2007). No studies have tracked the normative developmental course of paternal-fetal attachment longitudinally. It may be that paternal-fetal attachment is relatively stable across pregnancy, or the day-to-day progression of a pregnancy and the experience of pregnancy milestones (e.g., ultrasound, quickening) may contribute to an increase in paternal-fetal attachment over the course of pregnancy. In qualitative studies, fathers have reported feeling closer to their unborn child after attending an ultrasound (Draper, 2002; Ekelin et al. 2004; Freeman, 2000).

The current study will make a significant contribution to the literature by examining the development of paternal-fetal attachment across pregnancy as reflected by repeated measures at three time-points, and exploring the influence of pregnancy intention, depression, perceived partner support, and demographics on the development of paternal-fetal attachment. We devote particular attention to examining the influence of pregnancy intention on paternal-fetal attachment because no prior study has investigated this relationship, and specifying the relationship of pregnancy intention to paternal-fetal

attachment may facilitate the opportunity to identify fathers and families who would most benefit from receiving support during pregnancy. Multiple studies have found that unintended pregnancies by maternal report are associated with delayed prenatal care, maternal cigarette smoking during pregnancy, low birth weight, poorer mother-child relationship outcomes, and other adverse infant and child health and development outcomes (Barber, Axinn, & Thornton, 1999; Brown & Eisenberg, 1995; Logan et al., 2007; Montgomery, 1996). A report of the Centers for Disease Control and Prevention acknowledges the limitations of existing evidence and reports that limited findings pertaining to paternal pregnancy intention suggest that overall patterns are similar to those for women (Martinez et al., 2006). One study found that fathers who reported they did not want the pregnancy were less likely to exhibit warmth to their 9-month old infants, and fathers who wanted the pregnancy sooner than it occurred were more likely to display nurturing behaviors (Bronte-Tinkew et al., 2007). The current study will break new ground by examining how paternal pregnancy intention is associated with the father-child relationship from its earliest stage of development, prior to birth.

To better specify the relationships between gestational age and paternal-fetal attachment, and pregnancy intention and paternal-fetal attachment, we account for several potentially confounding factors, including paternal depression symptoms, paternal perceived partner support, and socio-demographic factors including father's age, race, educational level, employment status, annual household income, marital status, and years in relationship with current partner. Depression and the relationship between partners have been associated with maternal-fetal attachment, pregnancy intention, and father engagement, suggesting that these factors may be implicated in paternal-fetal attachment

(Bronte-Tinkew, Moore, Matthews, & Carrano, 2007; Colpin, De Munter, Nys, & Vandemeulebroeke, 1998; Hofferth & Anderson, 2003; Zabin et al., 2000). Father involvement and the likelihood of reporting an unintended pregnancy have been found to vary by age, race, education, employment, and household income; therefore we include controls for these factors (Easterbrooks & Goldberg, 1985; Hellerstedt et al., 1998; Joyce et al., 2000; King, Harris, & Heard, 2004; Nord & Brimhall, 1997; Pleck, 1997; Pulley et al., 2002; Zabin, Huggins, Emerson & Cullins, 2000; as cited by Bronte-Tinkew, Scott, & Horowitz, 2009).

## **Hypotheses**

On the basis of the available evidence, we hypothesize the following:

### ***1. The Developmental Course of Paternal-Fetal Attachment***

We hypothesize that paternal-fetal attachment will increase as pregnancy progresses.

### ***2. Pregnancy Intentions and Paternal-Fetal Attachment***

We hypothesize that paternal-fetal attachment will be lower across pregnancy among those who report that their partner's pregnancy was unwanted, mistimed, or they were unsure of how they felt about the pregnancy, relative to those who report that they wanted their partner to be pregnant now. We do not expect to find a significant difference in paternal-fetal attachment scores across pregnancy when comparing those who report that they wanted their partner to be pregnant sooner to those who report that they wanted their partner to be pregnant now.

### ***3. The Influence of Additional Factors***

We expect that hypotheses 1 and 2 will remain constant after accounting for the influence of additional factors, including depression, perceived partner support, and socio-demographic factors. Further:

*a. Depression.* We hypothesize that there will be a negative association between depression symptoms and paternal-fetal attachment, such that more depression symptoms will be associated with lower paternal-fetal attachment across pregnancy.

*b. Perceived Partner Support.* We hypothesize that a higher level of perceived partner support will be associated with higher paternal-fetal attachment across pregnancy.

*c. Demographic Characteristics.* We hypothesize that being married will be associated with higher paternal-fetal attachment across pregnancy. We do not expect significant associations between other demographic characteristics and paternal-fetal attachment.

## **Method**

### **Participants**

The current study uses data from an ongoing investigation of first-time fathers' and mothers' experiences across the transition to parenthood (*The First-Time Fathers' Study*; PI: Tolman). *The First-Time Fathers' Study* was designed to fill gaps in knowledge about the prenatal and early postnatal experiences and behaviors of fathers and examine opportunities during the transition to fatherhood to strengthen fathers' parenting and partnering. The study includes three waves of data collection during pregnancy, and to date two waves of data collection during the first year of parenthood. Participants in the *First-Time Fathers' Study* were recruited through a perinatal registry

that is maintained by the University of Michigan Department of Psychiatry's Women's Mental Health Program (PI: Rosenblum). The registry population includes pregnant women receiving prenatal care through the University of Michigan Health System, who have consented to be contacted regarding opportunities to participate in research. The *First-Time Fathers' Study* limited recruitment to women aged 18 and older, expecting their first child, and with women's permission recruited their partners' participation. Couples in which both the expectant mother and father consented to participate, both were age 18 years or older, and both had access to the internet to complete online surveys, were enrolled in the study.

The current study uses data from fathers only ( $N=116$ ), collected during the first three (i.e., the prenatal) waves of data collection. Every father completed at least two waves of data collection ( $N=113$  for first wave of data collection;  $N=114$  for second wave of data collection;  $N=108$  for third wave of data collection). Three fathers discontinued participation in the study due to a pregnancy loss. Four did not complete the third survey before the birth of their child, but continued participation in the study after birth.

As reported at baseline, the sample was mainly White (86.8%), married (90.4%), highly educated (84.2% completed a four-year college, with Bachelor's degree or more), and employed full-time (71.3%). Among unmarried participants, 75% described their relationship to their pregnant partner as "romantically involved on a committed basis." More than half the sample reported annual household income of \$75,000 or more, and nearly three-fourths of the sample reported annual household income of \$50,000 or more. Mean age among the sample was reported as 30.8 years ( $SD=4.7$ ), and mean years of

knowing their partner was reported as 7.5 ( $SD=4.5$ ). Table 2 provides further description of the sample.

## **Procedures**

The current study uses data collected from fathers during three waves of pre-birth data collection. Standard demographic data and a measure of pregnancy intention (NSFG; Orr, 2008) were collected as part of the first survey. Each wave of data collection included a measure of paternal-fetal attachment (Paternal Antenatal Attachment Scale; Condon, 1993). A measure of paternal depression (PHQ-8; Kroenke et al., 2009) was included in the first and third waves of data collection, and a measure of perceived partner support (The Significant Others Scale; Power et al., 1988) was included in the third wave of data collection.

The mode of data collection was online surveys, using Qualtrics software. Each survey required approximately 20-30 minutes to complete, and fathers were able to complete surveys at their convenience, in their own home or another location of their choosing. The University of Michigan Institutional Review Board approved the study (#HUM00040837). Fathers were informed about confidentiality, gave their consent to participate, and were compensated \$10 for completion of each survey.

After enrollment in the study, each father was emailed a unique link to complete the first survey. Mean gestational age at which fathers completed the first survey was 12.7 weeks ( $SD = 2.9$ ). At 16 weeks' gestation fathers were emailed a link to complete the second survey, and instructed to complete the survey *after* their partner's routine prenatal ultrasound appointment. Within the University of Michigan Health System, prenatal ultrasounds are routinely performed between 16-20 weeks' gestation. Mean



gestational age at which fathers completed the second survey was 21.0 weeks ( $SD = 2.3$ ). At 32 weeks' gestation, fathers were emailed a link to complete the third survey. Mean gestational age at which fathers completed the third survey was 34.7 weeks ( $SD = 1.6$ ). Table 3 presents additional information about the gestational age range for survey completion at each wave of data collection.

## **Measures**

*Paternal-Fetal Attachment* – Paternal Antenatal Attachment Scale (PAAS; Condon, 1993; see Appendix 2). The PAAS consists of 16 items addressing feelings, behaviors and attitudes toward the fetus. The scale includes two sub-scales – ‘quality of attachment’ and ‘time spent in attachment mode.’ The first sub-scale assesses the quality of an expectant father’s affective experiences such as closeness and tenderness; the second sub-scale assesses the intensity of preoccupation an expectant father experiences. Items are rated on a five-point Likert scale, and higher scores are indicative of higher attachment. The total attachment score is calculated by combining scores for all items, for a maximum potential score of 80. The ‘quality of attachment’ sub-scale consists of eight items, for a maximum potential score of 40, and the ‘time spent in attachment mode’ sub-scale consists of six items, for a maximum potential score of 30. Total attachment score and sub-scale scores collected at three waves of data collection will serve as dependent variables in the current analysis.

*Pregnancy Intention*— adapted from the National Survey of Family Growth (NFSG; Orr, 2008). This measure is widely used and has been established as reliable and predictive at a population level. The original item asks: “Thinking back to just before your partner got pregnant, how did you feel about your partner becoming pregnant?” For

this study the item was adapted to: “Thinking about the current pregnancy, how do you feel about your partner being pregnant?” Adapted response options include “I did not want my partner to be pregnant now or at any time in the future,” “I wanted my partner to be pregnant later,” “I wanted my partner to be pregnant now,” “I wanted my partner to be pregnant sooner,” and “I am unsure how I feel.” A limitation of analyses based on pregnancy intention as measured by NSFG is that respondents are asked to recall their perspective at the time they became aware that they were expecting, and retrospectively reported pregnancy intentions generally become more positive over time (Hohmann-Marriott, 2009). In the current study, respondents report on pregnancy intention as regards a current pregnancy; though still retrospective, these accounts are not influenced by the birth of the child. Pregnancy intention reported at baseline will be included in the current analysis as a group of independent variables. In the current analysis, “I wanted my partner to be pregnant now” will serve as a reference category. The relationship of each other category of intention to paternal-fetal attachment will be described in terms of how it varies from the level of paternal-fetal attachment associated with wanting one’s partner to be pregnant now.

*Depression* – PHQ-8. The eight-item Patient Health Questionnaire depression scale (PHQ-8) is established as a valid diagnostic and severity measure for depressive disorders in large clinical studies and in population-based studies (Berry & Mokdad, 2009; Kroenke & Spitzer, 2002; Kroenke, Strine, Spitzer, Williams, Berry, & Mokdad, 2008). Items address the frequency of depression symptoms over the last two weeks, with response options ranging from “not at all” to “nearly every day”. Response options are coded 0–3 and summed to create a variable for total PHQ score. The maximum

potential score is 24, with higher scores indicating that father is experiencing more depression symptoms. A PHQ-8 score  $\geq 10$  is considered to represent clinically significant depression (Kroenke et al., 2001). Given the low level of depression in the current sample (mean score on PHQ-8 was 2.6 at both data collection points, with standard deviation of 3.4 and 2.9 respectively), we treat depression symptoms as a continuous variable in the current analysis rather than creating diagnostic categories.

Depression as measured in the first wave of data collection will be included in the current analysis as an independent variable. Depression was measured in the first and third waves of the study. Changes in depression over time could account for some differences in attachment over time. To test whether this was the case we did the following. In unreported results, we estimated three OLS regression models to test whether the two are interchangeable. All three models were estimated using only wave three attachment data, and included gestational age and demographics. We varied how depression was included in each of these models. In the first model, we included wave one depression. In the second model, we included wave three depression. In the third model, we included wave one and wave three depression simultaneously. The relationship between depression and wave three attachment did not change substantively based on these specifications and therefore in the current analysis we use only depression from wave one.

*Perceived Partner Support* – The Significant Others Scale (SOS; Power, Champion, & Aris, 1988). The SOS can be used to assess actual and ideal levels of perceived social support. Adequate validity for the SOS has been previously demonstrated (Power, Champion, & Aris, 1988). In the *First-Time Fathers' Study*, the

ten-item SOS is used to measure father's perception of actual support received from the mother. Fathers rate the amount of emotional and practical support they receive from the mother on a seven-point Likert scale. Total SOS score is created by summing individual items scores, for a maximum potential score of 70, with higher scores indicating father's perception of greater support from the mother. In the *First Time Father's Study*, perceived partner support was measured in the third wave of data collection.

We use SOS scores collected in the third wave of data collection as an independent variable in analyses including measurements of paternal-fetal attachment collected at all three waves of data collection as the dependent variable. There is ample evidence to support this approach. Perceived support is typically stable over time, regardless of changes in social circumstances (Mallinckrodt, 1992; Newcomb, 1990; Sarason et al., 1986).

*Demographic Items* – When estimating the relationships key to our central hypotheses, we account for the following demographic items, which were included in the first wave of data collection: age, race, marital status, number of years that father has known mother, education level, employment status, and annual household income. Fathers in the sample ranged in age from 20-49, and in the current analysis we use three age groups: ages 20-29, 30-39, and 40-49. On two categorical demographic items, categories were collapsed for the current analysis. A great majority (82.1%) of the sample had completed a four-year college with Bachelor's degree or more, and a great majority (86.8%) of the sample identified as White. The three remaining categories of the four-category education variable were collapsed into a category of "Some college, technical or trade school, or less" and five remaining categories of the six-category race

variable were collapsed into the category “Other.” Given the small sample size in this study, the decision to collapse categories of these variables was made to produce cells with adequate frequencies for analysis. In addition, by ensuring that there is no category that includes a single father, we protect the anonymity of participants.

### **Analytic Strategy**

The main goals of the study are to characterize the developmental course of paternal-fetal attachment across pregnancy and to identify factors that are associated with paternal-fetal attachment across pregnancy. We present descriptive statistics for variables of interest (including depression, perceived partner support, pregnancy intention, and paternal-fetal attachment) at each wave in which they were reported. We used OLS regression to examine the relationships of interest. First, we examined the bivariate relationship between gestational age of the fetus and each of the three dependent variables: total attachment score, quality of attachment, and time spent in attachment mode. Next, we added pregnancy intention to the model and estimated the independent effects of paternal pregnancy intention and weeks of gestation on the three dependent variables. In the third model, we also included paternal depression, perceived partner support, and a set of socio-demographic control variables.

In order to examine the influence of gestational age, pregnancy intention, depression, perceived partner support, and demographics on paternal-fetal attachment *across pregnancy*, we ran the regressions using observations for each person-wave combination. We used Stata Version 11 (Stata Corp, College Station, TX) to calculate standard errors that account for clustering arising from repeated observations of fathers across waves. Our basic model includes responses from 112 fathers at Wave 1, 113 at

Wave 2, and 107 at Wave 3, leading to 332 observations representing 116 unique fathers. Regressions that include additional controls have fewer observations due to missing data. We only include individuals in the regression when we have information on all variables included in the model. However, we do include individuals in the regression who are missing one or two items on the attachment scale, depression scale, or the perceived partner support scale (PAAS, PHQ-8, or SOS). At each wave of data collection, six or fewer individuals were missing data for one or two items on one scale. We calculated scale scores for these individuals by imputing scores for the missing items using STATA's impute command. This command uses the responses of individuals with complete data to obtain relationships between the missing item and all other items on the scale and then uses those relationships to predict the score on the missing item for the individual.

## **Results**

### **Descriptive Statistics**

Overall, low levels of depression symptoms were reported (mean score on the eight-item Patient Health Questionnaire was 2.6 at both data collection points, with standard deviation of 3.4 and 2.9 respectively), and high levels of perceived partner support were reported (mean score on the Significant Others Scale was 59.5,  $SD = 11.5$ ). Approximately half the sample (48.7%) reported that they wanted their partner to be pregnant now. Eighteen point six percent reported that they wanted their partner to be pregnant sooner, and one-third of the sample indicated that prior to learning about the current pregnancy they were either unsure how they felt about the possibility of their partner becoming pregnant (15%), did not want their partner to become pregnant at this

time (15%), or did not want their partner to become pregnant now or at any time in the future (2.7%). Descriptive statistics for all variables included in the analyses are presented in Table 2.

Mean paternal-fetal attachment scores at each wave of data collection are consistent with increasing attachment over time. (This finding will be explored further in multivariate analyses.) The mean total attachment score increases from 51.0 at Wave 1 to 55.6 at Wave 3. The mean ‘quality of attachment’ score increases from 29.7 at Wave 1 to 30.9 at Wave 3. The mean ‘time spent in attachment mode’ score increases from 16.7 at Wave 1 to 20.3 at Wave 3. Notably, increase in ‘time spent in attachment mode’ is driving the increase in total attachment across pregnancy as assessed by repeated measures across waves of the study. Table 2 reports mean, standard deviation and range for each scale at each wave and Figure 2 depicts the full distribution of total and sub-scale scores across pregnancy, combining measures of attachment from all three waves of data collection and plotting scores by gestational age at the time of measurement. In addition, the figure includes a fitted line for each scale and suggests that a linear approach is sufficient for describing these patterns.

Total attachment scores and scores on each of the two sub-scales are included in subsequent analyses as dependent variables. As expected, correlation analysis demonstrated that scale and sub-scale scores are all positively correlated within scale / sub-scale across waves, and within wave across scale / sub-scales. Correlations across sub-scale within wave range from 0.38 to 0.53, which indicates that the sub-scales are measuring distinct aspects of attachment. Correlations within sub-scale across wave are higher, ranging from 0.57 to 0.65, and indicate that fathers with higher attachment scores

at the first data collection point also tend to have higher scores at subsequent data collection points.

## **Multivariate Analyses**

### ***1. The Developmental Course of Paternal-Fetal Attachment***

We found support for our hypothesis that paternal-fetal attachment will increase as pregnancy progresses. We used OLS regression to estimate the effect of time on paternal-fetal attachment, including weeks of gestation as the independent variable (see Table 4). We found significant associations (at  $p < 0.001$ ) between gestational age and total and sub-scale attachment scores. According to this model, total attachment score increases by 0.19 points, ‘quality of attachment’ score by 0.09 points, and ‘time spent in attachment mode’ score by 0.16 points with every increasing week of gestation. The course of a trimester (12 weeks) is thus associated with an increase of 2.28 points in total attachment, 1.08 points in ‘quality of attachment’, and 1.92 points in ‘time spent in attachment mode.’ As we would expect, the descriptive statistics reported above regarding increase in attachment over time do not mirror these regression coefficients because the descriptive statistics do not account for the fact that the amount of time between survey waves is not equivalent for all fathers.

### ***2. Pregnancy Intentions and Paternal-Fetal Attachment***

Next we added pregnancy intention to the model (see Table 5), and we found support for our hypotheses that paternal-fetal attachment will be lower across pregnancy among those who report that their partner’s pregnancy was unwanted, mistimed, or they were unsure of how they felt about the pregnancy, relative to those who report that they wanted their partner to be pregnant now, and comparable among those who wanted their



partner to be pregnant sooner and those who wanted their partner to be pregnant now. This model also indicates that, controlling for pregnancy intention, gestational age remains similarly associated with paternal-fetal attachment. Coefficients for the associations of gestational age with total and sub-scale attachment scores reported in Table 5 are highly similar to those in Table 4.

Controlling for gestational age, unintended pregnancy was negatively associated with paternal-fetal attachment. Across pregnancy, relative to fathers who reported the desire for their partner to be pregnant now, total attachment and ‘quality of attachment’ were significantly lower among fathers who characterized the pregnancy as mistimed; ‘quality of attachment’ was significantly lower among fathers who did not want their partner to be pregnant now or at any time in the future; and total attachment, ‘quality of attachment’, and ‘time spent in attachment mode’ were all significantly lower among fathers who were unsure how they felt about their partner becoming pregnant at this time. We found no significant association between wanting one’s partner to be pregnant sooner and total attachment or sub-scale scores, when compared to wanting one’s partner to be pregnant now.

The downward pull of unintended pregnancy was substantial. For example, compared to fathers who wanted their partner to be pregnant now, not wanting a partner to be pregnant now or at any time in the future was associated with a ‘quality of attachment’ score that is lower by 6.4 points. Interestingly, we found that pregnancy intention was most strongly associated with ‘quality of attachment’, and less so with ‘time spent in attachment mode.’ In other words, this model suggests that unintended pregnancy exerted a greater influence on the warmth of the developing bond between

father and fetus than on the extent of the father's preoccupation with the pregnancy and future child.

### ***3. The Influence of Additional Factors***

We found partial support for our hypotheses regarding the influence of additional factors on paternal-fetal attachment. After accounting for the influence of depression, perceived partner support, and demographic characteristics, the relationship of gestational age to paternal-fetal attachment remained consistent and the relationships between pregnancy intention categories and paternal-fetal attachment remained consistent. As expected, we found that a higher level of perceived partner support was associated with higher total attachment. We did not find support for our hypothesis of a negative association between depression symptoms and paternal-fetal attachment, or our hypothesis that being married would be associated with higher 'time spent in attachment mode.' We found, unexpectedly, that being age 40-49 was associated with lower paternal-fetal attachment relative to being age 20-29.

The third model accounts for depression, perceived partner support, age, race, marital status, number of years that father has known mother, education level, employment status, and annual household income (see Table 6). Again in this model, which includes an extensive set of controls, increasing gestational age remained associated with an increase in paternal-fetal attachment as was found in Tables 4 and 5, and the relationships between pregnancy intention and paternal-fetal attachment remain consistent with the relationships described in Table 5. In this model, as in the previous model, relative to wanting one's partner to be pregnant at this time, wanting a pregnancy to have occurred sooner was not associated with increased or decreased paternal-fetal

attachment; wanting a pregnancy to come later was associated with significantly lower total paternal-fetal attachment and lower 'quality of attachment'; not wanting a pregnancy ever was associated with significantly lower 'quality of attachment'; and feeling unsure about the desirability of a partner's pregnancy was associated with lower total attachment score and lower scores on both sub-scale. This model affirms the earlier model by again suggesting that unintended pregnancy exerted a greater influence on the warmth of the developing bond between father and fetus than on the extent of the father's preoccupation with the pregnancy and future child, and that not wanting a pregnancy at any time was associated with greater decrease in quality of attachment (relative to wanting a pregnancy at the current time) than wanting a pregnancy to happen later or feeling unsure about the desirability of a pregnancy.

We found no significant association between depression and attachment. This may be a consequence of nearly universal low levels of depression in the sample. It may be that only large differences in depression scores are associated with change in attachment and our sample does not have a sufficient number of individuals with high depression scores to detect an association of this kind.

We also found no significant association between marital status and attachment. This may be because the great majority of the sample (90.4%) was married, and a substantial majority of the unmarried segment of the sample (75.0%) reported being in a committed, romantic relationship with the mother. It may be that a relationship between marital status and attachment would be observed in a sample with greater variation in marital and relationship status. Additionally, being unmarried is correlated with younger age among the current sample, and so controlling for age eliminates the relationship of

marital status to attachment.

Perceived partner support was found to be positively associated with total attachment. An increase of one point in SOS score was associated with an increase of 0.05 points in total attachment score. We found no significant association between perceived partner support and attachment sub-scale scores.

The only socio-demographic characteristic that was found to influence attachment was age. We examined the relationship of age to attachment using three age groups: 20s, 30s and 40s. Relative to being of age 20-29, being of age 40-49 was associated with a 9.55 point decrease in total attachment, 4.87 point decrease in ‘quality of attachment,’ and 6.39 point decrease in ‘time spent in attachment mode.’ There was no significant difference between fathers of age 20-29 and fathers of age 30-39.

## **Discussion**

Using a sample of expectant first-time fathers recruited with their pregnant partners to participate in research on the transition to parenthood, we aimed to examine the longitudinal development of paternal-fetal attachment and factors that may influence paternal-fetal attachment across pregnancy. We found that paternal-fetal attachment increased over the course of pregnancy, indicating that attachment is a developmental process. In light of a growing body of research demonstrating that father engagement during pregnancy affects multiple domains of child and family well-being and is significantly related to later paternal engagement (Cabrera, Fagan, & Farrie, 2008; Cook, Dick, Jones, & Singh, 2005; Halle & Le Menestral, 2000), paternal-fetal attachment is an important and under-studied process. We advanced the literature by identifying factors that are associated with global attachment or a specific dimension of attachment across

pregnancy, including a father's pregnancy intention and perceived partner support.

### **The Developmental Course of Paternal-Fetal Attachment**

We hypothesized that attachment would increase over time, and this hypothesis was supported for all three outcomes. We found that each passing week of gestation was associated with an increase in total attachment, 'quality of attachment', and 'time spent in attachment mode.' The passage of time was associated with greater increase in score on 'time spent in attachment mode' than in 'quality of attachment.' It is intuitive that preoccupation with the fetus and the pregnancy would increase as milestones occur (ultrasound, quickening), visible evidence of pregnancy mounts (growing belly), and due date draws nearer, but it is an important finding that feelings of closeness and desire for the baby also increase over time.

The association between gestational age and paternal-fetal attachment is statistically significant, but its practical meaning is unclear. In the regression model including an extensive set of controls, each additional week of gestation was associated with an increase of 0.20 points in total attachment score. This corresponds to an increase of 2.40 points over the course of a trimester, and 8.0 points over 40 weeks of pregnancy. In real terms, the increase in attachment associated with passing time might be observable over the span of a trimester and would certainly be observable over the span of a pregnancy, but would not be observable week-to-week. Still, recognizing the incremental development of paternal-fetal attachment contributes to our understanding of pregnancy as an important developmental transition for men. This refutes the idea that fatherhood begins at birth, and demonstrates that becoming a father involves an extended process of adjustment.

## **Pregnancy Intentions and Paternal-Fetal Attachment**

We hypothesized that the absence of an active wish for one's partner to be pregnant now – including feeling that pregnancy is unwanted or mistimed, or feeling unsure – would be associated with lower paternal-fetal attachment relative to fathers who wanted their partner to be pregnant now. We hypothesized that there would be no significant variation in paternal-fetal attachment between fathers who wanted their partner to be pregnant now and fathers who wanted their partner to be pregnant sooner, on the assumption that both groups were 'primed' to welcome a pregnancy with enthusiasm. In keeping with a life course theoretical framework, which suggests that the timing in a man's life of becoming a father for the first time will shape his experience of this life transition, we found the expected associations between categories of pregnancy intention and paternal-fetal attachment.

Research often groups unwanted and mistimed pregnancies, classifying them collectively as unintended. However, researchers have noted that the feelings and experiences that inform and underlie men's (and women's) pregnancy intentions are complicated, and limited classifications have shortcomings (Barber, Axinn, & Thornton, 1999; Bronte-Tinkew, Scott, & Horowitz, 2009). We included five categories of pregnancy intention in our analyses. Though this set of categories doubtless fails to capture all the nuanced perspectives of men in our sample, maintaining these five categories for analysis rather than collapsing categories to examine "intended" and "unintended pregnancies" allowed us to test for possible differences within intended pregnancies (between "I wanted my partner to be pregnant now" and "I wanted my partner to be pregnant sooner") and unintended pregnancies ("I wanted my partner to be

pregnant later” and “I did not want my partner to be pregnant now or at any time in the future”). As we hypothesized, comparing fathers who wanted their partner to be pregnant sooner to fathers who wanted their partner to be pregnant now did not lead to significant findings. We did detect important distinctions between fathers for whom pregnancy was unwanted and fathers for whom pregnancy was mistimed. In prior research, mistimed pregnancies have been associated with less negative outcomes than unwanted pregnancies (Joyce, Kaestner, & Korenman, 2000; Mohllajee, Curtis, Morrow, & Marchbanks, 2007; cited by Bronte-tinkew, Scott, & Horowitz, 2009). Not surprisingly, in the model including the full set of controls, compared to fathers who wanted their partner to be pregnant now, unwanted pregnancy was associated with a ‘quality of attachment’ score that was lower by 6.94 points, while mistimed pregnancy was associated with a ‘quality of attachment’ score that was lower by 2.19 points.

It is notable that among the three outcomes, both negative categories of pregnancy intention were most robustly negatively associated with ‘quality of attachment.’ This suggests that the influence of unintended pregnancy on attachment is felt more strongly in reduced positive affective attachment than in reduced preoccupation with the fetus. Preoccupation with the fetus is an indicator of quantity rather than quality, and may lack positive overtones (Condon, 1993). The quality of the father-child relationship has been consistently associated with positive life outcomes for children (Amato, 1998; Furstenberg & Harris, 1993; Lamb, 1997), and, as such, children and families may benefit from identifying relationships ‘at risk’ as early as possible, and intervening to strengthen the relationship even as early as pregnancy.

## **The Influence of Additional Factors**

We hypothesized that a positive association between gestational age and attachment, and a negative association of unwanted / mistimed / unsure categories of pregnancy intention to attachment, would persist after accounting for depression, perceived partner support, and a set of demographic factors. As expected, these hypotheses held true with the addition of more explanatory variables to the model. The association of gestational age to attachment was virtually unchanged, and the relationships between specific categories of pregnancy intention and the three outcomes remained consistent. As in the earlier model, relative to wanting one's partner to be pregnant now, unwanted pregnancy was negatively associated with 'quality of attachment' and the coefficient remained high (6.94); mistimed pregnancy was negatively associated with total attachment and 'quality of attachment;' and feeling unsure about the desirability of the pregnancy was negatively associated with lower total attachment, 'quality of attachment,' and 'time spent in attachment mode.' Our findings in the final analysis extend and make an important contribution to the literature on pregnancy intentions by estimating the relationships of pregnancy intention categories to paternal-fetal attachment. Prior research suggests that fathers reporting unintended births are less likely to engage in some types of interactions with their infants, and parents reporting unwanted pregnancies are less involved with their children (Axinn et al., 1998; Bronte-Tinkew, Ryan, et al., 2007). Our research suggests that investigating mediation and moderation effects of developing attachment on relationships between pregnancy intentions and multiple dimensions of father involvement offers a fruitful avenue for further research.



We hypothesized that depression would be negatively associated, and perceived partner support positively associated, with paternal-fetal attachment. Our hypothesis related to depression was not supported, and we believe this may be due to sample limitations. Specifically, low levels of depression in the sample precluded examination of the relationship of large differences in depression symptoms to attachment. We found the expected positive association between perceived partner support and attachment. This finding aligns with research demonstrating that the quality of the marital / couple relationship provides an important context for men's experiences as fathers, and that support from the mother can improve the quality of fathering (Amato, 1998; Bouchard & Lee, 2000; Conger & Elder, 1994), and suggests that support from the mother and the quality of the mother-father relationship are important to fathering from the earliest stage of father identity development. The number of years that father reported knowing mother was not associated with attachment in our sample, suggesting that perceived partner support may provide a better proxy for relationship quality.

We hypothesized that being married would be associated with increased attachment and other demographic characteristics would not be associated with attachment, but did not find support for this hypothesis. Sample limitations, specifically a predominantly married sample and little variation in relationship status among the unmarried segment of the sample, may help to explain why marital status was not associated with attachment in our analysis. We did not collect data on father's residential status and do not know whether unmarried fathers were cohabitating with the mother, but we do know that among the 9.6% of the sample that was unmarried, 75% characterized their relation to the mother as "romantically involved on a committed basis." Prior

research has found that nonresident fathers tend to have lower levels of prenatal involvement and father engagement (Amato & Gilbreth, 1999; Amato & Sobolewski, 2004), suggesting the possibility that marital status would be associated with attachment in a sample with a greater proportion of unmarried and nonresident fathers.

We found, unexpectedly, that age was associated with attachment in our sample. Specifically, relative to being age 20-29, being age 40-49 was associated with significantly lower total attachment, ‘quality of attachment’ and ‘time spent in attachment’ mode. By contrast, relative to being age 20-29, being age 30-39 was not associated with any difference in attachment. One possible explanation for this finding is that fathers in their forties were more likely than younger fathers in the sample to report that a doctor had identified concerns about the pregnancy or the mother’s health. Delaying or resisting the development of an emotional attachment to the fetus could be self-protective in response to such concerns.

A life course framework highlights the need to consider an array of psychosocial factors, how they interact, and individually and collectively influence an individual at a particular moment in time. Informed by this perspective, we have expanded the knowledge base on paternal-fetal attachment by examining the influence of multiple psychosocial variables, in combination, in relation to the developmental process of paternal-fetal attachment. Replicating our analyses in diverse samples could further illuminate the influence of these factors on attachment.

### **Study limitations**

This study has several important limitations. Our sample was limited in multiple dimensions of diversity, and most critically for the focus of the analysis, may include a

group of fathers who are highly committed to their partners and to becoming parents. The sample for this study was mainly White, married, highly educated, and middle- to high-income, and all had internet access. Every respondent was sufficiently engaged in the pregnancy and engaged with his partner to consent to participate with her in a study of the transition to parenthood that recruited couples. Replicating these analyses with a larger and more diverse sample would indicate how patterns detected with this sample compare to a broader population of fathers.

By design our sample was limited to first-time fathers. Future research could examine differences between first-time and experienced fathers in the development of paternal-fetal attachment. One study (Ferketich & Mercer, 1995) compared first-time and experienced fathers and found that first-time fathers reported higher prenatal attachment. However, this study measured prenatal attachment at a single time point, and cannot address the question of differences in the developmental process of attachment.

Perceived partner support was measured only in the third wave of data collection for this study. Prior research has demonstrated that perceived support is typically stable over time, regardless of changes in social circumstances (Mallinckrodt, 1992; Newcomb, 1990; Sarason et al., 1986), and on this basis we opted to use perceived partner support measured at the third wave of data collection as an independent variable in analyses including attachment data from waves one through three as the dependent variables. Perceived support may be more or less stable across pregnancy among couples jointly navigating a major life transition, as compared to the general population at other times. We cannot know if and how much partner support measured at earlier waves of data collection would vary from partner support measured at the third wave, or how such

variation might influence our results. We suspect any change would be minimal. The mean number of years that fathers in our sample report knowing their partners is 7.5, and given the duration of most of the relationships it is likely that perceived partner support is stable.

Through the use of three repeated measures of paternal-fetal attachment across pregnancy, this study makes an important contribution to our understanding of the developmental course of paternal-fetal attachment. The design of this study does not allow us to isolate the impact of pregnancy milestones. Respondents were directed to complete the second survey after the routine prenatal ultrasound appointment at 16-20 weeks' gestation. Some may have completed the survey immediately afterward, and others may have waited a week. We are unable to determine whether ultrasound attendance (or any other pregnancy milestone) is associated with a short-term or sustained increase in attachment. Future research, involving more frequent data collection and additional tracking of milestones across pregnancy, could help to illuminate whether specific milestones stimulate marked increase in attachment, and if so whether that effect is sustained or temporal in the immediate aftermath of a milestone.

### **Study contribution**

Despite its limitations, as the first to examine the longitudinal development of paternal-fetal attachment across pregnancy and the first to examine the relationship of pregnancy intention to paternal-fetal attachment, this study makes an important contribution to the literature. Fathers remain underrepresented in most parenting research, and we know relatively little about the antecedents and outcomes associated with paternal-fetal attachment compared to maternal-fetal attachment. This study

confirms and extends the findings of prior research by showing that paternal-fetal attachment increases over the course of pregnancy, varies by category of pregnancy intention, and is positively associated with perceived partner support. Results of this study suggest opportunity for intervention during pregnancy to strengthen the developing paternal-fetal bond. Paternal-fetal attachment has implications for adaptation to fatherhood, and could be assessed and used to direct fathers and families for services.

### **Implications for policy and practice**

From policy and practice perspectives, our findings suggest the importance of supporting fathers to establish relationships with their children even before birth, and supporting fathers and mothers to develop strong co-parenting relationships. As a period of adjustment, pregnancy can be seen as a moment of opportunity for outreach to fathers. Men may be more open during pregnancy to engaging in services or changing risk behaviors to promote improved fetal, maternal, and personal health outcomes.

Our findings indicate that paternal-fetal attachment develops across pregnancy. If attachment typically increases over time, it may be possible to define optimal timing for outreach to fathers. Research should examine whether a specific threshold of attachment, which may be associated with a specific gestational age, is associated with increased receptivity to services. Further research is needed to refine the PAAS or to develop another measure that can serve as a brief screen for paternal-fetal attachment, with readily interpretable scores or diagnostic categories. Identifying fathers for whom attachment is slow to emerge will make it possible to intervene early to support the developing relationship of father to fetus, as a precursor to a positive relationship after birth.

**Table 2. Descriptive Statistics of Variables Used in the Analyses****(<sup>a</sup> N=113, <sup>b</sup> N = 108, <sup>c</sup> N = 114, <sup>d</sup> N = 115, <sup>e</sup> N = 12)**

<b>Measure</b>	<b>Mean or Frequency</b>	<b>SD</b>	<b>Range</b>
Father's pregnancy intentions, % (Wave 1) <sup>a</sup>			
"I wanted her to be pregnant sooner."	18.6%		
"I wanted her to be pregnant now."	48.7%		
"I wanted her to be pregnant later."	15.0%		
"I didn't want her to be pregnant now or at any time in the future."	2.7%		
"I was unsure how I felt."	15.0%		
Father's depression			
PHQ-8 Score (Wave 1) <sup>a</sup>	2.6	3.4	0-21
PHQ-8 Score (Wave 3) <sup>b</sup>	2.6	2.9	0-15
Father's perceived partner support			
SOS Score (Wave 3) <sup>b</sup>	59.5	11.5	10-70
Father's age in years (Wave 1) <sup>c</sup>	30.8	4.7	20-49
Father's race, % (Wave 1) <sup>c</sup>			
White	86.8%		
Other	13.2%		
Father's employment status, % (Wave 1) <sup>d</sup>			
Unemployed	3.5%		
Homemaker	0%		
Student	16.5%		
Part-time employment	8.7%		
Full-time employment	71.3%		
Father's marital status, % (Wave 1) <sup>d</sup>			
Married	90.4%		
Not married	9.6%		
Father's relationship to mother if not married, % (Wave 1) <sup>e</sup>			
"We are romantically involved on a committed basis."	75.0%		
"We are involved in an on-again and off- again relationship."	8.3%		
"We are just friends;."	16.7%		
"We hardly ever talk to each other."	0%		
"We never talk to each other."	0%		
How long father has known mother in years (Wave 1) <sup>d</sup>	7.5	4.5	0-20
Father's education level, % (Wave 1) <sup>c</sup>			
Some college, technical or trade school, or less	15.8%		

Completed a four-year college with Bachelor's degree or more	84.2%		
Annual household income, % (Wave 1) <sup>d</sup>			
Less than \$24,999	8.7%		
\$25,000 to \$49,999	18.3%		
\$50,000 to \$74,999	18.3%		
\$75,000 to \$99,999	18.3%		
More than \$100,000	36.5%		
Dependent variables			
Wave 1 <sup>a</sup>			
Total attachment (PAAS) score	51.0	5.2	36-65
Quality of attachment sub-scale	29.7	3.1	20-36
Time spent in attachment mode sub-Scale	16.7	3.3	9-25
Wave 2 <sup>c</sup>			
Total attachment (PAAS) score	53.6	4.7	43-65
Quality of attachment sub-scale	30.9	2.7	24-36
Time spent in attachment mode sub-Scale	18.9	3.4	11-29
Wave 3 <sup>b</sup>			
Total attachment (PAAS) score	55.6	4.7	41-66
Quality of attachment sub-scale	31.9	2.8	20-37
Time spent in attachment mode sub-Scale	20.3	3.1	12-30

**Table 3. Descriptive Statistics for Gestational Age (in Weeks) at Survey Completion, by Wave of Data Collection**

	<b>Mean</b>	<b><i>SD</i></b>	<b>Range</b>
Wave 1	12.72	2.882	6.900 - 18.60
Wave 2	21.04	2.285	18.30 - 32.60
Wave 3	34.65	1.591	32.60 - 39.70



**Table 4. OLS Regression Estimates of Gestation on Paternal-Fetal Attachment (Total and Sub-Scale Scores)**

	<b>Total PAAS Score</b>	<b>'Quality of Attachment' Sub-Scale Score</b>	<b>'Time Spent in Attachment Mode' Sub-Scale Score</b>
Weeks of Gestation	0.194*** (0.0204)	0.0894*** (0.0117)	0.156*** (0.0136)
Constant	49.00*** (0.608)	28.78*** (0.348)	15.09*** (0.419)
N	332	332	332
R-squared	0.117	0.075	0.162

Notes:

Standard errors clustered at the individual level in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Table 5. OLS Regression Estimates of Gestation and Pregnancy Intention on Paternal-Fetal Attachment (Total and Sub-Scale Scores)**

	<b>Total PAAS Score</b>	<b>'Quality of Attachment' Sub-Scale Score</b>	<b>'Time Spent in Attachment Mode' Sub-Scale Score</b>
Weeks of Gestation	0.195*** (0.0203)	0.0897*** (0.0117)	0.155*** (0.0139)
Father's pregnancy intentions			
Wanted sooner	-0.250 (0.901)	0.0460 (0.483)	0.127 (0.653)
Wanted later	-2.581* (1.186)	-2.058*** (0.577)	0.0529 (0.760)
Unwanted	-5.743 (3.070)	-6.414*** (1.717)	-0.357 (1.261)
Unsure	-3.510** (1.206)	-2.043** (0.755)	-1.881* (0.855)
Constant	50.03*** (0.708)	29.49*** (0.382)	15.35*** (0.522)
N	326	326	326
R-squared	0.206	0.261	0.193

Notes:

The reference category for pregnancy intention is "I wanted my partner to be pregnant now."

Standard errors clustered at the individual level in parentheses

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

**Table 6. OLS Regression Estimates of Gestation, Pregnancy Intention, Depression, Partner Support and Demographic Characteristics on Paternal-Fetal Attachment (Total and Sub-Scale Scores)**

	Total PAAS Score	'Quality of Attachment' Sub-Scale Score	'Time Spent in Attachment Mode' Sub-Scale Score
Weeks of Gestation	0.197*** (0.0215)	0.0909*** (0.0120)	0.154** (0.0146)
Pregnancy intentions			
Wanted sooner	0.644 (0.892)	0.407 (0.487)	0.724 (0.641)
Wanted later	-2.649* (1.123)	-2.187*** (0.577)	-0.0271 (0.718)
Unwanted	-6.255 (3.333)	-6.935*** (1.645)	-1.192 (1.705)
Unsure	-3.081* (1.263)	-1.753* (0.821)	-1.765* (0.817)
Depression	0.200 (0.175)	0.0229 (0.0932)	0.196 (0.112)
Perceived partner support	0.0494* (0.0220)	0.0252 (0.0137)	0.0280 (0.0157)
Age category			
30-39	-1.190 (0.932)	-0.190 (0.932)	-1.190 (0.932)
40-49	-9.553*** (2.478)	-9.553*** (2.478)	-9.553*** (2.478)
Annual household income	-0.396 (0.358)	-0.241 (0.196)	-0.213 (0.259)
Bachelor's degree or more	0.988 (1.071)	-0.294 (0.564)	0.418 (0.652)
White	-1.085 (1.352)	-0.574 (0.598)	-0.496 (1.096)
Married	2.524 (1.509)	0.777 (0.948)	1.875 (1.064)
Years of knowing mother	-0.0379 (0.0791)	-0.0189 (0.0525)	-0.0336 (0.0565)
Employment status			
Unemployed	0.208 (1.516)	0.0207 (0.882)	-0.889 (1.347)
Student	-1.070 (1.029)	-0.296 (0.543)	-0.827 (0.697)
Part-time employed	-0.896 (1.236)	0.379 (0.814)	-1.483 (0.758)
Constant	45.36*** (2.824)	29.05*** (1.814)	12.00*** (1.953)
N	321	321	321
R-squared	0.311	0.351	0.302

**Table 6, continued:**

Notes:

The reference category for pregnancy intention is “I wanted my partner to be pregnant now.”

The reference category for age is aged 20-29.

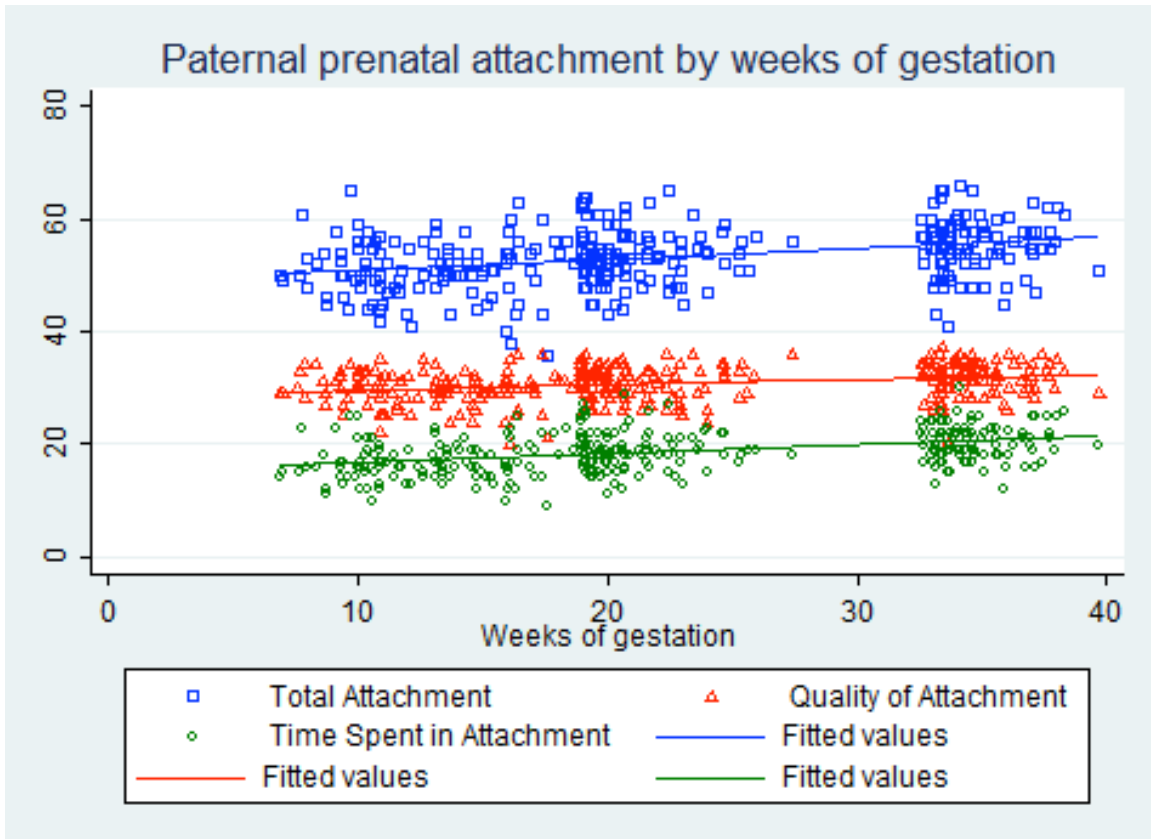
The reference category for employment status is Full-time employment.

A one-unit increase in income represents \$25,000.

Standard errors clustered at the individual level in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Figure 2.



## Appendix 2: PATERNAL ANTENATAL ATTACHMENT SCALE

These questions are about your thoughts and feelings about the developing baby. Please tick one box only in answer to each question.

- 1) Over the past two weeks I have thought about, or been preoccupied with the developing baby:

almost all the time

very frequently

Frequently

Occasionally

not at all

- 2) Over the past two weeks when I have spoken about, or thought about the developing baby I got emotional feelings which were:

very weak or non-existent

fairly weak

in between strong and weak

fairly strong

very strong

3) Over the past two weeks my feelings about the developing baby have been:

- very positive
- mainly positive
- mixed positive and negative
- mainly negative
- very negative

4) Over the past two weeks I have had the desire to read about or get information about the developing baby. This desire is:

- very weak or non-existent
- fairly weak
- neither strong nor weak
- moderately strong
- very strong

5) Over the past two weeks I have been trying to picture in my mind what the developing baby actually looks like in my partner's womb:

- almost all the time
- very frequently
- Frequently
- Occasionally
- not at all

6) Over the past two weeks I think of the developing baby mostly as:

- a real little person with special characteristics
- a baby like any other baby
- a human being
- a living thing
- a thing not yet really alive

7) Over the past two weeks when I think about the developing baby my thoughts:

- are always tender and loving
- are mostly tender and loving
- are a mixture of both tenderness and irritation
- contain a fair bit of irritation
- contain a lot of irritation

8) Over the past two weeks my ideas about possible names for the baby have been:

- very clear
- fairly clear
- fairly vague
- very vague
- I have no idea at all



9) Over the past two weeks when I think about the developing baby I get feelings which are:

- very sad
- moderately sad
- a mixture of happiness and sadness
- moderately happy
- very happy

10) Over the past two weeks I have been thinking about what kind of child the baby will grow into:

- not at all
- occasionally
- frequently
- very frequently
- almost all the time

11) Over the past two weeks I have felt:

- very emotionally distant from the baby
- moderately emotionally distant from the baby
- not particularly emotionally close to the baby
- moderately close emotionally to the baby
- very close emotionally to the baby

12) When I first see the baby after the birth I expect I will feel:

- intense affection
- mostly affection
- affection, but I expect there may be a few aspects of the baby I will Dislike
- I expect there may be quite a few aspects of the baby I will dislike
- I expect I might feel mostly dislike

13) When the baby is born I would like to hold the baby:

- Immediately
- after it has been wrapped in a blanket
- after it has been washed
- after a few hours for things to settle down
- the next day

14) Over the past two weeks I have had dreams about the pregnancy or baby:

- not at all
- Occasionally
- Frequently
- very frequently
- almost every night

15) Over the past two weeks I have found myself feeling, or rubbing with my hand, the outside of my partner's stomach where the baby is:

a lot of times each day

at least once per day

Occasionally

once only

not at all

16) If the pregnancy was lost at this time (due to miscarriage or other accidental event) without any pain or injury to my partner, I expect I would feel:

very pleased

moderately pleased

neutral (ie neither sad nor pleased; or mixed feelings)

moderately sad

very sad

### **Factor structure**

( ) denotes reverse scoring. Scoring is 1 (low attachment) to 5 (high attachment)

Quality of attachment: (1) 2 (3) (7) 9 11 12 16

Time spent in attachment mode: 4 (5) (8) 10 14 (15)  
(or intensity of preoccupation)

Items 6 and 13 do not load on either factor strongly enough for inclusion on subscales

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## **CHAPTER 3**

### **FATHERING AFTER MILITARY DEPLOYMENT: PARENTING CHALLENGES AND GOALS OF FATHERS OF YOUNG CHILDREN**

#### **Abstract**

Although often eagerly anticipated, reunification after deployment poses challenges for families, including adjusting to the parent-soldier's return, reestablishing roles and routines, and the potentially necessary accommodation to combat-related injuries or psychological impacts. Fourteen male service members, previously deployed to a combat zone, parent to at least one child under age seven, were interviewed about their relationships with their young children. Principles of grounded theory guided data analysis to identify key themes related to parenting young children following deployment. Participants reported significant levels of parenting stress, and identified specific challenges including difficulty reconnecting with children, adapting expectations from military to family life, and co-parenting. Fathers acknowledged regret about missing an important period in their child's development. Additionally, they indicated a strong desire to improve their parenting skills. They described need for support in expressing emotions, providing nurture, and managing their tempers. Results affirm the need for support to military families during reintegration, and demonstrate that military fathers are receptive to opportunities to engage in parenting interventions. Helping fathers understand their children's behavior in the context of age-typical responses to

separation and reunion may help them to renew parent-child relationships and re-engage in optimal parenting of their young children.

### **Introduction**

Forty-four percent of U.S. service members (N=991,329) are parents, most of them fathers (U.S. Department of Defense, 2011). Thirty-seven percent of the nearly two million American children who have at least one parent serving in the military are under six years of age (U.S. Department of Defense, 2011). More than two million American troops have been deployed to Iraq and Afghanistan since 2001 and the majority of recently deployed service members were serving their second or third tour. The families of these service members, including many young children, have also cycled through these deployments (RAND, 2010). In the State of Michigan alone, more than 11,000 Army National Guard troops have been deployed to Iraq or Afghanistan since 2001. In answering the call to serve their country, parents with young children are making significant sacrifices, and because of the centrality of the family in early development, their young children are also making sacrifices.

### **Stress experienced by families during and after deployment**

Deployment represents a significant stressor for families, with challenges often continuing from the pre-deployment through the reunification phase. National Guard and Reserve Component troops and their families often face added challenges associated with geographic dispersion, including greater isolation and reduced access to services. During deployment, non-deployed parents report high levels of parenting stress, mood symptoms, and adjustment difficulties (Bender, 2008). Reunification also poses challenges, including both the normative task of reestablishing relationships, roles, and

routines, as well as the potentially necessary accommodation to service-related injuries—both physical and psychological. .

It is estimated that 25-40% of returning Operation Enduring Freedom / Operation Iraqi Freedom (OEF/OIF) service members experience symptoms that suggest a need for mental health treatment (Milliken, Auchterlonie, & Hoge, 2007; Seal et al., 2007; Seal et al., 2009). Posttraumatic stress disorder (PTSD), depressive symptoms, substance misuse, and mild traumatic brain injury are common conditions affecting returning troops, and these mental health symptoms can interfere with effective and sensitive parenting. In addition, recent studies have underscored that spouses of service members are also at risk for mental health problems (Renshaw, Rodrigues, & Jones, 2005), with rates nearly as high as those within the soldiers themselves (Eaton, 2008). Given the many challenges faced by military families, it is not surprising that approximately 42% of parents reported clinically significant levels of parenting stress, with levels of parenting stress largely accounting for elevations in child behavior problems (Flake et al., 2009). The experiences of deployment and reunification may represent a time of heightened stress and transition, for example, 29% of respondents in a Department of Defense (DoD) supported survey of spouses reported that the service member had difficulty reconnecting with their child(ren) on reunion. The stress of deployment is underscored by escalating rates of child maltreatment, divorce, and suicide in military families during and following deployment (Gibbs et al., 2007; Rentz et al., 2007). Parenting stress thus represents a highly significant and salient risk factor for military parents.

## **Parenting and young children in military families**

Child development during the first years of life is marked by a rapid progression of physical and cognitive changes. Young children rely on parents to support their developing bio-behavioral and psycho-social regulatory capacities, and disruption within the family system may be especially difficult for the younger children in the family. Indeed, when military spouses were asked the age of the child they were most concerned about, 36% listed their preschool aged child (ADSS and RCSS, 2008). Parental deployments may be disruptive in many ways. During the deployment cycle, children are necessarily separated from one parent and experiencing the grief and loss reactions associated with that separation. At the same time, children must rely more heavily on the remaining parent who is at heightened risk for experiencing distress and emotional symptoms such as those associated with depression and anxiety (Eaton et al., 2008). Given the centrality of the caregiving environment for early child development, the impact of deployment on young children is heavily influenced by parental stress and corresponding sensitivity to child needs (Alink et al., 2009; De Wolff & van IJzendoorn, 1997; Hirsh-Pasek & Burchinal, 2006; Hoffman, et al., 2006; Lincoln, Swift, & Shorteno-Fraser, 2008).

Due to the rapid developmental changes over the first few years of life, deployed soldier-parents miss many important developmental milestones in the lives of their children while they are away. Reunification requires re-establishing connections with a child who has undergone significant developmental transitions, and who, by nature of age, may not communicate directly, may exhibit challenging behaviors, and yet is dependent on parents for meeting emotional needs. Extended family and community

support is often more available during the deployment. The transitions associated with reunification are also difficult, and families often face these private struggles without adequate support.

### **The Current Study**

The current study is embedded in a larger investigation of the efficacy of a brief, tailored, group intervention to enhance positive parenting among military families with young children (STRoNG Families; see <http://m-span.org/programs-for-military-families/strong-families/>). STRoNG Families is a manualized, short-term (10-week) multifamily parenting group intervention, serving service members who are parents of young children and their parenting partners. This integrated model of intervention addresses both parenting skills and strategies to enhance parent mental health, with a focus on the post-deployment reunification phase. Although the program is open to service members from all branches of the military, there is an emphasis on meeting the unique needs of National Guard and Reserve members, who are more likely to experience isolation and lack of needed supports. The current study aims to understand the experiences of fathers parenting young children after deployment, and, specifically, to identify the hopes that men bring, and the challenges that they experience, as they resume parenting in the context of reunification after extended separation from their young child. Ultimately, the translational goal of the current work is to inform the provision of support to military fathers as they re-engage in parenting their young children.

## **Method**

### **Study Participants**

Fourteen male service members deployed within the past two years participated in the study. Inclusion criteria required that the participant was father to at least one child under age seven; notably, however, all but one father in the study had at least one child under age five. Participants were recruited through flyers and personal contacts with staff at regional organizations including the Department of Veterans Affairs (VA) and at Michigan Army National Guard Reintegration Weekends. The population of service members in Michigan suggested that a majority of participants would be Guard/Reservists, male and Caucasian. Military families with young children were recruited for participation in a 10-week multifamily group intervention (STRoNG Military Families). Interested and eligible fathers completed the baseline pre-intervention home visit, during which time these interviews were conducted.

Complete demographic and mental health data are available for 12 of the fathers. Of the 14 fathers who completed the interviews, two did not complete the baseline questionnaires, including the detailed demographic survey and mental health symptom checklists, despite full participation in the baseline interview and subsequent multifamily group intervention.

Fathers ranged in age from 22 to 40. The majority of the sample was Caucasian (83%), married (75%), and had attended at least some college (75%). Two-thirds of the sample reported annual household income under \$50,000, and half were currently unemployed. Two-thirds of the sample had two or more children, and a substantial minority (41.7%) had one or more stepchildren. The majority of the sample reported

having two or more deployments. Half of the fathers met criteria for a diagnosis of PTSD, and among participants who did not meet criteria for diagnosis, many reported sub-clinical levels of trauma symptoms (see Figure 3). Table 7 provides additional information about individual and family characteristics of the sample.

## **Procedures**

Participants were interviewed in their own home, in the six weeks preceding the start of their participation in STRoNG Families. At the conclusion of the home visit fathers were provided a self-report packet of questionnaires and were asked to bring the completed packet to the first session or return by mail in the addressed, stamped envelope provided. Fathers were asked to answer questions with a focal child in mind, defined as the oldest child in the specified age range of seven years or younger (child average age in months:  $M=47$ ,  $SD=22$ ; 50% male). The study was approved by the University of Michigan Institutional Review Board (#HUM00037597). All participants signed informed written consent, and were compensated up to \$120 for their participation across all phases of the study.

## **Measures**

***Demographic Questionnaire.*** Fathers responded to a series of questions regarding household composition, marital status, deployment history, ages and gender of children, and family income.

***Parent Mental Health.*** The *Patient Health Questionnaire* (PHQ-9; (Kroenke, Spitzer, & Williams, 2001) is a self-report instrument that assesses 9 DSM-IV symptoms of depression over a 2-week period. The PHQ-9 has acceptable reliability, validity, sensitivity, and specificity; scores  $\geq 10$  have a sensitivity of 88% and a specificity of 88%



for major depressive diagnosis, and scores are sensitive to change. The *Post-Traumatic Disorder Checklist –PCL-Military* (PCL-M; Weathers et al., 1993) is a validated and reliable self-report measures of the 17 DSM-IV symptoms of PTSD.

**Parent Interview.** Fathers were interviewed using the modified *Working Model of the Child Interview* (WMCI; Rosenblum et al., 2002). This semi-structured, open-ended interview includes questions designed to tap into parents’ attributions, beliefs, and representations of their children (e.g., “Tell me about your child’s personality. What is [s/he] like?” or “How would you describe your relationship with your child?”). The standard, attachment-based, categorical coding system has been validated against parenting behavior and child outcomes. Interviews were conducted by master’s degree-level project staff and were audiotaped and transcribed verbatim. Interviews ranged from 45-75 minutes.

### **Data Analysis**

A thematic analysis, drawing on principles of grounded theory (Strauss & Corbin, 1998), was conducted to identify themes from fathers’ accounts of their relationship with the focal child. Interviews included the administration of the modified Working Model of the Child Interview (WMCI) protocol in addition to several open ended questions designed to tap men’s thoughts and feelings related to intervention services that they might find helpful in navigating post-deployment parenting challenges. Although the WMCI can be used to categorize the parents’ attachment-relevant representations of the child, the military-parent specific content is not standardly assessed, yet these themes were observed to be highly salient for the fathers, and thus were a primary focus of the current qualitative analysis. Transcripts were content coded by two researchers

independently, and in a first round of open coding, data was organized into smaller segments and descriptors were attached to the segments (Leech & Onwuegbuzie, 2008). In an iterative process, three members of the research team (the first two authors and final author of this paper) independently read each transcript multiple times to distinguish and refine definition of recurrent themes and to establish reliable codes (Thomas, 2006). When the research team reached consensus on code definitions, all transcripts were coded accordingly. Within-case and cross-case analyses were conducted, and results verified by returning repeatedly to the data to search for disconfirming evidence. Further, the third author of this article, a service member with experience parenting a young child after deployment, offered insight into how he made meaning of fathers' accounts of their experiences, through the prism of his deeper and more personal understanding of this topic.

## **Results**

Results indicate the diversity and range of feelings that men experience as they work to create and renew strong father-child relationships after deployment. Their responses encompass negative feelings and a sense of loss as well as positive feelings of hopefulness and joy. Two categories of themes emerged from content analysis, themes that describe the *motivations* men bring to re-engaging in parenting after deployment, and the *challenges* they encounter in this endeavor. Themes from each category are presented below; themes are reflective of patterns across interviews, and quotations have been selected for inclusion because they are representative and illustrate the rich, textured data generated.

## **Motivations**

The first set of themes relates to the strong *motivation* that fathers bring to parenting in the reunification phase. Fathers were interviewed prior to participating in STRoNG Families, and they described their strong drive to be excellent fathers, their reasons for electing to participate in a parenting intervention, and what they hoped to gain from their participation.

### ***1. Learn and develop new parenting skills***

Being a father is profoundly important to the participants in this study, and they described strong motivation to learn and develop new parenting skills. Fathers talked about wanting to be the best dad they can be, wanting to set a good example for their child, and wanting to provide a better life for their child. Fathers acknowledged a desire to increase their parenting skills and knowledge in order to achieve these ends. In the words of one father:

I want to be a better parent, I want to learn to be a better parent. So um, anything-I'm hoping for some tools to be a better parent... When I came home from the marine corps, uh, I really had a hard time adjusting to it. And so, um, you know coming from a structured lifestyle being told what to do, how to do it, when to do it, um, to coming home and being a full time dad, um, and everything else, I didn't know how to adjust to it. I didn't – I didn't know what to do. And I didn't spend as much one-on-one time with her as I should have. I'm still learning.

### ***2. Support in expressing emotions and providing nurturing care to their children***

Fathers expressed broad openness to learning and developing new parenting skills, and they also honed in on a specific domain in which they believe they need particular support. Acknowledging the contributions of both their own upbringing and their experience in the military, fathers described the expression of nurture to their children as a particular and deep challenge.

I don't show too much affection. Maybe that's because of how I was raised. ... [I hope to be] Different than my parents definitely... more affectionate, loving, um a little bit more involved. ... I just have difficulty with that part of myself, you know, showing love or "oh are you alright?"

Many fathers described their partners as being the predominant source of affection and nurture for the children. Some described their partners as critical of their own relatively more limited provision of affection and nurture. Fathers perceived a need to build their own capacity to express emotions and provide nurture to their children.

### ***3. Managing temper at high stress moments***

Fathers identified another goal of learning to more effectively manage their temper, particularly at high stress moments. They described, often using their partner's greater equanimity as a reference point, the difficulty of staying calm when their young child acts up. One father described the difficulty he experiences, and his wish to change, as follows:

I'm uh, I don't have good tolerance. I'm uh, I stress very easily. ... [When she stomps her feet and cries, I feel like] grabbing her, if I have to drag her to her room and just leave her there... [I want to learn] better ways for handling uh (pause) how easily my kids can stress me out. I mean that's, I think, that's the biggest thing I hope to accomplish.

As fathers to young children, participants described being tested regularly by challenging behavior, including temper tantrums. They reported feeling elevated levels of stress when their child acts up, uncertainty about reasonable expectations for behavior from a young child, and a limited repertoire of strategies for managing difficult child behavior. Fathers expressed a wish for support in each of these areas, but most prominently wanted support in managing their own temper and increasing their capacity to respond to child-related stress in healthy ways.

#### ***4. Connect to and learn from other fathers***

As they described the types of parenting support that they would find useful, fathers indicated that they would like to both receive and provide support. They suggested that men who shared the experience of deploying for military service and reuniting with a young child upon return could relate to each other in important ways, and that the opportunity to engage around parenting could allow individuals to both support and be supported. This perspective is exemplified in the following quotation, in which one father explains what he is looking for from participation in STRoNG Families.

Sharing problems, the good and the bad... I'm hoping uh, (pauses) to learn about other people's issues, and uh, help each other. I mean basically some, one person's issue might be our uh, something that we deal with well and we can teach them, you know? Or, you know, learn about each other's kids and how to take care of certain problems or how to make something better... That's what I'm looking for. Hoping to learn and teach.

#### **Challenges**

The second set of themes reflects the marked *challenges* that fathers encounter while parenting in a context of heightened stress and transition. For some fathers, the experience of these and other parenting challenges likely contributed to motivation to participate in the group, however the four challenges below were frequently discussed by participants simply as challenges, without attribution as sources of motivation; whereas the themes above were all regularly noted by participants as sources of motivation for participation in STRoNG Families.

##### ***1. Reconnecting with child on reunion***

In speaking about what it was like to reconnect with their child after returning from a deployment, fathers spoke of feelings of loss stemming from the time spent apart. They frequently described difficulty regaining the sense of closeness that they

remembered from before their deployment, often underscoring the change by contrasting the difficulty of regaining a closeness that has dissipated with the increased closeness they now observe between their child and the parent who remained at home.

[Now, with my daughter] it's always "mom I want you to do this, mom I want you to do that, do this with me, will you do this..." A lot of it I think has to do with uh me being gone... [Before I deployed] when I was home it was fifty-fifty... it was fifty-fifty I think until I left and came back. ... [Now] I think mommy's number one.

Fathers noted that the challenge of reconnecting with a child is more pronounced when that child is young, because young children cannot hold onto the memory of a parent across deployment in the way that older children can; and some fathers explicitly mourned the loss of the relationship that might have developed had they not deployed, as they described the difficulty they experienced in reestablishing a close father-child relationship.

He was born and before he was walking was when I was deployed. And um, I came back, he was standing, gripping onto [my wife's] leg – looking at me like, that's who? She had to tell him, that's Daddy... I have no idea what our relationship would be like if there was no Iraq war. I don't think it would be anything like it is today, I think it would be a lot different.

## ***2. Regret about missing an important period in child's development***

With young children, extended deployment necessarily spans a developmental transition.

[I wish my daughter could be] three months again, just to kind of have more time, you know? As a baby. Like I didn't get to experience that that much. Actually, the first time I got to hold her she was almost four months. So I didn't really, um, get to have her much you know, when she was an infant.

Some fathers described feelings of loss in connection to a missed period in their child's development, and a wish to "get back that time" so they could experience that stage of development.

### ***3. Adapting expectations from military life to family life***

All fathers in the sample, in varied ways, described difficulty adapting expectations from military life to family life. This difficulty was most often encountered in adjusting to the unpredictability of a young child's behavior, in contrast to the accustomed routines of military life; and in the lack of follow-through exhibited by young children when given directions.

Um, you know I- I'm a military guy and I, I emphasize on discipline, so that's my hard point is not realizing the age factor and they're not soldiers...

In describing this challenge, fathers often honed in on the dilemma of discipline. In a military context, there are predictable consequences for failure to follow instructions; at home, fathers found it challenging to know what type of responsiveness to expect from their children, how much non-responsiveness to tolerate and how to address it in developmentally appropriate ways.

### ***4. Co-parenting in the context of deployment and reunification***

Simultaneous to re-engaging with their children, fathers returning from deployment are re-engaging with their child's mother. This posed particular difficulty for fathers who were no longer in a romantic relationship with their child's mother, but even among fathers currently married to their child's mother, a return to parenting together after an extended separation was experienced as challenging. Some fathers perceived their child as taking advantage of what they viewed as more lenient parenting by the child's mother during deployment, and experienced difficulty re-instilling what they considered to be optimal discipline in the home.

His mother wants to you know I guess give him things, provide him you know security and safety... and like you know[make him feel] everything's okay, and

you know I think because of that, the children in general are more lax, are more in the well I can do whatever I want now [when dad is away].

Some believed that their disagreements with their child's mother presented a barrier to a strong father-child relationship:

My relationship [with my child] is not as close as I want it, because I'm still conflicting with my wife about um, you know, things he should have, things he should not have. Um, how he should you know be dealt with, something he does good or bad, you know, praised or punished.

Fathers in the sample universally experienced some degree of challenge (re)negotiating their role as a parent in association with other(s) involved in parenting the same child.

### **Discussion**

Parenting young children is challenging for all fathers and mothers, and many parents feel strong motivation to improve their parenting. These experiences have a distinct character among military fathers. Fathers in this study were keenly aware that they had missed important parenting moments while deployed, that their relationship with their child had shifted, and that reconnection requires effort, and they expressed strong motivation to invest in rebuilding relationships and to be excellent fathers. Two factors emerged as influential within each of the thematic areas and represent possible mechanisms that account for many of the experiences of these fathers: 1) the impact of trauma and 2) the transition from military to home life.

#### **Impact of trauma**

Among troops returning from service in Iraq and Afghanistan, reports of trauma and clinically significant levels of traumatic stress are high. Half of the participants in this study scored above cutoffs for diagnosis of PTSD, and others scored marginally below cutoff. While a child's unhappiness or misbehavior is universally difficult for



parents, the trauma symptoms of soldiers may compound the difficulty of tolerating a child's distress, upset, or demandingness. One father explained how he experiences his child crying as follows:

She's crying you know, and it's like there's nothing I can do, and you know all that stuff plays back into my PTSD... I feel horrible. I don't see [my daughter] crying, I see, you know, 18, 19 year old kids that are dying in my arms and their crying moms.

Fathers of young children are inevitably exposed to crying, and when crying is a trigger for painful memories, fathers find that those memories are frequently evoked. Thus, trying to manage trauma symptoms poses a particularly complex challenge for a service member simultaneously seeking to reengage in parenting a young child.

### **Transitioning from military life to home life**

Many troops and their families experience great excitement and happiness upon reunion. Full reunification, however, requires an investment of time and effort on the part of all family members. Fathers in this study recognized that it is not easy, and there is no clear path, to get back to a "normal" life at home. They also understood that "normal" will likely mean something different after deployment, given a range of changes that may have occurred – changes to their own physical and psychological health, changes in their connections to family members, and inevitably the growth and development of their young child.

A source of significant parenting stress at the outset of family reunification was the need to understand and adapt to the developmental transition undergone by their child in their absence. Expressing affection and implementing appropriate discipline pose particular challenges, and fathers acknowledged that this challenge derived at least in part

from the need to set aside the framework of norms of military life, and adopt a developmental frame for expectations of their children.

### **Clinical Implications**

Deployment is a time of great stress for families, but the need for support and a strong community continues during the extended period of reintegration after the service member returns. This need is particularly pronounced when the returning service member is father to a young child, and he faces the core challenge of reconnecting with a child who has undergone significant developmental changes while he was away. Healing and repair occur within day-to-day moments when family members respond to one another's need for connection, nurture, and support: picking up the young child when he cries, playing ball together, laughing and sharing a joyful moment, and supporting one another when feelings are hard. These everyday interactions build and strengthen relationships, enhancing both individual and family resilience.

Consistent with findings from focus groups conducted with fathers serving in the U.S. Air Force (Lee et al., in press), results of this study demonstrate that military fathers are receptive to opportunities to engage in parenting interventions. In particular, fathers perceive a need for guidance to understand their children's behavior in the context of age-typical responses to separation and reunion, and to define developmentally appropriate responses to challenging child behavior. Fathers in this study were eager for support for themselves and their families as they reconnect and strengthen relationships, and welcomed the opportunity to come together with other military families to create community and support each other's processes of reconnection.

In an effort to address these types of concerns, STRoNG Families incorporates strategies around five core pillars: 1) psychoeducation regarding effective parenting strategies, 2) self-care skills to address parents own stress and psychiatric symptoms, 3) enhanced social support through connection with other military families, 4) connection to community resources, and 5) support for child and parent interactions. An NICHD-funded Phase 2 randomized controlled trial to evaluate efficacy of the intervention for improving positive parenting and parent mental health is currently underway (R1 R21 HD072375-01A1; PI: Rosenblum).

### **Limitations**

Several key limitations impact our ability to generalize from the results of this study. This study relied on cross-sectional interview data collected from a small sample of military fathers. Consistent with the population of the Michigan National Guard, participants were primarily Caucasian. The sample evidenced high levels of trauma (it is possible that high need fathers were more likely to be referred for services by the VA), as well as high levels of motivation and investment in parenting (as suggested by participants' willingness to sign up for a ten-week parenting program). It is not possible, based on this study's sample, to generalize to the larger population of fathers of young children returned from OEF/OIF, nor does this sample allow for differentiation between the experiences of fathers with one or multiple deployments, with one or more than one child, by income, race/ethnicity, physical or psychological health status. However, the current study provides an important foundation for continued investigation of the experiences of service members who return to parenting young children after deployment, and suggests both the need for support for fathers and their families during

reintegration and the willingness of some, high needs fathers to access such support when it is made available.

### **Conclusion**

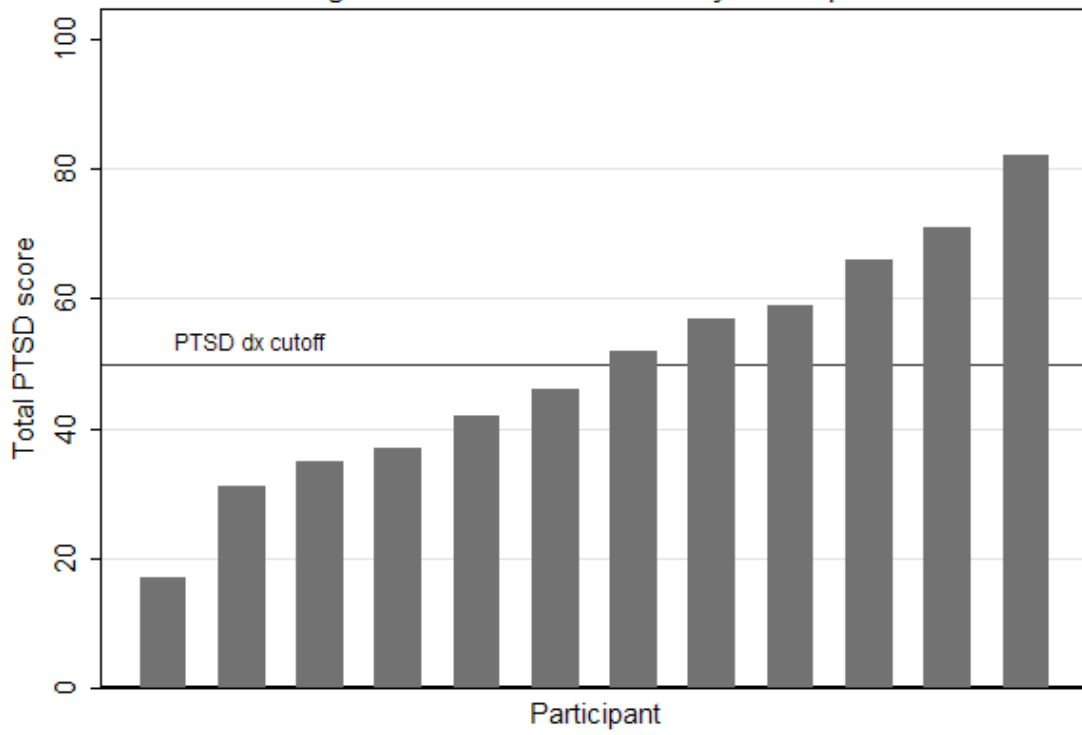
Results of this study underscore the resilience and coping abilities of service members and their families. Acknowledging that both great happiness and great stress are associated with returning home after deployment, participants described their motivation to foster and sustain strong father-child relationships. Support for fathers and families during reunification, aimed at enhancing positive parenting of young children, holds potential for improved individual (parent and child) outcomes and family resiliency.

While the present study highlights both strengths and challenges faced by military fathers of young children, there remains a need for future research to consider the experiences of a broader cross-section of military fathers—incorporating the experiences of active duty and Guard/Reserve components, as well as across demographic groups. Research might also benefit from careful consideration of the unique challenges faced when deployment or reintegration occurs at distinct developmental periods in a child's life (e.g., during pregnancy, the first year, or the preschool years, and so forth). Similarly, fathers' narratives in this sample suggest the importance of understanding family-level dynamics, including the role of co-parenting and of blended family experience on fathering during reunification.

**Table 7.**  
*Individual and Family Characteristics as a Percentage of the Sample*

<b>Characteristic</b>	<b>Father (N=12)</b>
<b>Age</b>	
22-30	41.7
31-40	58.3
<b>Marital Status</b>	
Married	75.0
Engaged	16.7
Divorced	8.3
<b>Ethnicity</b>	
Caucasian	83.3
Hispanic	8.3
Multi-ethnic	8.3
<b>Education</b>	
High School Diploma	16.7
Some College	75.0
Technical Certificate	8.3
<b>Employment</b>	
Yes	50.0
No	50.0
<b>Enrolled in Education or training program</b>	
Yes	41.7
No	58.3
<b>Income</b>	
<30,000	36.4
30,001-50,000	58.3
<b>Step-parent</b>	
Yes	41.7
No	58.3
<b>Single Parent</b>	
Yes	8.3
No	91.7
<b>Present at birth of child</b>	
Yes	41.7
No	58.3
<b>Number of Children</b>	
1	33.3
2	41.7
3	8.3
4	8.3
5	8.3

Figure 3. Total PTSD Score by Participant



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