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HEALTH INFORMATION BEHAVIOR AND PATERNAL INVOLVEMENT OF
LOW-INCOME EXPECTANT AND RECENT FATHERS

by

Emily M. Cramer

A Dissertation Submitted in
Partial Fulfillment of the
Requirements for the Degree of

Doctor of Philosophy
in Communication

at

The University of Wisconsin-Milwaukee

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ABSTRACT

HEALTH INFORMATION BEHAVIOR AND PATERNAL INVOLVEMENT OF LOW-INCOME EXPECTANT AND RECENT FATHERS

by

Emily M. Cramer

The University of Wisconsin-Milwaukee, 2014
Under the Supervision of Dr. Mike Allen

Given the importance of paternal involvement in maternal and child health, the current transdisciplinary investigation is a step towards unraveling factors related to paternal involvement by taking a closer look at low-income expectant and recent (E/R) fathers' health information behavior. The study evaluates the belief that information acquisition associates with fathers' involvement in the pregnancy, childbirth, and childcare. A total of 186 E/R fathers (68 low-income) completed a survey about their information needs, sources of information, and information-seeking behavior. A strong association between E/R fathers' health information-seeking behavior and paternal involvement was observed, and the relationship persisted among low-income groups. From a theoretical perspective, results suggest health information-seeking corresponds with behavioral, attitudinal, and structural dimensions of paternal involvement. Four statements summarize practical applications informing health communication interventions helping E/R fathers get the information they need during a partner's pregnancy or after a child is born: (a) Paternal information needs are diverse, (b) Information needs change across stages of child development, (c) Interpersonal sources are important before and after birth, and (d) Relationships matter.

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TABLE OF CONTENTS

Introduction	1
Review of the Literature	6
Paternal Involvement	6
Structural Dimension	6
Attitudinal and Behavioral Dimensions	10
Health Information Behavior	12
Health Information Needs	13
Health Information Sources	16
Digital Divide and Inequality	18
Health Information-Seeking	23
Approaches to Health Information Behavior	27
Public Health: Social Ecology	28
Communication: Self-efficacy	31
Communication: Uncertainty Management	32
Methods	34
Recruitment	34
Measures	37
Sample	42
Information Sharing	44
Data Analysis	45
Results	48
Information Needs: RQ1-2	48
Sources of Information: H1-3, RQ3-4	50
Information-Seeking Behavior: RQ5-9	53
Discussion	56
Theoretical Implications	56
Practical Applications	61
Limitations and Future Directions	67
References	74
Appendix	118
Curriculum Vitae	123

LIST OF FIGURES

Figure 1: Everyday Life Information: An Ecological Model of Use (Williamson, 1998)	99
Figure 2: A Contextual Model of Information-Seeking on the World Wide Web (Kari & Savolainen, 2003)	100
Figure 3: Recruitment Flyer at Milwaukee Fatherhood Summit, October 4-5, 2013	101
Figure 4: Post to CRTNET Listserv on October 8, 2013	102
Figure 5: Facebook Post to Personal Contacts	103
Figure 6: Recruitment Message to UWM Students	104
Figure 7: Percentage (%) of E/R Fathers Interested in Health Topics by Income Group (Low or High)	105
Figure 8: Percentage (%) of E/R Fathers Interested in Health Topics by Partner Expectancy (Expecting or Not Expecting)	106

LIST OF TABLES

Table 1: Demographic Information for Total Participants	107
Table 2: Demographic Information for Low-Income Participants	108
Table 3: Demographic Information for High-Income Participants	109
Table 4: Binary Proportions Test: Topics of Information and Income	110
Table 5: Binary Proportions Test: Topics of Information and Expectancy	111
Table 6: <i>t</i> -Test Results for Source of Information by Income Group	112
Table 7: <i>t</i> -Test Results for Source of Information by Education	113
Table 8: <i>t</i> -Test Results for Source of Information by Ethnicity	114
Table 9: Correlations (<i>r</i>) for Sources of Information and Parental Involvement	115
Table 10: Zero-Order Correlations (<i>r</i>), Means, and Standard Deviations for Composite Variables	116
Table 11: Zero-Order Correlations (<i>r</i>), Means, and Standard Deviations for Composite Variables: Low-Income Sample	117

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Health Information Behavior and Paternal Involvement of Low-Income Expectant and Recent Fathers

Symbiosis serves as an apt metaphor to describe the evolving, mutualistic relationship between health communication and public health. The term refers to the beneficial co-existence of two living things; species teaming up to help each other survive include the sea anemone and the hermit crab, coral and algae, the goby fish and snapping shrimp, cleaner and ‘client’ fish (McElroy, 2010). In the same way, health communication and public health disciplines interact synergistically and innovatively to promote the health of a community (Kreps & Maibach, 2008). Public health emphasizes health promotion, disease prevention, and the development of targeted interventions to improve a population’s health. Health communication focuses on the creation and dissemination of information messages in the process of public health promotion, prevention, and intervention. Both disciplines possess strong intellectual traditions and both analyze human interaction in multiple contexts including individual, social, community, organization, and population. At various levels of analysis, as Kreps and Maibach (2008) point out, “communication is conceptualized as the *central social process* in the provision of health care delivery and the promotion of public health based upon the powerful function communication performs in creating, gathering, and sharing relevant health information” (p. 735, emphasis added). Communication operates as the central social mechanism through which public health goals and initiatives become realized.

A transdisciplinary approach to studying the health of a community—a *symbiosis* of public health and health communication scholarship—is crucial to developing novel

forms of information dissemination and intervention central to enhancing the public's health. Transdisciplinary research comprises the efforts of investigators from a number of different disciplines "working jointly to create new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem" (Harvard School of Public Health, para. 1). The intention is for the whole to be greater than the sum of its parts—for the outcomes and solutions generated by transdisciplinary research to be more expansive, comprehensive, and enduring than additive contributions from each discipline. Transdisciplinary research is therefore essential to providing lasting solutions to ongoing health issues within communities.

Arguably, no concern is more pressing to the field of public health than the well-being of a child. Like the proverbial canary in a coal mine, infant mortality statistics commonly gauge the health of a community or country. Although infant mortality in the United States generally declined from 2005 to 2011 (MacDorman, Hoyert, & Mathews, 2013), infant mortality trends signal a nation in trouble, particularly among low-income, ethnic minority populations living in urban areas. In 2010, the number of infant deaths in the U.S. totaled 24,586, an equivalent of 614.7 deaths per 100,000 live births (CDC, 2013). Internationally, the U.S. ranked 30th in 2005 for the lowest infant mortality rate, falling behind most European countries as well as 22 countries with infant mortality rates of 500.0 or lower per 100,000 live births. Income level continues to function as a determinant in infant mortality (Rodwin & Neuberg, 2005), premature births (Savitz et al. 2004), and pre-term birth rates (Huynh, Parker, Harper, Pamuk, & Schoendorf, 2005). Minority populations also are disproportionately impacted by infant mortality: in 2007,

the infant mortality rate for non-Hispanic black women in was 13.31 per 1,000 live births, more than double the rate (5.63) of non-Hispanic white women (MacDorman & Mathews, 2011). Milwaukee, the most segregated metropolitan area in the U.S., (Jacobs, Kiersz, & Lubin, 2013), was ranked the 7th worst city for infant mortality according to the 2007 Big Cities Health Inventory (NACCHO, 2007).

Increasingly, paternal involvement proves an important and modifiable risk factor in infant mortality, particularly for black and Hispanic women (Alio et al., 2011). An examination of vital records data from births between 1998 and 2005 found lack of paternal involvement (i.e. no father's name on birth certificate) to result in lower birth weights, pre-term births, and increased complications during birth (Alio et al., 2010; Alio et al., 2011). Similarly, infant mortality rates for unmarried mothers are 1.8 times higher than for married mothers (Matthews, Curtin, & MacDorman, 2000), suggesting the consequential influence of a father's presence on infant vitality at birth. Additional research points to the impact of paternal involvement on child and maternal health (National Fatherhood Initiative, 2014). A father's involvement positively associates with infant health (Carr & Springer, 2010), cognitive outcomes (Bronte-Tinkew, Carrano, Horowitz, & Kinukawa, 2008), weight gain and developmental test scores (Coleman & Garfield, 2004), as well as a child's access to healthcare (Gorman & Braverman, 2008). A father's involvement in and knowledge about breastfeeding increases the initiation of breastfeeding (Susin et al., 1999; Wolfberg et al., 2005). Conversely, the lack of a partner affects maternal health in terms of increased depression and stress (Cairney, Boyle, Offord, & Racine, 2003) and deleterious health behaviors such as cigarette use (McLanahan & Garfinkel, 2003).

To date, the health information behavior of fathers remains relatively unexamined, especially in relationship to paternal involvement. *Health information behavior*, or the totality of an individual's information needs, sources of information, and seeking behavior (Wilson, 1999), constitutes a communicative phenomenon: oral and written messages contained in numerous channels (e.g. interpersonal, print, and electronic) are processed, received, encoded, and decoded for the purposes of gathering information about a health issue. Generally, studies demonstrate associations between individual health information-seeking and higher efficacy (both self-efficacy and response efficacy), heightened health knowledge and proactivity, more visits to the physician, as well as increased confidence talking with physicians (Murray, Lo, Pollack, Donelan, Catania, White, et al., 2003; Nicholson, Gardner, Grason & Powe, 2005; Rimal, 2001; Zhao & Cai, 2009). Whether health information-seeking relates to similar outcomes for paternal health beliefs and behavior remains an unanswered question. How the process of seeking out and acquiring information influences the nature of a father's involvement in the life of a child serves as a basis for important research.

Therefore, responding to calls for transdisciplinary research informed by both public health and health communication disciplines (Kreps & Maibach, 2008), the current investigation seeks to examine the health information behavior of expectant and recent (E/R) fathers. The study assumes health information behavior is inherently communicative and paternal health information behavior improves access to quality health information. The study evaluates the belief that information acquisition potentially associates with fathers' involvement and engagement in the pregnancy, childbirth, and

childcare. Accordingly, paternal health information behavior may play a contributing role in reducing infant mortality.

In keeping with a transdisciplinary approach, the study draws from theoretical frameworks unique to both public health and health communication research traditions (Kreps & Maibach, 2007). Specifically, concepts from the social ecological perspective (Maibach, Abrams, Marosits, 2007; Stokols, 1992) compel the researcher to explore the influence of environmental factors on information-gathering practices. Because low-income communities experience higher rates of infant mortality, the study emphasizes the role of income status on paternal health information behavior. Demographic factors such as education and ethnicity also are examined in light of trends identified in previous health information behavior research.

Iterations of self-efficacy (Bandura, 2004) and uncertainty management (Brashers et al., 2000), common in health communication scholarship, also are integrated with the goal of understanding how interactional factors such as emotions and cognitions influence health information behavior within the study sample. The project represents a first step in blending public health and health communication research toward a socio-cognitive-based understanding of the health information behavior of fathers expecting a baby or raising a young child.

The health information behavior of fathers from low-income households receives particular attention to improve targeted, community-based information-dissemination and health-promotion campaigns. Study results have been shared on an ongoing basis with the City of Milwaukee Health Department's Men's Health Referral Network, comprised of individuals from outreach agencies in the Milwaukee area invested in improving health

and access to services for low-income men in the community, as well as Text4Baby, a national information service promoting infant and maternal health through text messaging. Both organizations seek to increase paternal involvement by improving access to quality health information for E/R fathers, particularly from low-income communities.

The following literature review frames the hypotheses and research questions of the current project. The section begins with a review of studies on the positive impact of paternal involvement on child and maternal health as well as child development. The state of research on health information behavior is described, particularly health information needs, sources, and seeking behavior. I conclude by briefly outlining social ecological, self-efficacy, and uncertainty management theoretical models. Study hypotheses and research questions are included throughout.

Paternal Involvement

The current investigation takes a closer look at the communicative behaviors associated with paternal involvement, particularly health information behavior before and after birth. Various definitions of paternal involvement emerge in the literature corresponding to the structural, attitudinal, and behavioral dimensions of familism, defined as a “normative commitment” to the family among family members (Saracho, 2007, p. 404; see also Steidel & Contreras, 2003). The maternal and child health outcomes associated with each dimension of paternal involvement are discussed in greater detail below.

Structural Dimension

Many studies operationalize paternal involvement solely in terms of the *structural* components of the family. The structural dimension attends to the presence or absence of family members (Saracho, 2007), e.g., whether a father's name is listed on the birth certificate, the mother is married, or the father resides in the home. Despite a rudimentary interpretation of paternal involvement, family structure demonstrates strong effects on maternal and child health. Alio and colleagues (2010, 2011), in a series of retrospective cohort studies using vital statistics records (1998-2005), examined feto-infant morbidity outcomes associated with the presence or absence of a father's name on a birth certificate. Among father-absent births, the researchers found increased rates of infants with low-birth weight, born preterm, and/or born small for gestational age (Alio et al., 2010). Generating odds ratios to assess the association between paternal involvement and infant mortality, Alio et al. (2011) determined father absence to increase infant mortality rates by nearly four times compared to the baseline. Moreover, disparities in infant mortality associated with paternal involvement were observed both between and among racial-ethnic groups. Specifically, non-Hispanic black women with involved fathers had infant mortality rates that doubled that of non-Hispanic white women with involved fathers; among non-Hispanic black women with absent fathers, rates of infant mortality risk increased sevenfold.

Beyond the information contained in birth certificates, considerable research conducted by researchers at Princeton and Columbia universities examines paternal involvement from the standpoint of marital status. The Fragile Families and Child Wellbeing Study (FF-CWS, n.d.) defines families with unmarried parents and children as 'fragile' due to the likelihood of dissolution and poverty. Following a cohort of 5,000

children born in urban areas in 1998 and 2000, the study explores the conditions, capabilities, and relationships of unmarried parents, as well as how children of unmarried parents fare. Evidence from 2003 FF-CWS baseline data (McLanahan et al., 2003) shows a majority (51%) of fragile families consisted of cohabitating parents, with 31% indicating romantic involvement but living apart. Two of ten fathers were not employed and 38% did not have a high school degree. Because of low employment and education, fragile families experienced difficulty supporting themselves and their children. Unmarried fathers also were more likely to report drug use, violence, and past incarceration (McLanahan, 2009).

Overall, fragile families tend not to endure; in a majority of families, within one or two years of the child's birth, the father is no longer living in the home (Sawhill, 2006). Related research demonstrates children of married parents have better access to health care, such as routine well-child checkups and visits to the doctor's office when the child is sick, than children with unmarried parents (Gorman & Braverman, 2008). Compared to married mothers, single mothers also experience increased episodes of depression and chronic stress and perceived reduced social support and involvement with family and friends (Cairney et al., 2003).

The term *partnership instability* emerges from FF-CWS research and refers to changes in partnerships of both parents after the birth of the child (McLanahan, 2009). Experienced more by children of unmarried parents, partnership instability relates to increased maternal stress and lower-quality mothering, which then leads to more behavioral problems for the child (Osborne & McLanahan, 2007). Moreover, children of fathers with biological children from more than one partner (*multiple partner fertility*)

experience poorer health and demonstrate more externalizing behaviors, such as changes in mood and violent behavior (Bronte-Tinkew, Horowitz, & Scott, 2009). The relationship between a father's multiple partner fertility and a child's health is mediated by a father's level of engagement: children with more involved fathers, despite having children from more than one partner, tend to experience better health. Moreover, the relationship between father multi-partnered fertility and a child's externalizing behavior is mediated by paternal depression: depressed fathers with children from more than one partner are more likely to have children who act out negatively.

In addition to marital status, residence is a structural dimension used to distinguish paternal involvement. Fathers may no longer reside with the family following a divorce (Minton & Pasley, 1996) or children may grow up apart from the father due to the mother being unmarried at birth (Hofferth, 2006; King & Sobolewski, 2006). Rates of poverty for female-headed household are more than double the national trend (Edin & Kissane, 2010). Children living with a stepfather rather than a biological father are more likely to have behavioral problems (Hofferth, 2006). Adolescents with weak ties to nonresident fathers also are more likely to internalize problems (e.g., feel worthless or inferior) and act out at school than those with strong paternal ties (King & Sobolewski, 2006). Children of divorced parents report feeling less close to either parent in adulthood (Sobolewski & Amato, 2007).

A meta-analysis of studies about nonresident fathers and children's well-being (Amato & Gilbreth, 1999) found nonresident fathers' payment of child support positively related to child well-being, while frequency of contact was not associated with child outcomes. The researchers conjecture that studies of paternal involvement generally tend

to “focus on contact rather than more pertinent dimensions of the father-child relationship, such as feelings of closeness and authoritative parenting” (Amato & Gilbreth, 1999, p. 568). As such, examining alternative dimensions of fatherhood involvement, such as attitude and behavior, may be helpful in understanding well-being outcomes to a greater degree.

Attitudinal and Behavioral Dimensions

Beyond structure, some—albeit few—definitional forms of paternal involvement emphasize an *attitudinal* dimension to fatherhood. The attitudinal dimension is concerned with individual feelings of attachment, solidarity, and loyalty to family members (Saracho, 2007). Attitude may consist of a father’s sense of parental efficacy, or confidence about meeting the needs of the child (Leerkes & Burney, 2007). Leerkes and Burney (2007) review the positive outcomes associated with parental efficacy, particularly a mother’s increased adjustment, coping, and competence. Moreover, a father’s parental efficacy links to involvement in parenting tasks and perceived social support. Another study (Freeman, Newland, & Coyl, 2008) found paternal efficacy to significantly predict involvement in the form of playing with or caring for the child and to reduce the influence of perceived barriers to involvement, such as lack of time, energy, and work constraints. Parental efficacy may be an attitude conceptually related to paternal knowledge as well as parenting style. For example, a father’s knowledge about breastfeeding results in increases both the initiation (Wolfberg et al., 2004) and rates of breastfeeding (Susin et al., 1999). Perhaps paternal knowledge influences a couple’s confidence that breastfeeding will go well. Conversely, a father’s authoritative parenting style relates to delinquent behavior and substance use among adolescents (Bronte-

Tinkew, Moore, & Carrano, 2006). A lack of efficacy about parenting may cause a father to be rigid and controlling in the rearing of a child, compelling the child's externalizing behaviors.

Closely related to attitude is the *behavioral* dimension of paternal involvement, or the "behavioral attitudes and feelings" about being a father (Saracho, 2007, p. 404). Here, paternal involvement is operationalized as a father's behavioral engagement in the tasks associated with raising a child, such as playing games, reading stories, feeding the child, and putting the child to bed (Bronte-Tinkew, Horowitz, & Scott, 2009). Cowan and Cowan (1998), in developing the "Who Does What?" scale, measure the extent to which fathers complete a number of tasks, such as changing and dressing the baby, responding to the baby's crying, and doing the baby's laundry (i.e., 1 = *My partner does it all*, 5 = *We both do this about equally*, 9 = *I do it all*). Father engagement in the form of task completion has been shown to associate with positive cognitive, emotional, and social outcomes for a child, from birth to adolescence (for a brief review, see Cowan, Cowan, Kline Pruett, Pruett, & Wong, 2009). For example, a father's involvement in cognitively stimulating activities, physical care, and caregiving relate to a reduced likelihood that an infant will experience cognitive delays (Bronte-Tinkew et al., 2008). Fathers who read and discuss books with children promote the development of literacy skills in the child (Saracho, 2007).

Some behavioral definitions of paternal involvement place a decisive emphasis on the communication practices of a father. For example, Cox, Owen, Henderson, and Margand (1992) suggest an infant-father's attachment style to be grounded in the father's interactional history with the infant. A father's positive regard and emotional support in

the form of attending to a child's words or actions and boosting his or her confidence links to the child's social and academic school readiness, particularly when maternal supportive behaviors are low (Martin, Ryan, & Brooks-Gunn, 2008). Paternal contact with a child over the first ten years of life leads to better socio-emotional and academic functioning, specifically reduced behavioral problems and higher reading achievement scores (Howard, Lefever, Borkowski, Whitman, 2006). Paternal involvement in the form of talking about important issues with the child, listening, feeling close, and sharing ideas weakens the relationship between family structure and adolescent externalizing behaviors (Carlson, 2006). In other words, adolescents with unmarried parents practicing quality communication with fathers tend to show fewer behavioral problems. Finally, ongoing communication by adolescents with a biological nonresident father reduces delinquent behavior, such as stealing, drug use and property damage (Coley & Medeiros, 2007)

Connecting and interacting with a child throughout the stages of development constitute communicative acts. Identifying information needs and consulting sources of information about pregnancy and the health of a child also necessitate communication because health-related messages are sent, received, encoded, and decoded for the purposes of gaining information. In this way, communicative acts in the form of health information behavior potentially can associate with paternal involvement. More involved fathers may seek out and acquire information to prepare for birth or in raising a child.

Health Information Behavior

People seek information about health in response to triggers in the environment (Brashers, Goldsmith, & Hsieh, 2002) that compel learning about a condition, symptom or illness. The acquisition of health information contributes to knowledge and beliefs that

may or may not prompt action or behavior change (Barbour, Rintamaki, Ramsey, & Brashers, 2012). Wilson (1999) describes information behavior as “the totality of human behavior in relation to sources and channels of information, including both active and passive information-seeking, and information use” (p. 249). Pettigrew, Fidel and Bruce (2001) offer a simpler definition: “how people need, seek, give and use information in different contexts.” Blending the two definitions, this project defines health information behavior as an *amalgamation of an individual’s information needs, sources, and seeking behavior in the context of health.*

Individuals interact with other people or with print or electronic technologies to access or transmit health information messages and/or to receive guidance and support in managing a health problem or condition (Robinson, 1999). In this way, health information behavior is part of a broader process of health communication, emphasizing the transactional quality of information gathering activities (Cline & Haynes, 2001). Components of health information gathering activities, such as needs identification, source consultation, and information-seeking, are described in greater detail in the following sections.

Health Information Needs

An information need emerges in response to “recognition that your knowledge is inadequate to satisfy a goal that you have” (Case, 2002, p. 5). Health information needs vary based on individual characteristics and situational factors; as such, deducing general trends in information needs is difficult. From a broad perspective, Afifi and colleagues’ theory of motivated information management (TMIM; for reviews, see Afifi, 2009a, 2009b; Afifi & Afifi, 2009) posits information needs arise out of a gap between what is

known and what one wants to know. The corresponding uncertainty discrepancy triggers emotions, efficacy beliefs and evaluations about the likelihood of acquiring information regarding the topic. Accordingly, individuals decide to seek or avoid information, or reappraise the effects of uncertainty discrepancy.

Some trends in information needs associate with personal characteristics. Johnson (1997), in his Comprehensive Model of Information-seeking (CMIS), argues that antecedent factors of demographics, direct experience, salience, and beliefs influence information needs. Education is regarded as a central demographic variable impacting information needs, while an individual's degree of direct experience with a phenomenon also influences his or her need for information (Johnson, Donohue, Atkin & Johnson, 1995). Salience refers to the extent to which the information is of value to the person and beliefs are what an individual thinks about the outcome of the information search. These four antecedent factors—demographics, experience, salience, and beliefs—serve as underlying imperatives to seek answers to health-related questions and motivate individuals to address information needs (Johnson, 1997).

Research about information needs in the context of health is largely domain specific; for example, considerable scholarly work has been done on the information needs of people with cancer. Rutten and colleagues (2005), in a review of research of information needs of cancer patients, developed a typology of 13 information needs: cancer-specific, treatment-related, prognosis, rehabilitation, surveillance and health, coping, interpersonal/social issues, financial/legal issues, medical system, and body image/sexuality. Squiers et al. (2005) contend that information needs change depending on stage of cancer care continuum: pretreatment, in-treatment, post-treatment, and

recurrence. Patients not in treatment sought referral information, while patients in post-treatment wanted to learn more about screening and prevention. Differences in the type of information sought were observed based on gender, age, and ethnicity; such observations also are reflected in past cancer research (e.g., Cassileth, Zupkis, Sutton-Smith, & March, 1980).

Few studies examine the information needs of mothers and fathers before or after the birth of a child. A study of expectant women in Sweden (Larsson, 2009) identified fetal development and stages of childbirth as the two primary topics of interest. Another study of 50 women planning or experiencing pregnancy found stage of pregnancy to exert a substantial impact on the type of information needed (Benn, Budge, & White, 1999). Dervin, Harpring and Foreman-Wernet (1999) found the primary concerns of ten pregnant, drug-addicted women were the effects of drugs on the fetus, getting help, the behavior of others, and legal consequences. Song and colleagues (2013) asked low-income expectant women to choose from a list of 22 the topics of pregnancy-related information they wanted to learn more about. Interestingly, the top two information needs of participants were government/community resources (80%) and jobs (78%). The researchers conclude economic stability to be a primary concern of expectant women from low-income communities and thereby encourage health professionals to disseminate information covering a broad range of topics in conjunction with pregnancy and childcare.

To date, no study identifies the information needs of low-income E/R fathers. Accordingly, the following research question is posed:

RQ1: What are the information needs of low-income E/R fathers?

In addition, given that information needs change along the health continuum (Squiers et al. 2005), a research question arises about changes in information needs across a child's development.

RQ2: Do information needs of E/R fathers change between a partner's pregnancy and childbirth?

Health Information Sources

According to Johnson and Case (2012), information carriers provide the "primary repositories of information available to individuals within their information fields" (p. 31) and are comprised of channels, messages, and sources. For the purposes of clarity in this literature review, the term *source* will be used to describe the following information repositories: interpersonal contacts (health professionals, family members, friends, and community contacts), print media, and electronic media, including the Internet.

Considered an authoritative and specialized source of information (Johnson & Meischke, 1991), physicians have historically been seen as the most reliable and oft-consulted interpersonal source of information about health (Worsley, 1989; Arora, 2003). For example, a study of pregnant women receiving services at a municipal prenatal clinic found health professionals to be the most frequently used source of information regardless of health literacy levels (Shieh, Mays, McDaniel, & Yu, 2009).

On its surface, a study by Hesse and associates (2005) appears to confirm past research: patients responding to the 2002-2003 administration of the Health Information National Trends Survey (HINTS) reported physicians as the most preferred source of health information. However, among those using the Internet for health information in the past year, 49% reported going online first to obtain more information, while only 10%

went to a physician first. Nevertheless, despite increased use of online sources, physicians remained the most highly trusted source of information among respondents. The researchers conclude “people are turning to the World Wide Web as an information source of first resort, while relying on health care providers as their most trusted arbiter of information quality” (Hesse et al., 2005, p. 2623). The conclusion resonates with comments made by Kreps (2003) about changes in health promotion being promulgated by an “information revolution” (p. 357) of new communication technologies that fundamentally change how health information is accessed, shared, and processed.

Nevertheless, advances in health communication technologies should not outweigh the value placed on interpersonal sources of information, particularly among underserved populations. Interpersonal sources of information include not just physicians, but family members, friends, social networks, and contacts within the public health system (Ackerson & Viswanath, 2009). For example, previous research points to the link between pregnant women’s income status and the sources relied on for information. An early study reported associations between pregnant women’s income level and source of health information, with low-income women relying less on books and more on advice and suggestions from family members (Aaronson, Mural, & Pfoutz, 1988). Lewallen (2004) discovered low-income pregnant women to rely primarily on other people for information in addition to audiovisual and written material. A study of a community-based breast and cervical cancer-screening program for low-income women (Marshall, Smith, & McKeon 1995) found participants “demonstrated an equal and strong emphasis on family and friends as desired sources because of similarity and

trustworthiness” (p. 291). Moreover, both groups shared a preference for one-to-one interpersonal channels, such as telephone calls, when receiving persuasive messages.

Despite the dependence on interpersonal sources of information, research demonstrates social disparities in the nature of interpersonal communication with providers and among social networks (for a review, see Ackerson & Viswanath, 2009). A greater tendency to distrust a physician is found among individuals with lower levels of education, as well as non-Hispanic blacks. People living in the poorest households also are the least likely to report their physician explaining information to them, being respectful of the information they share during the medical visit, and involving them in medical decision making. Additionally, reliance on social networks for information becomes problematic when strong ties, i.e., those with whom one comes into frequent and multifaceted contact (such as friends and family members), transmit information that harms rather than promotes health (Ackerson & Viswanath, 2009). Some strong ties may encourage others to keep smoking (Ennett et al., 2008) or to become obese (Christakis & Fowler, 2007). For example, in a study of a social network over a span of 32 years, results indicated that if a friend, adult sibling, or spouse became obese, a person’s chances of obesity increased by 57%, 40%, and 37% respectively (Christakis & Fowler, 2007).

Digital divide and inequality. Reliance on interpersonal sources of information among low-income, less-educated, minority ethnic populations may be attributed to the digital divide. Digital divide research conducted by the Pew Research Center has revealed key disparities in both Internet use and access across income, education, and ethnicity (Zickuhr & Smith, 2012). In terms of Internet use, 62% of adults living in

households with an income of less than \$30,000 a year use the Internet compared to 90% and 97% of adults living in households with incomes of \$50,000-\$74,999 and over \$75,000, respectively. Forty-two percent of those lacking a high school diploma use the Internet, compared to 94% of those with a college degree. Of non-Hispanic white individuals, 80% use the Internet, compared to 71% of non-Hispanic black and 68% of Hispanic individuals. Access to the Internet at home through a broadband connection also differs substantially based on income, education, and ethnicity. Among people with a household annual income of <\$30,000, 41% have access to the Internet at home, compared to those with incomes between \$50,000 and \$74,999 (81%) and over \$75,000 (89%). Twenty-two percent of individuals without a high school diploma have access to a broadband connection at home, compared to 89% of those with a college degree. Non-Hispanic black (49%) and Hispanic (51%) people are less likely to have access to the Internet than non-Hispanic whites (66%).

Wyatt and colleagues (2005) caution that the digital divide cannot be understood solely in terms of domestic Internet access:

Access involves much more than being in the vicinity of the right type of equipment: it also includes the gendered and generational social relations which form the context in which people's daily interactions or non-interactions with the internet take place. (Wyatt, Henwood, Hart, & Smith, 2005, p. 213)

A computer connection to the web is not the only marker of a digital divide between the "haves" and "have nots;" instead, social contexts grounds access and use of the web.

Hargittai (2002) posits online skills as the source of a second-level digital divide, demarcating those able to search for content effectively (i.e., find the right content) and

efficiently (i.e., in a limited timeframe) online from those who are not. She concludes disparities in skills, technical means (equipment quality), autonomy of use (ease of access), social support network (friends and family who also are Internet users) and experience (history of use) lead to digital inequality (DiMaggio & Hargittai, 2001; Hargittai, 2003). For instance, a study comparing college- and high school-educated students with equal access to the Internet found inequalities stemming from education in terms of the ways the Internet was used (Robinson, DiMaggio, & Hargittai, 2003). Those with higher levels of education derive more occupational, educational, and informational benefits from Internet use than those with lower levels of education. Another study by Hargittai and Hinnant (2008) confirmed that “capital enhancing” uses of the web (e.g. using the Internet to find a job or obtain information) were more likely to be associated with a higher education.

Rice and Katz (2003), using data from a national telephone survey of Americans, contend race to no longer be associated with the digital divide between users and non-users of the Internet, despite associations with income and age. For example, a study of the information technology use of 515 children found African American males to be the least intense computer and Internet users, but African American females to be the most intense users (Jackson et al., 2008), suggesting gender to be a stronger variable than ethnicity. Another study found non-Hispanic blacks to differ from non-Hispanic whites in terms of Internet use, but the disparity disappeared at higher income levels (Brodie et al., 2001).

On the other hand, a national survey found non-Hispanic black individuals to be significantly less likely than non-Hispanic whites to look for information on the web

(Murray et al., 2003). Kreps (2006) argues that vulnerable and underserved populations, including ethnic minority groups, continue to have “limited access to relevant communication channels that deliver key health information, especially information widely available on the Internet” (p. 766). He finds these populations as cut off from relevant health information, thus increasing disparities in health care as well as associated morbidities and mortalities.

Recent research explores information behavior in communities disadvantaged by limited access to the Internet as a source of health information. Kontos, Emmons, Puleo, and Viswanath (2011) use the term *health information mavens* to describe influential lay individuals in low-income and minority ethnic communities who serve as interpersonal sources of health information. They conducted a study to examine the characteristics of information mavens as well as whether the health beliefs of information mavens align with national recommendations. Results indicated mavens are primarily female, older, moderate consumers of general media, and part of a large social network. Additionally, mavens likely have spent fewer years in the U.S. and are less acculturated in terms of language. Mavens maintain health beliefs about diet that resonate with national standards of good health, but are “no more likely than non-mavens to maintain general health beliefs that are concordant with national recommendations” (Kontos et al., 2011, p. 31). The researchers contend mavens provide an important focus of health communication campaigns, particularly interventions aimed at changing health beliefs through interpersonal sources.

Interventions integrating interpersonal-level communication and targeting low-income, minority ethnic individuals have demonstrated the use of interpersonal networks

in health campaigns, when combined with mass media, to be effective in increasing knowledge and adopting behaviors (Griffin & Dunwoody 2000; Valente & Saba 2001). One study found that a blend of mammography-related media coverage and interpersonal communication with a physician was the most effective in behavior change among a primarily low-income sample of women (Yanovitzky & Blitz 2000). Another more recent study (Song et al., 2013), found low-income pregnant women of ethnic minority not only relied primarily on family members for information, but those relying on family reported decreased pregnancy uncertainty and increased perceptions of informational support. Individuals in lower socioeconomic groups may feel more comfortable with, and have better access to, interpersonal sources of information; consequently, interventions that utilize one-on-one or word-of-mouth communication channels may be more effective in promoting behavior change.

Minority fathers with low income status and with less education may not be able to get to a computer easily to surf the web for information about caring for their child; moreover, they may not possess the ability or the motivation to find health-related information. Instead of turning to the computer for information, E/R fathers may turn to partners or family members for more information about pregnancy, childbirth, and childcare. As such, the tendency for E/R fathers with lower income, less education and who are ethnic minority to rely upon interpersonal sources of information will be greater than the tendency among fathers of higher income status, more education, and who are not ethnic minorities.

H1: (a) Low-income E/R fathers will rely more on interpersonal sources of information than high-income E/R fathers.

(b) Low-income E/R fathers will rely less on non-interpersonal sources of information than high-income E/R fathers.

H2: (a) E/R fathers with lower education levels will rely more on interpersonal sources of information than E/R fathers with higher education levels.

(b) E/R fathers with lower education levels will rely less on non-interpersonal sources of information than E/R fathers with higher education levels.

H3: (a) Ethnic minority E/R fathers will rely more on interpersonal sources of information than E/R fathers who are not ethnic minorities.

(b) Ethnic minority E/R fathers will rely less on non-interpersonal sources of information than E/R fathers who are not ethnic minorities.

An additional research question emerges given the lack of research regarding the sources of information of E/R fathers. RQ3 concerns whether potential changes in information needs based on a child's developmental stage (see RQ2) lead fathers to consult different sources of information along the health continuum. RQ4 inquires about the relationship between information source and paternal involvement.

RQ3: Do the sources E/R fathers use to obtain information about (a) pregnancy and (b) childcare change based on the stage of child development?

RQ4: Is there a relationship between source of health information and paternal involvement?

Health Information-Seeking

Information-seeking constitutes “a conscious effort to acquire information in response to a need or gap in your knowledge” (Case, 2002, p. 5). Once a need is

identified, individuals seek information to address the need or to close the proverbial knowledge gap. Accordingly, Ramirez and colleagues (2002) contend, information-seeking is directed at achieving single or multiple goals:

Communicators do not pursue information as an end to itself; information is sought as a means of achieving social, instrumental, or emotional goals, or a combination thereof. Information acquired is evaluated in accordance with the salience of goal(s), and subsequent behavior is affected by the degree to which the information aids in goal achievement. (Ramirez, Walther, Burgoon, & Sunnafrank, 2008, p. 219)

Information-seeking, therefore, can be conceptualized as a goal-directed communicative activity driving subsequent behavior associated with a topic or concern.

Health information-seeking involves acquiring information about topics or concerns associated with health. Courtright (2005) describes health-related information-seeking as “locating both health care resources and information about health issues” (para. 15). Previous studies have reported connections between health information-seeking behavior and efficacy, health knowledge and proactivity, physician visits, and confidence when talking with physicians, patient satisfaction, and treatment decision-making (Hay et al., 2008; Murray, Lo, Pollack, Donelan, Catania, White, et al., 2003; Nicholson, Gardner, Grason, & Powe, 2005; Rimal, 2001; Taha, Sharit, & Czaja, 2009; Warner & Porcaccino, 2007; Zhao & Cai, 2009).

Although the process of information-seeking itself does not guarantee healthy behaviors (Lambert & Loiselle, 2007), some studies point to the benefit of health-information-seeking on health outcomes. A third of visitors to the UK-based consumer

health website, SurgeryDoor, reported improved health conditions after visiting the site, and more than half felt the information found made them feel better about their condition (Nicholas, Huntington, Williams, & Blackburn, 2001). Information-seeking has been linked to decisions to engage in preventive behaviors and healthy lifestyles (Burbank, Reibe, Padula, & Nigg, 2002; Fahrenwald & Walker, 2003; Yu & Wu, 2005). Individuals who seek medical information online have been found to be more health conscious and more likely to engage in healthy activities (Dutta-Bergman, 2004a).

Conversely, individuals not seeking health information are less likely to engage in preventive behaviors and focus less attention on health in the mass media (Ramanadhan & Viswanath, 2004). Based on data from the 2003 HINTS, “nonseekers” tend to be individuals with lower levels of education and income status (Ramanadhan & Viswanath, 2004) and are more likely to be male, over age 65, and lacking a regular health care provider (Mayer et al., 2006). Arguing for continued monitoring of social disparities in health information-seeking, Richardson and colleagues (2012) examined 2007 HINTS data for trends in information behavior. They found education and income to be an ongoing source of social disparity in health information-seeking, with less-educated individuals being less likely to answer “yes” to the question: “Have you ever looked for information about health or medical topics from any source?” Less-educated, low-income individuals also reported reduced confidence in being able to find the health information sought. Finally, minority ethnic individuals, specifically non-Hispanic blacks and Hispanics, as well as those of low socioeconomic status indicated reduced levels of trust in doctors and healthcare professionals.

According to Dutta-Bergman (2004b), health information-seeking can be characterized by either active or passive consumption of information. Certain sources of information lend themselves to active or passive information-seeking. Active communication channels, such as interpersonal interaction, print media, and the Internet, are more likely to be used by individuals with strong beliefs who are also health conscious and information-oriented. Those who are not health oriented tend to obtain information passively through channels such as television and radio. An analysis of HINTS data from 2005 and 2007 confirmed the use of interpersonal and print media channels by people whose behaviors met health recommendations. Interpersonal and print media constitute “active” channels because they compel the use of active communication and cognition, while passive channels allow for the acquisition of information without direct effort.

With rapid advances in information communication technologies, considerable research has turned to health information-seeking on the Internet, an active channel according to Dutta-Bergman (2004b). The benefits of Internet use for health information include widespread access to health information, interactivity, and tailoring of information, as well as the potential for interpersonal interaction, social support, and anonymity (Cline & Haynes, 2001). Not surprisingly, income status and education are the strongest predictors of searching for information online (Murray et al., 2003). Individuals with more education are more inclined to communicate with their healthcare provider via e-mail and go online to look for health information (Lustria, Smith, & Hinnant, 2011).

A dearth of research exists on the information-seeking behavior of E/R fathers, regardless of income status and education level, but some insights can be gleaned from

similar research with low-income expectant women. For example, Shieh and colleagues (2010) conducted a cross-sectional study of 143 low-income pregnant women examining linkages between health information-seeking, self-efficacy, health literacy, and internal fetus health locus of control. Significant positive correlations were found between pregnant women's health information-seeking behavior and self-efficacy, as well as health information-seeking behavior and internal fetus health locus of control. Women able to obtain health information and resources felt increased confidence in their ability to handle pregnancy-related issues and increased control over the health of the fetus. A conjecture can be made, therefore, that fathers engaging in increased information-seeking may also feel an increased sense of confidence and control during pregnancy and childcare, leading them to participate more actively across stages of child development.

RQ5: Does health information-seeking behavior associate with paternal involvement?

Moreover, given the positive health outcomes associated with health information-seeking in the medical context, the researcher also wanted to gauge the impact of information-seeking on the mental well-being of the E/R father as well as his partner. Limited research exists on the relationship between health information-seeking and mental well-being. Accordingly, the following research question was addressed:

RQ6: Does health information-seeking behavior associate with (a) paternal mental health as well as (b) perceptions of maternal mental health?

Approaches to Health Information Behavior

Bates (2005) categorizes metatheoretical frameworks of information behavior into 13 approaches: historical, constructivist, constructionist/discourse analytic, philosophical

analytic, critical theory, ethnographic, socio-cognitive, cognitive, bibliometric, physical, engineering, user-centered design, and evolutionary. Each of these approaches operates as a “fundamental set of ideas about how phenomena of interest in a particular field should be thought about and researched” (Bates, 2005, p. 2). The current investigation privileges a socio-cognitive approach to health information behavior, contending that the ideas, beliefs, and motivations of a father, in conjunction with the socio-cultural environment in which he lives and interacts with others, influence health information behavior. A socio-cognitive approach requires a transdisciplinary emphasis on theoretical constructions characteristic of both public health (i.e. social ecology) and health communication (i.e. self-efficacy and uncertainty management) disciplines in understanding paternal health information behavior. Blending public health and health communication scholarship in studying health information behavior allows researchers to examine the influence of informational messages on at-risk populations, such as low-income fathers, with a goal to improve communication that promotes the health of the father, mother, child, and family (Kreps & Maibach, 2008).

Public health: Social ecology. The social ecological perspective surfaced in public health research in response to a history of health campaigns and promotional programs targeting individual health habits and lifestyles rather than environmental factors, such as access to resources and community interventions (Stokols, 1992). Social ecology “gives greater attention to the social, institutional, and cultural contexts of people-environment relations than did earlier versions of human ecology, which were more closely oriented to biological processes and the geographic environment” (Stokols, 1992, p. 7). The approach assumes: (a) health and well-being are influenced by complex

human environments, comprised of both physical and social environments; (b) health promotion efforts should aim to address human behavior in the context of both environments; (c) human environments can be studied at multiple levels, from individuals to small groups to populations; and (d) concepts from systems theory can be helpful in understanding the dynamic relationship between individuals and their environments. Accordingly, initiatives to promote health must address the interplay between people and their physical and social environments rather than focusing solely on the health-promotive behaviors of individuals.

Derived from social-ecological models of health, the People & Places Framework recognizes the importance of health communication in creating change among people and places (Maibach, et al., 2007). In *people-based fields of influence*, communication is used to provide important information to promote or maintain health to individuals, social networks, communities, and populations. Examples of people-based communication platforms include text-messaging, small-group counseling sessions, social media, and civic journalism. In *place-based fields of influence*, communication can operate locally (e.g., neighborhood or town) and distally (e.g., nation) to cultivate change through media and policy advocacy. Examples of place-based communication platforms include mass media and community organizing efforts to ban smoking in public places or limit soda sales in schools.

In addition to examining messages targeting people- and place-based spheres of influence, some studies take into account the socio-ecological contexts in which individuals acquire information. Williamson and Manaszewicz (2002) discovered ecological factors such as age, ethnicity, residence, disease stage, and physical health

promoted or impeded information-seeking about breast cancer. Using Pew survey data, Zhang and Kudva (2012) concluded contextual factors such as age, income, race, population density, and education to influence information needs and channel selections (e.g., asking friends and family members, using the Internet). Calvert, Aidala, and West (2013) found Internet health information-seeking behavior to be predicted by being above the poverty line, having fewer neighbors, being less educated, and having less than a high-school education. The findings represent the first study in which lower levels of education predicted increased Internet use for health information.

Two primary models of information behavior grounded in social ecological theory have emerged in the past two decades. Williamson (1998; Figure 1) developed an ecological model of information use that represents the interaction among information behavior (seeking, acquisition, and use), influential variables (personal characteristics, socio-economic circumstances, values, lifestyles, and physical environments), and information sources (intimate personal networks, wider personal networks, mass media, and institutional sources). Notably, Williamson distinguishes between purposeful and incidental information acquisition in social and physical environments, suggesting that context plays an important role in the degree to which people (a) obtain information unexpectedly and (b) directly search for information. Kari and Savolainen's (2003; Figure 2) contextual model of Web information-seeking suggests the act of searching for information on the Internet is nested in layered contexts, ranging from the individual's lifeworld in the most abstract sense (i.e., a person's perceived reality), to the specific nature of the Web in the most concrete sense (i.e., websites, webpages, URLs, and HTTP). The relationship between the individual and use of the Internet is mutualistic: a

person's position in the world compels Web searching and, in turn, Web searching influences the person's life.

Particularly given the maternal and child health outcomes associated with structural definitions of paternal involvement, which emphasize contextual variables such as relationship status and residence, it is worthwhile to explore the influence of a father's physical and social environment on his health information behavior. The following research question is proposed:

RQ7: Do contextual factors (age, income, employment, education, relationship status, ethnicity, number of children, relational closeness) motivate paternal information-seeking?

Communication: Self-efficacy. Bandura (2004) defines perceived self-efficacy as the belief "that one can exercise control over one's health habits" (p. 144). He contends self-efficacy provides a focal determinant in health behavior because it not only influences behavior directly, but also influences associated variables indirectly, such as goals and outcome expectations. Bandura argues health communication campaigns should target self-efficacy beliefs because the beliefs govern the transition from perceived risk into action, particularly in the form of information-seeking, as well as from acquired knowledge to behavior change (Bandura, 2004; see also Rimal 2000, 2001). Accordingly, several theoretical models used in health communication research contain efficacy variables, such social cognitive theory (Bandura, 1986), the health belief model (Champion & Skinner, 2008; Hochbaum, 1958; Rosenstock 1960, 1974), and the risk-perception-attitude framework (Rimal & Real, 2003).

The central question comprising an individual's beliefs—"Can I do something?"—is a question of self-efficacy. Wilson's (1997) model of information behavior characterizes self-efficacy as a mechanism activating further information-seeking. In the model, self-efficacy is believed to influence one's confidence in the ability to access a source or carry out a search for information.

The current investigation examines efficacy in health information behavior (a) to assess the strength of the construct in a new domain, i.e., the health information-seeking of E/R fathers, (b) to determine if efficacy type (i.e., paternal, technological, and information-seeking) exerts differential impacts on health information behavior, (c) determine if efficacy beliefs influence paternal involvement.

RQ8: Does efficacy (paternal, technological, information-seeking) motivate paternal information-seeking?

Communication: Uncertainty management. Information-seeking has been linked to a state of uncertainty in past research (see Wilson, Ford, Ellis, & Foster, 2002), and communication is conceptualized as the fundamental social process in uncertainty management (Brashers, Neidig, & Goldsmith, 2004). For example, Kulhthau (1993) proposes uncertainty to be a basic construct of information-seeking, serving as a catalyst in the process due to the anxiety and lack of confidence it produces. In each stage of Wilson's (1999) problem-solving model, "individuals are seen as engaging in interaction episodes with information sources (including people and other sources, as well as information retrieval systems) to resolve their uncertainty" (Wilson et al., 2002, p. 705). In this way, a sense of uncertainty about a gap in knowledge drives communication with others to seek out—or perhaps avoid—relevant information.

Resolution of uncertainty may not always mean a reduction in uncertainty (Case, Andrews, Johnson, & Allard, 2005); rather, individuals appraise the consequences of uncertainty and related emotional responses and make decisions about how to manage uncertainty (Brashers, Neidig, & Goldsmith, 2004). “Appraisals and corresponding emotions motivate behavioral and psychological actions” (p. 306) such as seeking or avoiding information in the context of uncertainty management. In coping with uncertainty, individuals may prefer feelings of ambiguity or confusion rather than certainty or clarity (Bradac, 2001).

The current investigation examines the influence of uncertainty in prompting or dissuading information searches by E/R fathers. To manage uncertainty, fathers may seek or avoid information about preparing for childbirth or caring for a child. The following question is posed:

RQ9: Does paternal uncertainty motivate paternal information-seeking?

Methods

Recruitment

After IRB approval was obtained from an urban, public university in the Midwest, study recruitment commenced October 1, 2013 and was completed January 15, 2014.

Eligibility criteria for participation stipulated individuals must be an expectant father of biological child (*expectant*) or a father with a youngest biological child from birth to age 3 (*recent*). Survey completion required participants to speak English, read at an 8th-grade level or higher, and be 18 years of age or older. Women, minors, and fathers with a youngest biological child age 4 or older were excluded from recruitment. Three recruitment pathways were used to maximize the number of E/R fathers participating in the study. Participant compensation was funded in part by a \$200 award from the Amelia Lucas Trust Fund, sponsored by the University of Milwaukee Amelia Lucas Trust Fund.

Pathway 1: Milwaukee low-income zip codes and community-based referrals.

The Employment and Training Institute at the University of Wisconsin Milwaukee (ETI, 2014) conducted a socio-economic analysis of issues facing families in Milwaukee's poorest nine zip codes: 53204, 53205, 53206, 53208, 53210, 53212, 53216, 53218, and 53233. Results indicated a majority of families living in the zip codes had annual household incomes below or near poverty. The poorest neighborhood in Milwaukee, zip code 53206, reported an average income for income tax single filers of \$17,600 in 2011 (Quinn & Pawasarat, 2012). Additional concerns raised by the ETI include:

... Concentration of single parents in the city, a 25-to-1 inner-city job gap between job seekers and job openings, continuing effects of the foreclosure crisis as seen in city blocks with multiple houses up for sheriff sales, failure of the state-

subsidized child care program to monitor or emphasize early childhood education, “hit and run” accident rates approaching 50% on the near south side, and incarceration rates reaching 60% for African American males of prime working age on the north side. (ETI, 2014, “2009 Indicators for High-Poverty Zip Codes,” para. 2)

Given poverty levels and related socio-economic issues faced by children and families faced living in the nine zip codes, the researcher felt compelled to focus recruitment attention on E/R fathers living in the neighborhoods identified by the ETI report.

Accordingly, participants were recruited through contacts of the Milwaukee Health Department’s (MHD) Men’s Health Referral Network. The network comprises individuals from outreach agencies in the Milwaukee area invested in improving health and access to services for low-income men living in the poorest zip codes in the central city. Agencies include: the MHD Men’s Health Center, located at Keenan and Northwest Health Center in Milwaukee, which offers an ongoing support group for E/R fathers; My Father’s House, Inc., a social service organization committed to building strong and responsible fathers; and Milwaukee Rescue Mission, providing short- and long-term assistance to homeless men, women, and children. The network meets the first Monday of each month from 1 p.m. to 3 p.m. at alternating community agency locations. At the September 2013 meeting, the researcher announced recruitment commencement and shared the details of the study with the network. With the help of the network, participants attending a workshop at the Northside YMCA of Metropolitan Milwaukee on October 10, 2013 and My Father’s House on November 7, 2013 were recruited.

Additionally, on Friday, October 4 and Saturday, October 5, 2013, the researcher staffed a booth at the 8th Annual Milwaukee Fatherhood Summit, sponsored by the Milwaukee Social Development Commission and held at Destiny Youth Plaza. The two-day summit is organized by the Milwaukee Fatherhood Initiative, convened in 2006 by the city's mayor, Tom Barrett, to address father absence in the Milwaukee community (MFI, 2012). To increase paternal involvement, responsibility, and commitment to childcare, the MFI focuses on six areas: (a) driver's license recovery; (b) child support debt reduction; (c) media/public relations campaign; (d) education; (e) men's health; (f) annual summit organization. The researcher's booth was stationed in the summit's health fair. Recruitment flyers and a poster (Figure 3) were printed and placed in a visible area next to the booth. The research asked summit attendees walking by the booth if they were interested in taking a survey for soon-to-be or new dads. Details of the study, including compensation, were explained more fully for interested individuals.

A 40-item paper survey, including a consent form, was distributed to participants attending community agency workshops and the Fatherhood Summit. Walgreens gift cards of \$5 were distributed on-site to individuals who completed the surveys. The following message was included with the gift card: "Thank you for participating in the Fatherhood survey. If you have any questions about the survey or your compensation, please contact Emily Cramer at emcramer@uwm.edu."

Pathway 2: CRTNET listserv and researcher contacts. A recruitment message was posted to the listserv of the Communication, Research, and Theory Network (CRTNET), managed by the National Communication Association, on October 8, 2013 (Figure 4). On October 7, 2013, the researcher also recruited participants by posting a call

for participants on her Facebook page (Figure 5). A link to a Qualtrics online survey, including a consent form, was included in both recruitment messages. The online survey contained the exact same content as the paper survey distributed via pathway 1. In a separate survey (link provided at the end of the study), participants were given the opportunity to enter a raffle to win one of four \$25 Walgreens gift cards. The researcher randomly selected four survey participants and sent the gift cards in the mail along with a thank-you message.

Pathway 3: Contacts of UWM undergraduate students. A recruitment message was sent to students in both Fall 2013 and Winterim 2013 undergraduate communication courses via course instructors. The recruitment message asked students who met eligibility criteria to complete the survey or to forward to a personal contact(s) who met the study eligibility criteria (Figure 6). A link to the online survey, including consent form, was included in the recruitment message. Upon completion of the survey, participants clicked on a link to a separate survey, where the student's name was entered by the personal contact so the student could receive extra credit. Extra credit was awarded at the discretion of the course instructor. Fall 2013 participants were also given the opportunity to enter the raffle to win one of four \$25 Walgreens gift cards; Winter 2014 participants, recruited at a later time to increase the study sample size, could win one of two \$25 Walgreens gift cards.

Measures

Demographic information and use of technology. Participants described their age, relationship to partner, number of children, marital status, ethnicity, income level, employment status, and education (see Appendix for a complete version of the survey).

Participants reported cell-phone ownership, access to the Internet, and how frequently they use each technology.

Information needs. To get a sense of the topics of interest to E/R fathers, the survey included the following prompt: “Below are some topics of information about caring for your child, childbirth, or your partner’s pregnancy. What topics are you interested in learning more about? Place a check mark next to the topics below.”

Participants were able to check as many items as they wanted from a list of 20, and could also write in additional topics. Topics included: “Signs and symptoms of an abnormal pregnancy for my partner,” “How to help my partner during childbirth” and “Jobs in my community.” The list was adapted from a similar measure generated by MHD nurses and used in previous work with low-income expectant women (Song et al., 2013).

Sources of information. Participants rated how often they used the following sources of information related to (a) pregnancy and childbirth and (b) caring for a child (five-point Likert scale, 1 = never, 5 = always): partner/baby’s mother, doctors/nurses, friends, church and other community resources, Internet, TV/movies/magazines, books, and other (adapted from Song et al., 2013). Measuring information sources at two phases (pregnancy/childbirth and childcare) arose from the rationale that sources of information may change for E/R fathers between a partner’s pregnancy and after the child is born. Higher scores indicated increased reliance on a source for information.

Information-seeking behavior. Maibach and colleagues' (2006) measure of information-seeking behavior ($\alpha = .73$) was adapted as a four-item measure, including statements such as “I don’t have time to bother learning a lot of information about pregnancy or child care” and “I make a point to read/watch stories about pregnancy or

child care.” Participants rated the extent to which they agreed with the statements using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores signified increased information-seeking behavior.

Paternal involvement. To assess perceived levels of paternal involvement ($\alpha = .83$), the researcher developed a measure asking participants to indicate on a ten-point scale (1 = not involved, 10 = totally involved) the degree to which they felt involved in their partner's pregnancy or the care of their child. Higher scores reflected increased levels of paternal involvement.

Paternal satisfaction and confidence. Using a scale similar to paternal involvement, a one-item measure gauged paternal satisfaction with involvement in pregnancy in childcare: “Please rate how happy you are with your involvement in your partner's pregnancy or the care of your child” (1 = not happy, 10 = totally happy) and a two-item measure assessed confidence ($\alpha = .78$) in both having and raising a healthy baby (1 = not confident, 10 = totally confident).

Paternal engagement. The “Who Does What?” scale developed by Cowan and Cowan (1998) measured paternal behavioral engagement (a) during pregnancy ($\alpha = .82$) and (b) when caring for the child ($\alpha = .87$). Each participant assessed the division of pregnancy and child-care tasks between himself and his partner. Examples of tasks included going to doctor visits as well as feeding and bathing the baby. For each task, participants rated their engagement using a nine-point scale (1 = My partner does it all, 5 = We both do this about equally, 9 = I do it all). Higher scores indicated increased levels of paternal engagement at both stages of child development.

Perceived stress and maternal stress. Cohen et al.'s (1983) perceived stress scale measured how frequently participants experience stressful thoughts and feelings. The measure includes items such as, “In the past month, how often have you ... been upset because of something that happened you did not expect?” and “... felt that you were not able to control the important things in your life?” which participants rated on a five-point Likert scale (0 = never, 4 = very often). Higher scores reflected increased levels of perceived stress ($\alpha = .83$). The same measure was adapted to measure participants’ perception of the stress experienced by the mother of the baby ($\alpha = .88$), i.e. “In the past month, how often has your partner ... been upset because of something that happened she did not expect?”

Mental health and maternal mental health. Four of the five items of the Mental Health Inventory-5 scale (Ware, Kosinski, & Gandek, 2000) measured the mental health status of the participant ($\alpha = .78$) as well as his perceptions about the mental health status of his partner ($\alpha = .76$). The following question was posed to participants: “In the past month, how have things been for [you/your partner]?” Responses consisted of: “I/She was a happy person,” “[I/She] felt calm and peaceful,” “[I/She] was a very nervous person,” and “[I/She] felt downhearted and blue.” Higher scores reflected increased mental health challenges among E/R fathers and their partners.

Relational closeness. Perceived closeness to the mother of the baby was measured using four items developed by the researcher: “I feel close to the mother of my baby,” “The mother of my baby and I talk to each other a lot,” “I relate to the mother of my baby well,” and “The mother of my baby and I get along.” The measure demonstrated

good internal consistency ($\alpha = .96$) and higher scores reflected an increased sense of closeness E/R fathers perceive with partners.

Efficacy variables. The following measures examined iterations of efficacy associated with information-seeking, being a father, and use of technology.

Information-seeking efficacy. Four statements adapted from Song et al. (2013) measured perceived efficacy of information seeking ($\alpha = .76$). Statements included “I don’t know how to search for information about caring for my child” and “I feel confident searching for information about my child.” Participants rated each statement using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Higher scores indicated increased confidence in ability to obtain information about childcare.

Paternal efficacy. Adapted items from Johnston and Mash's (1989) parental efficacy measure was used to assess paternal efficacy ($\alpha = .63$). Participants rated the extent to which they agreed with four statements: “I would make a fine model for a new father to follow in order to learn what he would need to know to be a good parent,” “Being a parent is manageable and any problems are easily solved,” “I honestly believe I have all the skills necessary to be a good father to my child,” and “Being a good father is reward in itself.” Higher scores indicated increased efficacy beliefs among E/R fathers about parenting and childcare.

Technology efficacy. Text-message efficacy ($\alpha = .67$) and Internet efficacy ($\alpha = .70$) also were measured using scales adapted for each technology. For example, text message efficacy consisted of the following items: “I rarely have trouble using text message” and “I feel confident using text message.” The adapted efficacy measures have

been used in previous research of a similar nature with men at risk for prostate cancer (McRoy, Owais, Cramer, & Song, 2013).

Paternal uncertainty. Participants responded to three questions to assess perceived level of uncertainty regarding pregnancy and child care ($\alpha = .84$): “I have unanswered questions about caring for my child or my partner's pregnancy,” “There are many pregnancy-related issues that I am not sure about,” and “I don't feel that I have enough information about pregnancy or child care.” The uncertainty instrument has demonstrated adequate internal reliability in previous research (see Song et al., 2013). Higher scores signaled increased levels of paternal uncertainty among E/R fathers.

Text4Baby and future study. Participants reported use and familiarity with Text4Baby. They received the opportunity to add contact information for a follow-up study testing the efficacy of text-messaging in disseminating information to E/R fathers.

Sample

A total of 216 participants were recruited for the survey, but the sample was ultimately reduced to 186 ($N = 186$; $n_{\text{paper}} = 33$, $n_{\text{online}} = 153$) due to incomplete survey responses or study eligibility criteria. The average age of the total sample (see Table 1) was 30.1 ($SD = 6.3$), with 62% identifying as White, followed by Black (20%), Hispanic/Latino (6%), Asian (6%), other (4%), and 3% declined to report ethnicity. Total children in the household averaged 1.7 ($SD = 1.2$); total children included a partner's pregnancy (36% of participants were expecting a child with their partner). Most of the E/R fathers were married or living with their partner (83%) and 7% were in a committed relationship, but living apart. The remainder were either divorced or separated (3%) or not in a romantic relationship (7%). A majority of the sample was employed either full-

time (74%) or part time (17%) and 57% had completed a college degree (2 or 4 year) or graduate program. Household income ranges were fairly spread out across the sample, with 37% reporting less than \$39,000 per annum, 36% reporting between \$40,000 and \$79,999, and 27% reporting incomes of \$80,000 and above. Almost 100% of E/R fathers owned cell phones, with many reporting daily cell phone use (93%). A majority of the sample also used the Internet each day and could access the Internet on their phones. Increased use of Internet was positively correlated with using the Internet for information about pregnancy, $r(181) = .28, p < .01$ and childcare, $r(180) = .17, p < .05$. The total sample indicated high levels of paternal satisfaction ($M = 8.74, SD = 1.96$) and confidence ($M = 9.19, SD = 1.24$).

Low-income demographics. Thirty-six percent of the sample (68 individuals) reported household incomes of less than \$40,000 per year. Given the average number of children (about 2) and the majority of the larger sample living together or married (83%), the researcher examined federal poverty guidelines for a household of four (father, mother, and two children). An annual income of \$40,000 for a household of four is 170% of the 2013 Federal Poverty Guidelines (Families USA, 2013). The Census Bureau considers below 200% of poverty as “in poverty” (United States Census Bureau, 2013). As a result, household incomes of <\$40,000 were characterized as low-income.

Demographics for the low-income group varied slightly from the total sample in terms of age, total children, and use of technology. The average age was 27.0 ($SD = 6.4$) and number of children nearly reached two ($M = 1.9, SD = 1.6$). As with the total sample, 36% reported expecting a child with their partner. A majority of the low-income sample owned a cell phone (99%), with 87% reporting daily use. Three quarters (75%) of the

sample used the Internet daily, with access at home (88%) or via a cell phone (84%). Similar to the total sample, frequency of Internet use was positively correlated with going to the Internet for information about pregnancy, $r(64) = .35, p < .01$ and childcare, $r(64) = .29, p < .05$. The low-income sample indicated high levels of paternal satisfaction ($M = 8.55, SD = 2.35$) and confidence ($M = 9.39, SD = .96$).

Slightly greater demographic variation was observed with ethnicity, education, employment and relationship status. A majority of the low-income sample was comprised of individuals from ethnic minority groups such as Black (35%), Hispanic/Latino (10%), Asian (9%) and other (4%). Thirty-seven percent of the sample reported no, some or completed high school/GED as the highest level of education achieved, compared to 31% with some college, 24% with a college degree, and 6% with a graduate degree. Forty-seven percent of the sample reported being in part-time, other paid work, or unemployed. Finally, considerably more participants (21%) from the low-income sample reported being divorced, separated, or not in a committed relationship with their partner.

Demographics for higher-income individuals can be viewed in Table 3.

Information Sharing

A goal of the researcher was to keep the Men's Health Referral Network apprised of study recruitment and preliminary results. Accordingly, a formal presentation was given at the December 11, 2013 network meeting, held at St. Joseph Hospital in Milwaukee. Presentation objectives included: (a) providing background information and research questions; (b) describing methods; (c) presenting preliminary findings; (d) acknowledging contributors; (d) requesting continued participation; and (d) describe information dissemination plans (Cramer, 2013).

Results of data collection also will be shared informally with Text4Baby external evaluators via bi-monthly conference call and a copy of the current investigation will be sent to Text4Baby.

Data Analysis

Data collected via paper surveys was entered manually into Excel and then combined in Excel with exported data from the online survey program. Combined data was subsequently uploaded to SPSS (version 22) for analysis. To answer research questions 1 and 2, the researcher ran a frequency analysis of the 21 information topics used to gauge information needs of E/R fathers. For RQ1, the SPSS data file was split based on income (1 = low, 2 = high) and topics with the highest frequencies were compared by income status. Each topic frequency was subsequently divided by the number of participants in each income group (low or high) to obtain a percentage of the number of E/R fathers interested in the topic based on income. A test of binary proportions also was conducted to evaluate significant differences between the two income groups (Table 4). For RQ2, the data file was split based on whether participants were expecting a child with a partner (0 = no, 1 = yes). Topics with the highest frequencies were compared by partner pregnancy status. Each topic frequency was divided by the number of participants in each group (expectant or recent) to obtain a percentage of the number of E/R fathers interested in the topic based on partner expectancy. A test of binary proportions also was conducted to evaluate significant differences between the two groups (Table 5).

For hypotheses 1, 2 and 3, descriptive analyses were first conducted to observe means and standard deviations for each source of information about (a) pregnancy and

(b) childcare. Then, means were compared using independent sample *t*-tests based on income (1 = low, 2 = high), education (1 = no college degree, 2 = college degree) and minority status (1 = non-minority, 2 = minority) groups. Each hypothesis contained two components: (a) *t*-tests comparing means for interpersonal sources (e.g. partner/the baby's mother, healthcare professionals, family, friends, and church and community resources) and (b) *t*-tests comparing means for non-interpersonal sources (e.g. Internet, books, Internet, TV/movies/magazines). Significant *t*-test results were reported at $p < .05$. Research question 3 also used independent sample *t*-tests based on whether participants were expecting a child with a partner (0 = no, 1 = yes). *t*-tests were used to evaluate mean differences in the use of information sources between a partner's pregnancy and childcare.

For research questions 4-6 and 9, bivariate correlations detected associations between paternal involvement (using both self-reported paternal involvement as well as paternal behavioral engagement) and sources of information (RQ4), seeking behavior (RQ5), paternal/partner mental well-being (RQ6), and paternal uncertainty (RQ9). Significant results were reported at $p < .05$ or below. Correlation tables are provided for sources of information (Table 9) as well as all composite variables of the study (Tables 10 and 11).

For research questions 7 and 8, multiple regression was conducted to assess the influence of contextual factors (RQ7) as well as efficacy (RQ8) on health information seeking. For multiple regression, health information seeking operated as the criterion variable and predictor variables included income, employment, education, relationship

status, ethnicity, number of children, and relational closeness (RQ7) and paternal, technological, and information-seeking efficacy (RQ8).

Results

Information Needs

RQ1 inquired about the information needs of low-income E/R fathers. Results indicated the three topics of greatest interest among fathers with incomes below \$40,000 ($N = 68$) were (a) being a responsible father ($n = 42$), (b) caring for a child as he or she grows up ($n = 39$), and (c) how to help a partner during pregnancy ($n = 39$). The topics of least interest were HIV and other STDs ($n = 6$), adoption or abortion ($n = 7$), smoking and drug use during pregnancy ($n = 12$), and child support case review ($n = 12$).

Compared to high-income E/R fathers, participants in the low-income group indicated greater overall interest more of the information topics, as depicted in Figure 7.

Particularly, the low-income sample reported greater interest in: HIV/STDs; adoption or abortion; smoking and drug use during pregnancy; child support case review; government and community resources; birth control; jobs; calculating due dates; understanding medical terms; where to find inexpensive cribs and car seats; what to expect during labor and delivery; helping a partner during pregnancy; and being a responsible father. E/R fathers in the high-income group reported greater comparative interest in: caring for a child; caring for a newborn; helping a partner during childbirth; signs of an abnormal pregnancy; depression; and what to expect during doctor and home visits. A test of binary proportions revealed significant differences among the two income groups only in the topic areas of HIV/STDs, $d = -.20$, $p < .05$, and child support, $d = -.11$, $p < .05$ (Table 4).

RQ2 explored potential differences in topics of interest based on stage of child development. Specifically, the researcher wanted to observe differences in information needs between fathers who were expecting a child with a partner ($N = 65$) and those

whose child already had been born ($N = 118$). Results demonstrate changes in informational needs between a partner's pregnancy and childbirth. The three topics of greatest interest among expectant fathers were (a) helping a partner during pregnancy ($n = 49$), (b) helping a partner during childbirth ($n = 40$), and (c) signs of an abnormal pregnancy ($n = 40$). Among recent fathers, the three topics of greatest interest were (a) caring for a child as he or she grows up ($n = 74$), (b) being a responsible father ($n = 68$), and (c) caring for a newborn ($n = 55$). Both groups were least interested in information about HIV/STDs. Compared to recent fathers, expectant fathers were interested in more survey topics overall (Figure 8): HIV/STDs; adoption or abortion; smoking during pregnancy; DNA testing; government and community resources; birth control; calculating due date; understanding medical terms; what to expect during doctor and home visits; signs of an abnormal pregnancy; what to expect during labor, delivery, and childbirth; caring for a newborn; and how to help a partner during pregnancy. Recent fathers tended to be more interested in: jobs; where to find inexpensive cribs and car seats; depression; being a responsible father; and caring for a child as he or she grows up. A test of binary proportions revealed significant differences only in the topic areas of HIV/STDs, $d = -.22$, $p < .05$ (Table 5).

The researcher suspected paternal uncertainty to play a role in the breadth of information topics desired by expectant fathers. Fathers who are preparing for a baby may feel less certain about what to expect and correspondingly may desire information covering a range of topics. Accordingly, supplemental correlation analysis was conducted to examine potential associations between expectant status and paternal uncertainty.

Results indicated expectant fathers to be significantly more uncertain, $r(181) = .17, p < .05$, than fathers whose children had been born.

Sources of Information

Hypotheses 1-3 posited demographic factors of income (H1), education (H2), and ethnicity (H3) determine the sources of information primarily relied on by E/R fathers for information about pregnancy and childcare (Tables 6-8). Across the sample—for all income groups, education levels, and minority status—participants reported the partner/the baby’s mother to be the source consulted most for information about pregnancy and childcare, followed by health professionals. The only exception to the trend was among non-minority E/R fathers, who indicated a partner to be a primary source of information about pregnancy ($M = 4.15, SD = 1.07$), followed by the Internet as a secondary source of information ($M = 3.76, SD = 1.08$).

H1a and H1b predicted fathers with lower income to rely more on interpersonal sources of information and less on non-interpersonal sources than high-income fathers. Independent sample *t*-tests (low income, high income) were conducted to compare means between low-income and high-income fathers for information sources consulted during pregnancy and after the birth of a child. No significant differences were detected for income except for relying on a partner/the baby’s mother for information about pregnancy, $t(178) = -2.21, p < .05$. E/R fathers in the low-income group ($M = 3.89, SD = 1.17$) were significantly less likely to rely on a partner for information about pregnancy than fathers in the high-income group ($M = 4.22, SD = .96$). H1a and H1b were not supported due to an overall lack of significant difference among income groups as to sources consulted for information.

H2a proposed E/R fathers with lower education levels to rely more on interpersonal sources of information than E/R fathers with higher education levels; H2b proposed E/R fathers with lower education levels to rely less on non-interpersonal sources of information than more educated E/R fathers. The sample was grouped into participants who had not received a college degree ($n = 80$, less education) and those who had received a college degree or beyond ($n = 105$, more education). For H2a, independent sample t -tests detected a significant difference in reliance on a partner for information during pregnancy, $t(180) = -1.90, p < .05$ (one-tailed), with fathers with lower education ($M = 3.94, SD = 1.16$) relying less on a partner for pregnancy information than fathers with higher education ($M = 4.23, SD = .94$). H2a was not supported. For H2b, t -tests indicated significantly reduced reliance among less-educated E/R fathers on the Internet, $t(182) = -2.91, p < .01$, and books, $t(181) = -2.56, p < .05$, than more-educated fathers for pregnancy information. Less-educated E/R fathers ($M = 2.55, SD = 1.28$) also used books, $t(176) = -2.50, p < .05$, to a lesser extent than more-educated fathers ($M = 3.00, SD = 1.13$) for information about childcare. Accordingly, H2b was supported.

H3a predicted ethnic minority E/R fathers to rely more on interpersonal sources of information than E/R fathers who did not identify as ethnic minorities. The sample was categorized based on identification as White/Caucasian ($n = 115$, dominant) or Black, Hispanic/Latino, and Asian ($n = 66$, non-dominant). Results of independent sample t -tests indicated ethnic minority E/R fathers to consult individuals from their church or community significantly more than ethnic majority fathers for information about pregnancy, $t(178) = 2.45, p < .05$, and childcare, $t(177) = 3.04, p < .01$. Addressing H3b, non-dominant ethnic fathers consulted the Internet to a lesser extent than dominant ethnic

fathers for information about pregnancy, $t(178) = -3.37, p < .01$, and childcare, $t(177) = -2.16, p < .05$. H3a and H3b were supported due to increased reliance on interpersonal sources of information within the community by ethnic minority E/R fathers as well as decreased use of the Internet compared to fathers who were not ethnic minorities.

RQ3 examined whether the sources E/R fathers use to obtain information differed based on expectancy status. Independent sample t -tests were used to evaluate mean differences between participants expecting a child with a partner (0 = no, $n = 118$; 1 = yes, $n = 65$) in the use of information sources consulted about pregnancy and childcare. Significant differences were detected in two areas. Fathers whose children already had been born ($M = 3.48, SD = 1.10$) were significantly less likely to rely family members for information about pregnancy than those expecting a child ($M = 3.85, SD = 1.08$), $t(178) = -2.17, p < .05$. Moreover, recent fathers ($M = 4.38, SD = .80$) were significantly more likely to rely on a partner for information about childcare than expectant fathers ($M = 4.09, SD = 1.12$), $t(177) = 2.00, p < .05$.

RQ4 explored whether source of health information associates with paternal involvement among E/R fathers. Bivariate correlations were used to observe associations between paternal involvement (using both self-reported paternal involvement as well as paternal behavioral engagement during pregnancy and childcare) and health information sources (see Table 9). Of the total sample, significant associations were detected between self-reported paternal involvement and consulting a partner, $r(182) = .26, p < .01$, doctors/nurses, $r(181) = .29, p < .01$, and books, $r(181) = .25, p < .01$, during pregnancy as well as relying on a partner, $r(179) = .29, p < .01$, doctors/nurses, $r(181) = .23, p < .01$, and books, $r(176) = .22, p < .01$, for information about childcare. Paternal

engagement during pregnancy was highly correlated with relying on the following sources for information about pregnancy: family, $r(177) = .15, p < .05$; church and community members, $r(179) = .25, p < .01$; the Internet, $r(180) = .24, p < .01$; TV, movies, and magazines, $r(179) = .29, p < .01$; and books, $r(179) = .28, p < .01$. Paternal engagement during childcare was significantly linked to consulting a partner, $r(174) = .17, p < .05$, as well as doctors/nurses, $r(176) = .15, p < .05$, for information about childcare.

Within the low-income group, significant associations persisted between paternal involvement and relying on doctors/nurses for information about pregnancy, $r(65) = .32, p < .01$, as well as relying on a partner as a source of information about childcare, $r(65) = .34, p < .01$. Individuals who used TV, movies, and magazines for information about pregnancy also tended to report more engagement during pregnancy, $r(63) = .31, p < .05$. All other correlations observed among the total sample did not persist in the low-income group.

Information-Seeking Behavior

RQ5 examined the association between paternal health information-seeking behavior and involvement. Significant correlations were observed within the total sample between paternal information-seeking and self-reported paternal involvement, $r(179) = .33, p < .01$, as well as paternal engagement during pregnancy, $r(177) = .30, p < .01$. A similarly strong correlation was detected within the low-income sample between paternal information-seeking and involvement, $r(64) = .32, p < .01$.

RQ6 inquired about the relationship between paternal health information-seeking behavior and paternal mental health as well as perceptions of maternal mental health.

Among the total sample, information-seeking and mental health were strongly and negatively correlated, $r(178) = -.20, p < .01$, such that E/R fathers who sought health information were less likely to experience mental health challenges. The association did not persist in the low-income sample. Correlations between paternal information-seeking and perceptions of maternal mental health were not significant in both the total sample and low-income group.

RQ7 used multiple regression to determine if contextual factors such as age, income, employment, education, relationship status, ethnicity, number of children, or relational closeness motivate paternal information-seeking. The above-mentioned contextual factors were entered stepwise into a regression model, with paternal health information-seeking behavior as the dependent variable. Results indicated perceptions of relational closeness to be the only unique predictor of paternal health information-seeking behavior, $\beta = .19, t(142) = 2.39, p < .05$, removing the influence of the other contextual variables.

For additional insight into the association between relationship status and relational closeness, a subsequent bivariate correlation analysis was conducted. Not surprisingly, a strong positive correlation existed between relationship status and relational closeness, $r(175) = .46, p < .01$. While the correlation between relational closeness and health information-seeking behavior also was strong, $r(176) = .27, p < .01$, the association between relationship status and health information-seeking was not significant, $r(172) = .06, ns$.

RQ8 ascertained if efficacy (paternal, technological, information-seeking) motivates paternal information-seeking. Information-seeking, technology (text and

Internet), and paternal efficacy variables were entered into a stepwise model with health information-seeking as the criterion variable. Results showed paternal efficacy to be the sole predictor of health information-seeking, $\beta = .30$, $t(169) = 4.05$, $p < .001$, removing the influence of other efficacy variables.

RQ9 examined whether paternal uncertainty motivated paternal health information-seeking behavior. Bivariate correlations indicate a strong, positive relationship between information-seeking and uncertainty, $r(180) = .16$, $p < .05$, suggesting uncertainty about being a father to be a substantial motivator to seek information about pregnancy and childcare. The relationship between the two variables became weaker and non-significant within the low-income group.

Discussion

The current investigation provides the first step in examining the health information behavior of low-income E/R fathers. To date, no available studies gather data about paternal information needs, sources of information, and seeking behavior with a particular focus on low-income fathers.

Theoretical Implications

Health information behavior and paternal involvement. The single-most important contribution of the study considers the significant association among health information-seeking behavior and a father's perceptions of involvement (paternal involvement) as well as reported engagement in pregnancy tasks (paternal engagement). Findings support the relationship between information-seeking and behavioral, attitudinal, and structural dimensions of paternal involvement. The relationship between health information-seeking and involvement persisted in the low-income sample, suggesting the strength of the relationship transcends income status.

The findings highlight information-seeking as a key *behavioral* dimension of paternal involvement (Saracho, 2007); an ongoing task associated with expecting or raising a child involves searching for information. Accordingly, communicative acts in the form of sending, receiving, encoding, and decoding health messages to gain information can signal increased or decreased levels of paternal involvement. Certain information sources relate to paternal involvement and engagement more than others. E/R fathers consulting partners/the baby's mother, healthcare professionals, and books for information about pregnancy and childcare reported higher levels of paternal involvement. In terms of behavioral engagement, fathers who relied on family,

community contacts, electronic media (including Internet), and books reported completing more activities in support of a partner's pregnancy. After childbirth, dads who consulted with partners/the baby's mother as well as doctors indicated increased engagement in childcare activities.

Trends associated with information sources and paternal involvement/engagement prove inconclusive, but three tentative assertions can be made based on study results. First, differences exist between measures of paternal involvement and paternal behavioral engagement. A father's perceived involvement and his participation in childcare and pregnancy tasks differ and should continue to be differentiated and examined in future study. Secondly, behavioral engagement during pregnancy and childcare necessitates the consultation of different information sources. A considerable number of sources relied on during pregnancy were significantly associated with behavioral engagement during pregnancy. After the child is born, sources become more limited: a partner or healthcare professional function as the only sources associated with behavioral engagement. Thirdly, income weakens the association between sources of information and paternal involvement/engagement. Many of the correlations observed in the total sample abated in the low-income sample. Perhaps other mechanisms, such as parental efficacy or uncertainty, play a more important role in promoting paternal involvement. Interestingly, consulting television and other entertainment media continued to associate with engagement in pregnancy tasks among the low-income group. Results suggest watching television or consulting magazines may be one way low-income E/R fathers learn about or become motivated to participate in pregnancy-related activities.

Information-seeking, efficacy, and uncertainty. Results link information-seeking to *attitudinal* dimensions of paternal involvement (Saracho, 2007). Paternal efficacy, or the confidence of a father in the ability to raise a child, operated as the sole efficacy variable predicting health information-seeking. The data reveals fathers with greater efficacy beliefs search for information to a greater extent. A confident attitude about caring for a child increases paternal information-gathering practices. At the same time, uncertainty compels information-seeking. Within the sample population, uncertainty about being a father served as a substantial motivator to seek information about pregnancy and childcare. Supporting past research (Brashers, Neidig, & Goldsmith, 2004; Kulhthau, 1993), uncertainty functions as a catalyst for information-seeking concerning a child.

In this way, both uncertainty and efficacy operate as mechanisms activating further information-seeking (Kulhthau, 1993; Wilson, 1997). How the two variables interact, however, remains unknown. The theory of motivated information management (TMIM; Afifi, 2009a, 2009b; Afifi & Afifi, 2009) suggests uncertainty triggers efficacy concerns, which then necessitate information-seeking or avoidance. Using TMIM as a framework to understand the current study results, E/R fathers whose uncertainty produces high levels of paternal efficacy increase the search for information about pregnancy and childcare. Conversely, E/R fathers whose uncertainty decreases efficacy beliefs seek health-related information to a lesser extent. Formal tests of TMIM with E/R fathers should examine potential interactions between the two variables.

However, income level influences the interaction of uncertainty and efficacy in information-seeking. Among the total sample, positive correlations highlighted strong

relationships between health information-seeking and paternal efficacy as well as health information-seeking and uncertainty, suggesting the two variables coexist in the information-seeking process. Yet, in the low-income sample, the relationship became non-significant for health information-seeking behavior and both uncertainty and efficacy. Instead, the relationship between paternal efficacy and uncertainty was negatively correlated. Results indicate uncertainty associates strongly with reduced feelings of paternal efficacy in low-income groups. For individuals disadvantaged by a low income, perhaps uncertainty becomes viewed as an insurmountable obstacle rather than an opportunity to gain confidence and seek information about raising a child.

Information-seeking and mental health. Results provide some support for the connection between health information-seeking and health outcomes evidenced in past research (Nicholas et al., 2001). E/R fathers who sought out health information were less likely to experience mental health challenges. Information-seeking provides a proactive, instrumental means of combatting the stress associated with expecting or raising a child. The relationship deteriorated, however, in lower income levels. E/R fathers perceive limited utility of information-seeking in reducing stress for themselves and for their partners.

Information-seeking and social ecology. Income functioned as one of several antecedent factors entered into a model predicting health information-seeking by E/R fathers. Interestingly, however, only relational closeness predicted health information-seeking. An E/R father feeling close to the mother of the baby sought more information on pregnancy and childcare. The findings correspond with *structural* dimensions of paternal involvement. Past research supports the connection between structural factors—a

father's name on the birth certificate (Alio et al., 2010, 2011), marital status (Gorman & Braverman, 2008), residence with the family (Amato & Gilbreth, 1999) —and paternal involvement. Structural dimensions of paternal involvement connect to social ecological approaches to understanding a father's role. The social ecological perspective proposes health information-seeking to be conducted in the context of a father's social environment, namely, the relationship with a partner/the baby's mother. When a father seeks information, the relationship with the partner/baby's mother serves two important purposes: (a) a partner is an information source in the E/R father's intimate personal network and (b) the relationship itself operates as an influential variable in the E/R father's social world (Williamson, 1998). Accordingly, health information-seeking and the corollary, paternal involvement, cannot be observed in isolation from the partner relationship; for E/R fathers, the relationship with the partner touches all information-gathering practices.

Information-seeking and the digital divide. The current study adds to a corpus of research on the digital divide. The researcher hypothesized low-income, less-educated, minority E/R fathers consult with interpersonal sources more than E/R fathers of higher-income, education, and of non-minority ethnicity. Although the relationship between income level and sources of information produced inconclusive results, other demographic trends warrant discussion. E/R fathers from minority groups and those with lower education levels relied on the Internet and books significantly less than their higher-educated, non-minority counterparts. Ethnic minority E/R fathers consulted with people from church or community significantly more than ethnic majority fathers for information about pregnancy and childcare.

The results challenge past research claiming race as unassociated with the digital divide (Rice & Katz, 2003). In fact, ethnicity and education operated as the strongest predictors of decreased Internet use. However, non-significant findings associated with income do suggest a waning of digital disparities associated with SES. Eighty-eight percent of low-income participants were able to access the Internet at home, and 89% reported a computer at home. Moreover, 99% of the low-income sample had a cell phone, and 84% reported being about to go online from a cell phone. National trends indicate more and more individuals access the Internet from cell phones, and one-third of cell-Internet users mostly use phones to go online (Duggan & Smith, 2013). Moreover, “cell-mostly Internet users” tend to be young, minority, and of relatively low income. The cell phone, therefore, may function as a bridge spanning the digital divide. Providing low-income E/R dads with health information via cell phone, either through text messaging or the mobile web, helps equip fathers with needed information across the stages of a child’s development.

Practical Applications

Because the study amalgamates public health and health communication research, practical applications clearly emerge. In light of the study results, four statements can inform health communication interventions encouraging the involvement of low-income E/R fathers by helping them get the information they need during a partner’s pregnancy or after a child is born. Each statement offers direction to public health professionals and health communication researchers working with or designing health promotion messages for E/R fathers in low-SES, minority communities.

Paternal information needs are diverse. E/R fathers from low-income communities desire information about being a responsible father, caring for a child as he or she grows up, and helping a partner during pregnancy. However, low-income E/R fathers want information about topics beyond pregnancy and childbirth. Comparatively, the low-income sample showed more interest in government and community resources, employment, legal assistance (child support case review), as well as HIV/STDs, adoption/abortion, and birth control. Government and community resources may provide avenues for education, socialization, and financial support. Nearly half of the low-income sample was in part-time, other paid work, or unemployed, so needs arise for information about jobs in the community. More participants in the low-income sample were not in a committed relationship with the partner; as a result, finding legal assistance with child support cases may be more of a priority. Moreover, due to relational status, information about STDs, birth control, and adoption/abortion becomes more relevant. Importantly, despite non-significant binary proportion results, results are representative enough to speculate that low-income fathers express a desire for more information in general, regardless of topic, signaling potential gaps in knowledge in many areas.

Health professionals should assist low-income E/R fathers in accessing informational resources covering a range of topics beyond pregnancy and childbirth. Fathers might benefit from learning more about how to manage finances, what resources exist in the community, and where to find employment. For dads expecting or raising a child but no longer in a relationship with the partner, healthcare professional may want to share information about legal assistance, sexual health, and pregnancy choices. To ensure a diverse range of information needs are addressed comprehensively, health professionals

might consider giving E/R fathers a checklist of information topics of interest rather than asking, “What do you want to learn more about?” The checklist might be effective in mitigating discomfort or embarrassment associated with questions about unemployment, financial issues, or sexual health.

Information needs change across stages of child development. Results confirm E/R fathers’ information needs vary along a child’s developmental stage, supporting past research demonstrating information needs change across the health continuum (Benn, Budge, & White, 1999; Larsson, 2009; Squiers et al., 2005). Topics of interest change from preparing for the baby to caring for the baby. Although binary proportion results do not statistically confirm the trend, the data seems to point to expectant fathers desiring more breadth of information, covering topics not only associated with pregnancy, such as helping a partner during pregnancy and signs of an abnormal pregnancy, but topics beyond pregnancy and childbirth, such as government and community resources, legal assistance, sexual health, and pregnancy choices. Given the uncertainty that comes with expecting a child, expectant fathers want as much information as possible about as many topics as possible.

Conversely, fathers whose children already have been born experience reduced uncertainty; the scope of information needs decrease as a result. In addition to being a responsible father and caring for a growing child, recent fathers tended to focus more on economic concerns, such as jobs and where to find inexpensive cribs and car seats. Interestingly, recent fathers also were more desirous of information about managing depression. The researcher conjectures the fiscal realities of childcare emerge after a child is born, which compel fathers to think more about saving money and finding

consistent employment. Economic, relational, or other situational stressors may negatively impact fathers' mental well-being—especially after childbirth—which prompt needs for information about coping with depression.

To address fathers' information needs at different stages of a child's development, healthcare professionals might consider putting together information packets for fathers unique to expectant status. Resources for expectant fathers would cover a broad range of topics and perhaps include an inventory of concrete activities fathers can engage in, such as accompanying a partner on medical visits or installing a car seat, to reduce uncertainty during the pregnancy months. Comparatively, resources for recent fathers would offer more in-depth information about fewer topics. Complementing information about child rearing and fatherhood responsibilities, the packet would emphasize ways to improve financial and mental health as well as include referral sources in the community for further assistance.

Health professionals might consider suggesting fathers sign up for Text4Baby, a free text-messaging service sending health information to pregnant women and new mothers (see Evans, Abrams, Poropatich, Nielsen, & Wallace, 2012; Gazmararian, Elon, Yang, Graham, & Parker, 2013; Gazmararian, Yang, Elon, Graham, & Parker, 2012; Musgrove, 2010; Text4Baby, n.d.). On Father's Day 2013, Text4Baby launched "Dads Matter," a program piloting text messages aimed at helping fathers improve child health and safety, engage with the baby, and support a partner during pregnancy and childcare (Text4Baby, 2013). Evidence-based text messages are tailored to anticipate the information needs of E/R fathers at varying stages of a child's development. As of October 2013, 1,800 fathers had enrolled in the program.

Interpersonal sources are important before and after birth. Among the total sample, interpersonal sources of information—a partner/the baby’s mother and health professionals—were consulted with the greatest consistency. Moreover, less-educated, minority E/R fathers consulted less with non-interpersonal sources of information, such as the Internet. Subsequently, healthcare professionals working with underserved populations need to be careful about suggesting E/R fathers simply ‘go online’ to access more information about helping a partner during pregnancy or caring for a child. Less-educated, minority E/R fathers may lack access the Internet (first-level divide) or once online, they may lack the skills to retrieve the information they seek (second-level divide; Hargittai, 2002). A better approach might be to identify an influential lay person(s) in the community who serves as a trusted source of information, also known as a health information maven (Kontos et al., 2011). Given minority E/R dads significantly rely on sources of information from church or the community, health information mavens may be uniquely positioned to provide timely and accurate information to E/R fathers seeking information. The public health nurse at the Men’s Health Center of the Milwaukee Health Department, for example, provides referrals to community partners and information about health benefits programs, in addition to conducting health checks (Milwaukee Health Department, n.d.).

Moreover, sources of information change across the stages of a child’s development. Expectant fathers use family members for information about pregnancy significantly more than recent fathers. Comparatively, recent fathers consulted a partner for information about childcare significantly more than expectant fathers. Thus, the family may offer valuable insights and suggestions as a father prepares for the birth of the

baby. Upon the baby's arrival, however, the partner becomes the source of information relied on to an even greater extent. Again, healthcare professionals need to be cognizant of the uncertainty an expectant father experiences during pregnancy, which may drive him to consult a greater number of sources to obtain as much information as possible. After childbirth, information needs become specific and situational. The baby's mother, possessing the most knowledge about the baby, then serves as optimal resource for addressing information needs.

Relationships matter. The partner/baby's mother served as the source consulted most often for information about pregnancy and childcare; however, low-income and less-educated E/R dads tended to consult their partners significantly less than dads of higher income. The trend may be linked to relational status—E/R fathers of low-income and education reported a reduced number of committed relationships with the mother of the baby. Unfortunately, results indicate perceptions of relational closeness with a partner to be the sole predictor of paternal health information-seeking. E/R dads perceiving a closer relationship with a partner sought information about pregnancy and childcare to a greater extent.

Partnership instability is more common among unmarried parents and impacts maternal and child health (McLanahan, 2009; Osborne & McLanahan, 2007). Whether or not E/R dads report committed relationships with the mother of the baby, however, health professionals should encourage the development of strong co-parenting relationships between father and mother. Supportive co-parenting tends to decrease over time among at-risk parents whose relationships have dissolved (Dush, Kotila, & Schoppe-Sullivan, 2011). Ineffective co-parenting leads to increased childhood behavioral problems

(Goldberg & Carlson, 2013). Un-partnered parents should be educated about effective co-parenting tools in the context of a committed relationship, break-up, separation, or divorce. For example, the *Together We Can* relationship and marriage education program associates with decreased co-parenting disagreements and increased social competence of children (Kirkland et al., 2011). E/R fathers, along with their partners, may benefit from information on sustaining a solid relationship—together or apart—during pregnancy or after childbirth.

Limitations and Future Directions

A primary limitation of the study is the smaller sample size of low-income E/R fathers ($n = 68$) in the context of the larger sample ($N = 186$). Recruitment at community events proved difficult, as some men seemed too busy or skeptical to complete the survey. On several occasions, the researcher observed survey completion to be facilitated by contacts from the Men's Health Referral Network, who functioned as gatekeepers to study participation. Network contacts, oftentimes men, would encourage fathers attending the Fatherhood Summit or participating in community programs to take the survey, walking potential participants to the booth, extolling the benefits of the survey, and/or promoting the \$5 Walgreens gift card. The gift card for survey completion may not have provided sufficient compensation to compel participation. Moreover, some participants completing the 40-item paper survey may have experienced maturation in the form of fatigue. On average, the survey took about 15 minutes to complete—a timeframe that may be perceived as quite lengthy at a community event or program. Occasionally, the researcher observed the final questions of the survey (containing demographic questions) to be skipped entirely.

The researcher recognizes a small sample size potentially impacts the generalizability of study results. Accordingly, future study should aim to recruit a larger sample by developing a shorter survey, increasing compensation, and relying to a greater extent on culturally competent contacts from community-based agencies. Perhaps participation may increase if men from longstanding and well-respected agencies assisting low-income fathers, such as My Father's House, Inc. (2014) and the Next Door Foundation (2014), facilitate recruitment. Research conducted by Allen and colleagues (2007) indicates African American men are particularly amenable to health education interventions from a man of the same ethnicity.

Health insurance status was not measured, nor was health insurance included in the list of topics E/R fathers may want to learn more about. Given the stipulations of the 2010 Affordable Care Act (HHS, 2014), every uninsured adult must obtain health insurance coverage through the Health Insurance Marketplace by March 31, 2014 to avoid penalty (Healthcare.gov., n.d.). Health insurance status should be measured to determine if differences exist between the low- and high-income samples of E/R dads, reflecting national trends demonstrating poor and near-poor individuals disproportionately lack health insurance coverage (Martinez & Cohen, 2013). Moreover, if health insurance was included in the list of information topics, the researcher could have looked for an association between lack of coverage and a desire to learn more about health insurance coverage and enrollment. The state of Wisconsin elected not to receive federal funds to help expand Medicaid coverage for low-income adults (Medicaid.gov, n.d.). As a result, approximately 92,000 adults will lose Medicaid coverage (Galewitz, 2013). However, children under 19 years of age, as well as parents and caregivers with incomes up to

200% of the Federal Poverty Guidelines can enroll in BadgerCare Plus, the state's insurance program for low-income families (Wisconsin Department of Health Services, n.d.). In sum, low-income E/R fathers may not be aware of all of the options for health insurance enrollment for themselves or for their children.

Parenting knowledge should have been assessed to observe potential knowledge gaps between low-income and high-income fathers. According to the knowledge gap hypothesis, people in higher SES groups acquire information at a faster rate than those in lower SES groups (Tichenor, Donahue, & Olien, 1970; Viswanath, Kahn, Finnegan, Hertog, & Potter, 1993). The knowledge gap hypothesis would predict high-income, more-educated E/R fathers possess more knowledge about pregnancy and childcare than low-income, less-educated E/R fathers. Thus, future research should consider including parental knowledge scales such as the Knowledge of Infant Development Inventory (KIDI, MacPhee, 1981) and Knowledge of Effective Parenting Scale (KEPS, Morawska, Sanders, & Winter, 2007) to assess and compare knowledge levels E/R dads of low and high income and education. KIDI, for example, evaluates knowledge about "parenting practices, developmental processes, health and safety guidelines, and norms and milestones related to infant development up to 24 months" (Winter, Morawska, & Sanders, 2012, p. 86). Assessing knowledge gaps among E/R fathers may help identify areas requiring more education.

The current investigation failed to include components of prominent information-seeking models. According to Johnson's Comprehensive Model of Information Seeking (1997), salience measures perceptions of the value of the information sought. The salience variable may be especially relevant to the topics of information included in the

current study. The salience of information about jobs or acting as a responsible father may provoke considerably more information-seeking behavior for E/R fathers compared to finding inexpensive cribs or understanding medical terms. E/R fathers less involved in a child's life may deem information about pregnancy and childcare of reduced value.

Future research on E/R fathers' health information behavior should distinguish between purposeful and incidental information acquisition (Williamson 1998) and active or passive communication channels (Dutta-Bergman, 2004b). Do fathers tend to seek out information about childcare and pregnancy actively and purposefully? Moreover, does purposeful, active information-seeking promote paternal involvement compared to incidental or passive information acquisition? One interesting channel missing from the current investigation involves the use of social media, especially given that minority adults outpace non-minority adults in terms of social media use (Smith, 2010). Information-seeking conducted on Facebook may be purposeful and active, e.g., messaging a friend, or posting an information-seeking comment. At the same time, information-seeking behavior on Facebook also can be passive and incidental; many users prefer to read or lurk on the social media site rather than posting comments or questions. Future research should examine whether E/R fathers use social media to search for information about pregnancy and childcare and whether use is passive/incidental or purposeful/active. Additional concepts from Kim and Grunig's situational theory of problem solving (2011)—such as information-seeking and attending, information forefending and permitting, information forwarding and sharing—may be interesting to examine in the social media context as well.

Collaboration with Text4Baby: Next Steps

The current investigation comprises Phase 1 of a two-part investigation examining health information behavior and technology use among low-income E/R fathers. The second phase of the study will consist of measuring outcomes associated with participation in a mobile health program targeting (a) low-income E/R fathers as well as (b) partners of expectant women already enrolled in the Text4Baby program. The research team conjectures the utilization of mobile phones to be a viable approach to improving paternal access to quality health information as well as to increasing fathers' participation and advocacy in the health care setting. Text-based intervention can be especially important among low-income families due to: lack of access to technology (Song et al., 2013), low literacy levels precluding understanding online materials or other resources (Berkman et al., 2004), and high frequencies of cell phone use (Smith, 2010). As a result, cell phones may serve as the technology to narrow the information and knowledge gap for E/R fathers.

Mobile phones have been used for a variety of health promotion and patient-monitoring applications, such as sending text messages with educational information or reminders about weight reduction, smoking cessation, and exercise (for a review, see Blake, 2008). Grounded in behavioral theory, Text4Baby aims to improve knowledge and behavior in order to change clinical outcomes by delivering messages to expectant mothers about evidence-based health behaviors and practices (Evans, Wallace, & Snider, 2012). Preliminary pilot evaluations demonstrate significantly increased perceptions of preparedness to be a mother as an outcome of program participation.

Phase 1 survey respondents indicating a willingness to participate in an experiment to test the overall effectiveness of mobile health program will be contacted

and complete a pre-test over the phone. Based on the age of the infant or the partner's stage of pregnancy, participants will receive two weeks of text messages related to pregnancy, childbirth, or childcare. Participants may text questions to a men's health nurse at the Milwaukee Health Department. Text4Baby will post an online survey link where E/R fathers already participating in Text4Baby can provide feedback about involvement in the program. After a specified duration, researchers will contact participants again for a post-test gauging knowledge, ease of use and system usability, as well as support-giving measures and prenatal/post-birth support.

Conclusion

Given the importance of paternal involvement in maternal and child health, the current investigation study provides a step towards unraveling the mechanisms facilitating paternal involvement by taking a closer look at low-income E/R fathers' health information behavior. The study evaluated the belief that information-seeking and acquisition potentially increases fathers' involvement in the pregnancy, childbirth, and childcare. A total of 186 E/R fathers (68 low-income) completed a survey about information needs, sources of information, and information-seeking behavior. A strong association between E/R fathers' health information-seeking behavior and paternal involvement was observed, and the relationship persisted among low-income groups. From a theoretical perspective, results suggest health information-seeking corresponds with behavioral, attitudinal, and structural dimensions of paternal involvement. Four statements summarize practical applications informing health communication interventions helping E/R fathers get the information they need during a partner's pregnancy or after a child is born: (a) Paternal information needs are diverse, (b)

Information needs change across stages of child development, (c) Interpersonal sources are important before and after birth, and (d) Relationships matter.

The symbiotic relationship between public health and health communication provides opportunities to refine and enhance scholastic inquiry and—more importantly—to promote health for underserved and underrepresented people in the community. A growing body of research acknowledges the crucial role of fathers in the life and livelihood of mothers and children. Fathers in low-income communities encounter a number of socio-environmental barriers to consistent and stable involvement. Blending public health and health communication approaches, the current study contends information-gathering practices matter to a father's involvement and such practices can be promoted by hard-working health professionals in economically disadvantaged communities.

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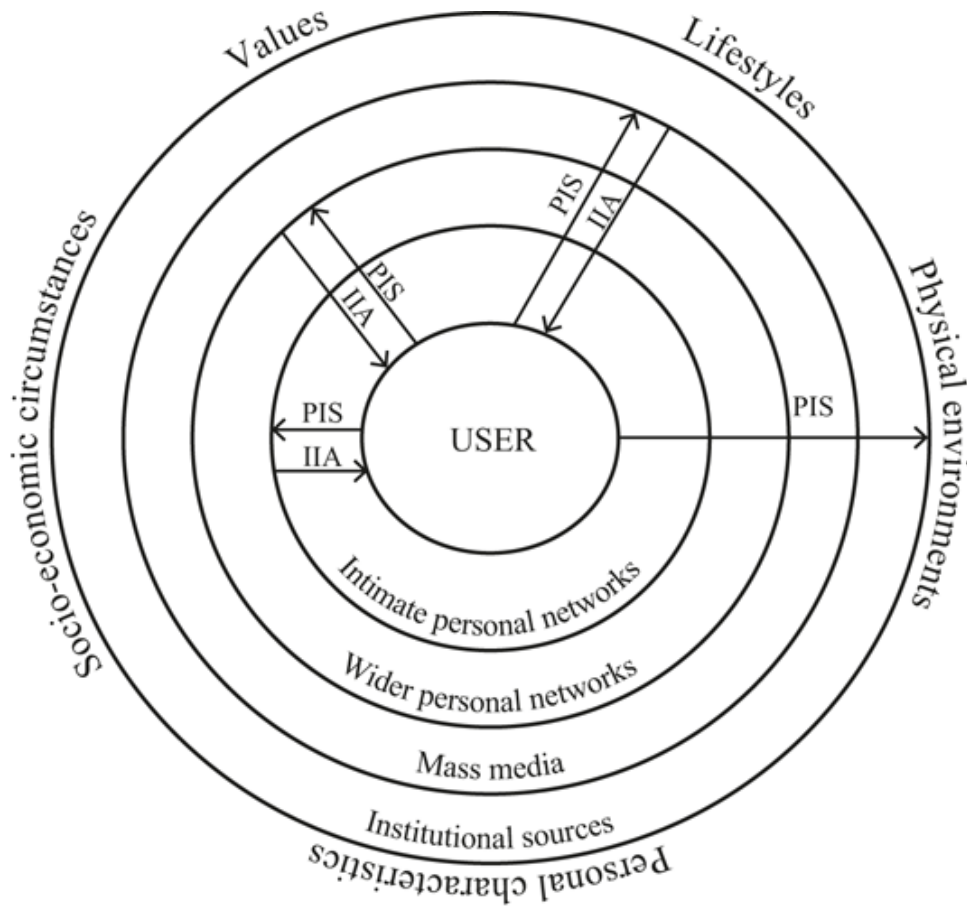
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Notes: PIS = Purposeful information seeking; IIA = Incidental information acquisition

Figure 1. Everyday Life Information: An Ecological Model of Use (Williamson, 1998).

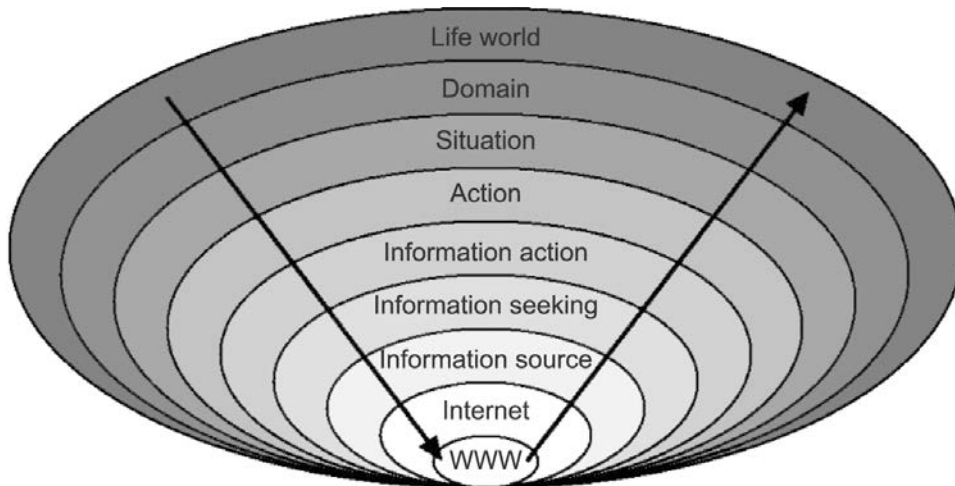


Figure 2. A contextual model of information-seeking on the World Wide Web (Kari & Savolainen, 2003).

are you a recent
or a soon-to-be dad?



take a survey now and get a
\$5 Walgreens gift card

the survey will ask about the information you want
and how you use technology

to participate: you must be expecting a child or
a father with a child younger than age 3
no significant risks or benefits for participation



This study (IRB#14-063) is offered by the UWM
Men's Health Text Initiative, in collaboration with
the City of Milwaukee Health Department and
Text4Baby. If you have questions, please contact
Emily Cramer at emcramer@uwm.edu.

Figure 3. Recruitment flyer at Milwaukee Fatherhood Summit, October 4-5, 2013.

Survey: Recent or Soon-to-Be Fathers, Emily M. Cramer

Emily M. Cramer, emcramer@uwn.edu

Are you or do you know a soon-to-be or recent dad?

We are interested in the information new or soon-to-be dads look for and how they use technology. We are recruiting men who are expecting a child or are a father with a youngest child age 3 and under to complete a 15-minute survey online.

All soon-to-be or recent dads who take the survey will be entered into a raffle to win one of four \$25 Walgreen's gift cards.

There are no significant risks or benefits for participation in the study. Participation in the study is not necessary in order to be eligible to enter the raffle; any otherwise eligible individual could enter the drawing

Here is a link to the survey: https://milwaukee.qualtrics.com/SE/?SID=SV_cIyxw1zQsBu5Thj

The survey will close on [October 31, 2013](#) at 11:59 p.m.

Thank you for your time and please feel free to contact Emily Cramer (emcramer@uwm.edu), University of Wisconsin-Milwaukee, if you have questions.

Figure 4. Post to CRTNET listserv on October 8, 2013.

Search for people, places and things

Activity Log

- All
- Timeline Review
- Tag Review
- Your Posts**
- Posts You're Tagged In
- Posts by Others
- Posts You've Hidden
- Photos
- Likes
- Comments
- MORE
- All Apps
- MORE

Your Posts

OCTOBER 7

Emily updated her status.

Hey all, I'm doing some social-media recruiting for my dissertation. If you're a soon-to-be or recent dad, have 15 minutes to spare, and want to win a chance at a \$25 gift card, please read on. Thanks!

++++++
Are you or do you know a soon-to-be or recent dad?

We are interested in the information new/expectant dads look for and how they use technology. We are recruiting men who are expecting a child or are a father with a youngest child age 3 and under to complete a 15-minute survey online.

All dads who take the survey will be entered into a raffle to win one of four \$25 Walgreen's gift cards.

There are no significant risks or benefits for participation in the study. Participation in the study is not necessary in order to be eligible to enter the raffle; any otherwise eligible individual could enter the drawing

Here is a link to the survey: https://milwaukee.qualtrics.com/SE/?SID=SV_clyxw1zQsBu5Thj

The survey will close on October 31, 2013 at 11:59 p.m.

Thank you for your time and please feel free to contact me at (emcramer@uwm.edu) if you have questions.

Figure 5. Facebook post to personal contacts.

+++++

Are **you** or **do you know** a soon-to-be or recent dad?

We are interested in the information soon-to-be or recent dads look for and how they use technology. We are recruiting **men who are expecting a child or a father with a youngest child age 3 and under** to complete a **15-minute survey online**.

All soon-to-be or recent dads who take the survey will be entered into a raffle to **win one of four \$25 Walgreen's gift cards**.

If you are a student at UWM, you also can choose to **receive extra credit in your class** by taking the survey (if you meet the survey requirements) or **having a soon-to-be or recent dad take the survey on your behalf**.

Start by forwarding this recruitment message to a person who meets the study criteria and be sure to have him click the link at the end of the study. The link will go to a page where name, course instructor, and course can be entered.

If someone else is taking the study on your behalf, he must click on the link at the end of the survey to add your name in the extra credit section. Please note that you will not receive extra credit unless this information is entered and you will only receive extra credit for one adult completing the survey.

There are no significant risks or benefits for participation in the study. Participation in the study is not necessary in order to be eligible to enter the raffle; any otherwise eligible individual could enter the drawing

Here is a link to the survey: https://milwaukee.qualtrics.com/SE/?SID=SV_clyxw1zQsBu5Thj

The survey will close on **October 31, 2013 at 11:59 p.m.**

Thank you for your time and please feel free to contact Emily Cramer (emcramer@uwm.edu) if you have questions.

+++++

Figure 6. Recruitment message to UWM students.

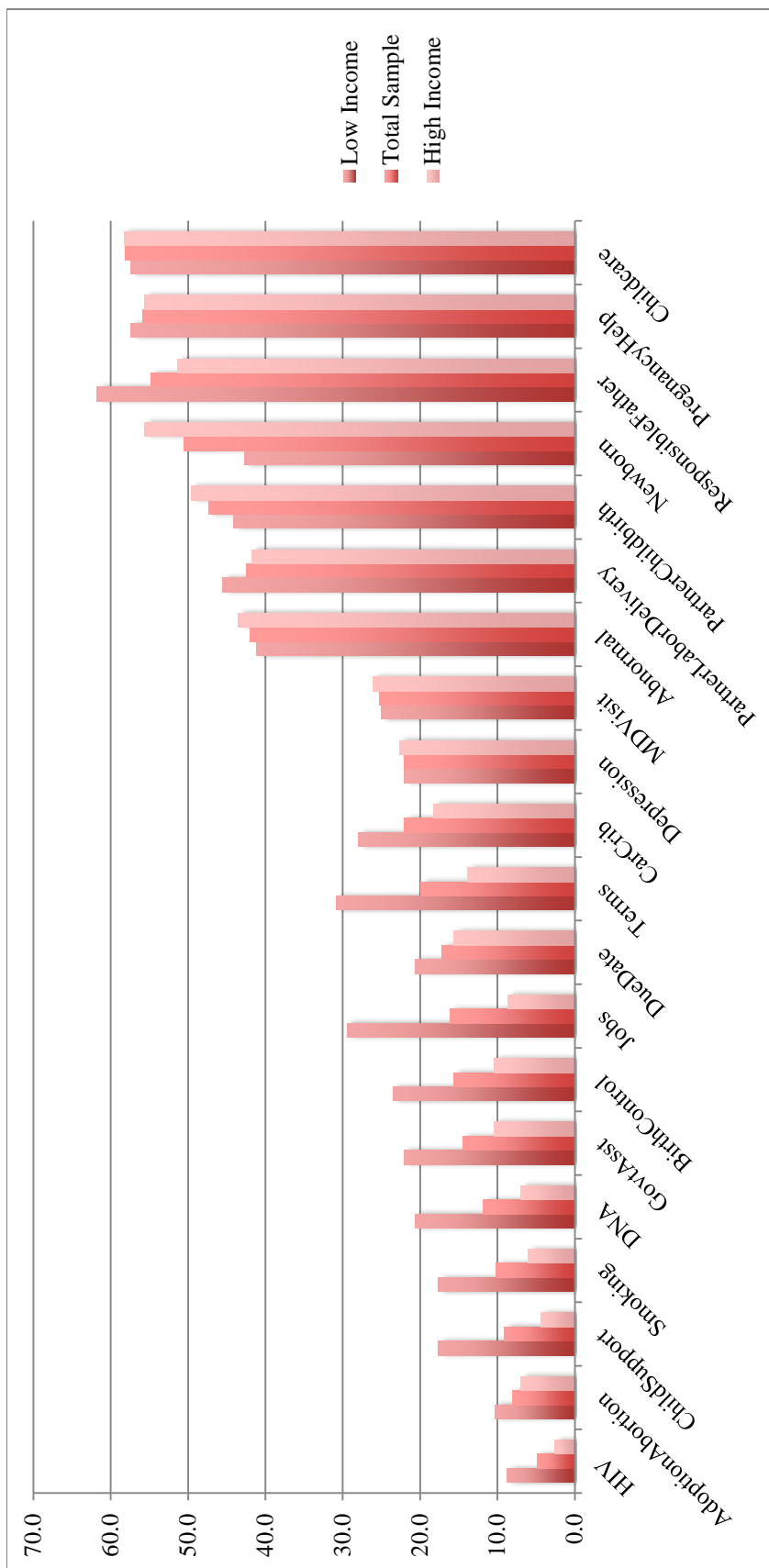


Figure 7. Percentage (%) of E/R fathers interested in health topics by income group (low or high). Total percentage included for point of comparison.

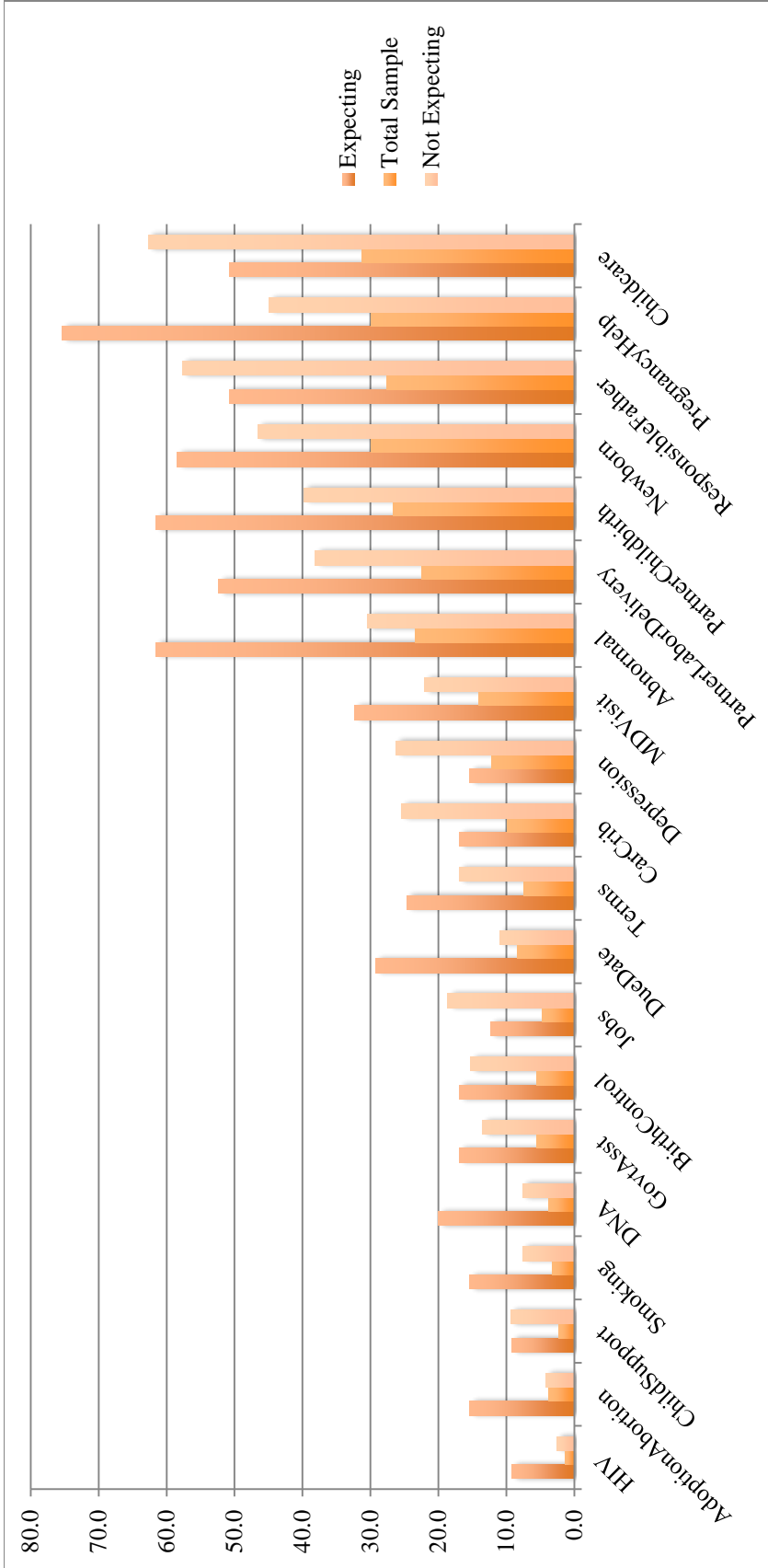


Figure 8. Percentage (%) of E/R fathers interested in health topics by partner expectancy (expecting or not expecting). Total percentage included for point of comparison.

Table 1
Demographic Information for Total Participants

Variable		% or M(SD)
Age (years)		30.1(6.3)
Race/Ethnicity	Non-Hispanic White	62%
	Black	20%
	Hispanic/Latino	6%
	Asian	6%
	Other	4%
	Decline	3%
Relationship status	Not in romantic relationship	7%
	Committed, living apart	7%
	Married or committed and living together	83%
	Divorced or separated	3%
Expecting a child	Yes	36%
Total children (includes pregnancy)		1.7(1.2)
Annual income	>\$20,000	16%
	\$20,000 - \$39,999	21%
	\$40,000 - \$59,999	18%
	\$60,000 - \$79,999	18%
	\$80,000 - \$100,000	8%
	\$100,000+	19%
Education	No/some/all high school or GED	18%
	Some college	25%
	College graduate (2 year or 4 year)	36%
	Graduate	21%
Employment	Employed/self-employed full-time	74%
	Employed/self-employed part-time/other paid work	17%
	Unemployed	9%
Cell phone owner	Yes	99%
Cell phone use	Never or Rarely	3%
	Monthly	1%
	2-3 times a week	3%
	Daily	93%
	<i>Internet on phone?</i>	88%
Internet use	Never or Rarely	4%
	Monthly	2%
	2-3 times a week	7%
	Daily	88%
	<i>Computer at home?</i>	96%
	<i>Internet access at home?</i>	95%
Paternal satisfaction		8.74(1.96)
Paternal confidence		9.19(1.24)

Table 2
Demographic Information for Low-Income Participants

Variable		% or <i>M(SD)</i>
Age (years)		27.0(6.4)
Race/Ethnicity	Non-Hispanic White	40%
	Black	35%
	Hispanic/Latino	10%
	Asian	9%
	Other	4%
	Decline	2%
Relationship status	Not in romantic relationship	13%
	Committed, living apart	16%
	Married or committed and living together	76%
	Divorced or separated	5%
Expecting a child	Yes	36%
Total children (includes pregnancy)		1.9(1.6)
Annual income	>\$20,000	43%
	\$20,000 - \$39,999	57%
Education	No/some/all high school or GED	37%
	Some college	31%
	College graduate (2 year or 4 year)	24%
	Graduate	6%
Employment	Employed/self-employed full-time	53%
	Employed/self-employed part-time/other paid work	29%
	Unemployed	18%
Cell phone owner	Yes	99%
Cell phone use	Never or Rarely	6%
	2-3 times a week	7%
	Daily	87%
	<i>Internet on phone?</i>	84%
Internet use	Never or Rarely	11%
	Monthly	3%
	2-3 times a week	12%
	Daily	75%
	<i>Computer at home?</i>	89%
	<i>Internet access at home?</i>	88%
Paternal satisfaction		8.55(2.35)
Paternal confidence		9.39(.96)

Table 3
Demographic Information for Higher Income Participants

Variable	% or <i>M(SD)</i>
Age (years)	32.0(5.4)
Race/Ethnicity	
Non-Hispanic White	77%
Black	10%
Hispanic/Latino	3%
Asian	4%
Other	4%
Decline	3%
Relationship status	
Not in romantic relationship	5%
Committed, living apart	3%
Married or committed and living together	92%
Separated	1%
Expecting a child	Yes 36%
Total children (includes pregnancy)	1.6(.8)
Annual income	
\$40,000 - \$59,999	29%
\$60,000 - \$79,999	29%
\$80,000 - \$100,000	13%
\$100,000+	30%
Education	
High school/GED	4%
Some college	23%
College graduate (2 year or 4 year)	42%
Graduate	30%
Employment	
Employed/self-employed full-time	89%
Employed/self-employed part-time/other paid work	8%
Unemployed	4%
Cell phone owner	Yes 99%
Cell phone use	
Never	2%
Monthly	2%
2-3 times a week	1%
Daily	96%
<i>Internet on phone?</i>	90%
Internet use	
Rarely	1%
2-3 times a week	4%
Daily	96%
<i>Computer at home?</i>	99%
<i>Internet access at home?</i>	99%
Paternal satisfaction	8.81(1.71)
Paternal confidence	9.05(1.37)

Table 4
Binary Proportions Test: Topics of Information and Income

Topic	Low-income %	High-income %	<i>d</i>
HIV and STDs	8.8	2.6	-.20*
Adoption and Abortion	10.3	7.0	-.03
Child Support	17.6	4.3	-.11*
Smoking	17.6	6.1	-.07
DNA Testing	20.6	7.0	-.06
Government Assistance	22.1	10.4	-.03
Birth Control	23.5	10.4	-.03
Jobs	29.4	8.7	-.05
Calculating Due Date	20.6	15.7	-.01
Understanding Medical Terms	30.9	13.9	-.02
Inexpensive Car Seats & Cribs	27.9	18.3	-.01
Depression	22.1	22.6	.0006
What to Expect in MD Visit	25.0	26.1	.001
Signs of Abnormal Pregnancy	41.2	43.5	.0007
Partner in Labor & Delivery	45.6	41.7	-.0012
Partner in Childbirth	44.1	49.6	.0014
Caring for a Newborn	42.6	55.7	.0031
Responsible Father	61.8	51.3	-.0019
Pregnancy Help	57.4	55.7	-.0003
Caring for Growing Child	57.4	58.3	.0002

Note. Low-income (n = 68), high-income (n = 115); * p < .05

Table 5
Binary Proportions Test: Topics of Information and Expectancy

Topic	Expectant %	Recent %	<i>d</i>
HIV and STDs	9.2	2.5	-.22*
Adoption and Abortion	15.4	4.2	-.11
Child Support	9.2	9.3	.0007
Smoking	15.4	7.6	-.04
DNA Testing	20.0	7.6	-.05
Government Assistance	16.9	13.6	-.01
Birth Control	16.9	15.3	-.0036
Jobs	12.3	18.6	-.03
Calculating Due Date	29.2	11.0	-.01
Understanding Medical Terms	24.6	16.9	-.01
Inexpensive Car Seats & Cribs	16.9	25.4	.01
Depression	15.4	26.3	.01
What to Expect in MD Visit	32.3	22.0	-.01
Signs of Abnormal Pregnancy	61.5	30.5	-.01
Partner in Labor & Delivery	52.3	38.1	-.004
Partner in Childbirth	61.5	39.8	-.01
Caring for a Newborn	58.5	46.6	-.0025
Responsible Father	50.8	57.6	.0013
Pregnancy Help	75.4	44.9	-.01
Caring for Growing Child	50.8	62.7	.0021

Note. Expectant ($n = 65$), recent ($n = 118$); * $p < .05$

Table 6
t-test Results for Source of Information by Income Group

Source for Pregnancy	Low Income		High Income		<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Partner/the baby's mother	3.89	1.17	4.22	.96	-2.03*	178
Doctors or nurses	3.81	1.05	3.72	.97	.57	179
Friends	3.31	1.02	3.12	1.01	1.21	178
Family	3.76	0.96	3.5	1.17	1.49	177
People at my church	2.34	1.13	2.21	1.14	.72	179
Internet	3.37	1.34	3.64	1.10	-1.48	180
TV, movies, magazines	2.33	1.09	2.26	1.11	.38	179
Books	2.93	1.30	3.02	1.11	-.51	179
Sources for Childcare	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>
Partner/the baby's mother	4.15	1.00	4.36	.89	-1.44	177
Doctors or nurses	3.91	1.08	3.68	.99	1.43	179
Friends	3.47	1.10	3.23	1.00	1.49	177
Family	3.81	1.06	3.6	1.01	1.29	178
People at my church	2.32	1.26	2.17	.99	.92	179
Internet	3.19	1.35	3.23	1.26	-.17	179
TV, movies, magazines	2.11	1.12	2.15	1.05	-.24	170
Books	2.81	1.31	2.83	1.15	-.09	174

* $p < .05$

Table 7
t-test Results for Source of Information by Education

Source for Pregnancy	Less Educated		More Educated		<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Partner/the baby's mother	3.94	1.16	4.23	0.94	-1.90	180
Doctors or nurses	3.77	1.06	3.75	0.95	.11	181
Friends	3.06	0.99	3.29	1.03	-.146	180
Family	3.68	1.14	3.56	1.08	.71	179
People at my church	2.24	1.14	2.27	1.13	-.14	181
Internet	3.24	1.32	3.75	1.06	-2.91**	182
TV, movies, magazines	2.35	1.15	2.22	1.07	.77	181
Books	2.72	1.25	3.16	1.09	-2.51*	181
Sources for Childcare	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>
Partner/the baby's mother	4.24	1.05	4.31	0.83	-.52	179
Doctors or nurses	3.87	1.07	3.71	1.00	1.05	181
Friends	3.22	1.12	3.39	1.00	-1.06	179
Family	3.7	1.15	3.69	0.94	.044	180
People at my church	2.18	1.21	2.24	1.02	-.38	181
Internet	3.01	1.36	3.34	1.23	-1.69	181
TV, movies, magazines	2.17	1.18	2.11	0.99	.38	172
Books	2.55	1.28	3.00	1.13	-2.50*	176

* $p < .05$, ** $p < .01$

Table 8
t-test Results for Source of Information by Ethnicity

Source for Pregnancy	Non-Dominant		Dominant		<i>t</i>	<i>df</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Partner/the baby's mother	4.00	1.02	4.15	1.07	-.91	176
Doctors or nurses	3.86	1.01	3.68	0.99	1.19	178
Friends	3.09	1.05	3.24	1.01	-.90	176
Family	3.63	1.06	3.58	1.14	.24	175
People at my church	2.55	1.19	2.12	1.07	2.45*	178
Internet	3.14	1.35	3.76	1.08	-3.37**	178
TV, movies, magazines	2.46	1.19	2.17	1.05	1.72	177
Books	2.78	1.24	3.04	1.15	-1.42	177
Sources for Childcare	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>
Partner/the baby's mother	4.25	0.89	4.28	0.97	-.23	175
Doctors or nurses	3.98	1.11	3.68	1.02	1.93	177
Friends	3.16	1.20	3.37	0.96	-1.28	175
Family	3.73	1.00	3.63	1.05	.64	176
People at my church	2.55	1.26	2.04	0.96	3.03**	177
Internet	2.95	1.29	3.38	1.27	-2.16*	177
TV, movies, magazines	2.37	1.21	2.03	0.99	1.97	169
Books	2.82	1.27	2.81	1.18	.02	172

* $p < .05$, ** $p < .01$

Table 9
Correlations (r) for Sources of Information and Paternal Involvement

Source	Total Sample			Low-Income Sample		
	INV	E-PREG	E-CC	INV	E-PREG	E-CC
<i>Pregnancy</i>						
Partner/the baby's mother	.259**	.057	.113	.224	-.016	.150
Doctors or nurses	.285**	.125	.186*	.315**	.124	.159
Friends	.043	.110	.064	.004	.117	.108
Family	.031	.148*	.053	-.218	-.111	-.010
People at my church	.091	.246**	.126	-.021	.153	.114
Internet	.074	.237**	.079	.014	.096	-.099
TV, movies, magazines	-.007	.290**	.109	-.042	.307*	.211
Books	.249**	.280**	.153*	.205	.210	.096
<i>Child Care</i>						
Partner/the baby's mother	.291**	.073	.167*	.344**	.049	.169
Doctors or nurses	.232**	.136	.149*	.172	.050	.051
Friends	.027	.180*	.120	.008	.148	.112
Family	.026	.116	.056	-.070	-.010	.049
People at my church	.132	.255**	.113	.050	.017	-.098
Internet	-.030	.110	.056	-.022	.110	.015
TV, movies, magazines	-.014	.041	-.056	.021	.264*	.130
Books	.223**	.232**	.043	.195	.149	-.015

Note. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). P-INV = Paternal involvement, E-PREG = Engagement in pregnancy activities, E-CC = Engagement in childcare activities

Table 10
Zero-Order Correlations (r), Means and Standard Deviations for Composite Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Information-seeking	1												
2. Information-seeking efficacy	.151*	1											
3. Text efficacy	.124	.344**	1										
4. Internet efficacy	.117	.341**	.743**	1									
5. Paternal efficacy	.277**	.227**	.054	.140	1								
6. Uncertainty	.163*	-.354**	.015	-.060	-.141	1							
7. Involvement	.327**	.310**	.034	.136	.317**	-.202**	1						
8. Engagement: Pregnancy	.301**	-.074	.061	.096	.243**	.103	.185*	1					
9. Engagement: Childcare	.109	-.104	-.068	-.010	.251**	-.003	.196**	.637**	1				
10. Perceived stress	.115	-.053	.144	.013	-.063	.265**	-.203**	.045	.091	1			
11. Mental health	-.204**	-.104	.019	-.113	-.366**	.054	-.342**	-.138	-.084	.568**	1		
12. Maternal perceived stress	.081	.019	.066	-.006	-.195**	.285**	-.138	-.001	.113	.583**	.410**	1	
13. Maternal mental health	-.043	-.097	.019	-.089	-.339**	.217**	-.255**	-.096	.022	.455**	.530**	.716**	1
<i>M</i>	3.54	4.36	4.40	4.44	3.68	2.67	8.94	4.60	4.69	2.83	2.08	2.78	2.37
<i>SD</i>	.83	.62	1.03	.96	.61	.99	1.31	1.06	1.16	.84	.81	.76	.79

Note. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 11

Zero-Order Correlations (r), Means and Standard Deviations for Composite Variables: Low-Income Sample

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Information-seeking	1												
2. Information-seeking efficacy	.096	1											
3. Text efficacy	-.067	.107	1										
4. Internet efficacy	-.168	.183	.632**	1									
5. Paternal efficacy	.152	.266*	-.252*	-.146	1								
6. Uncertainty	.218	-.327**	.135	.014	-.322**	1							
7. Involvement	.321**	.308*	-.193	-.101	.282*	-.203	1						
8. Engagement: Pregnancy	.023	-.115	-.026	-.044	.116	.002	.216	1					
9. Engagement: Childcare	-.113	-.109	-.208	-.137	.313*	-.087	.361**	.617**	1				
10. Perceived stress	-.030	-.241	.059	-.100	-.208	.096	-.212	-.173	-.073	1			
11. Mental health	-.235	-.191	.189	-.003	-.254*	-.116	-.289*	-.196	-.115	.614**	1		
12. Maternal perceived stress	.032	-.056	-.153	-.259*	-.196	.180	.010	-.040	.023	.480**	.352**	1	
13. Maternal mental health	-.133	-.163	.114	-.042	-.358**	.203	-.285*	-.151	-.125	.488**	.477**	.669**	1
<i>M</i>	3.55	4.22	4.26	4.24	3.71	2.99	8.72	4.72	4.89	2.99	2.15	2.85	2.48
<i>SD</i>	.83	.62	1.10	.98	.55	.99	1.45	.99	1.24	.88	.88	.71	.83

Note. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Appendix Survey

FATHERHOOD STUDY DIRECTIONS

Thank you for taking this survey! You are taking this survey because you are a soon-to-be dad or because your youngest child is age three or younger. **If you have more than one child, please think of your youngest child or, if the child has not been born yet, your partner's pregnancy.**

WHAT DO YOU WANT TO KNOW?

[**Information Needs** adapted from Song et al., 2013]

Below are some topics of information about caring for your child, childbirth, or your partner's pregnancy. What topics are you interested in learning more about? Place a check mark next to the topics below.

- Signs and symptoms of an abnormal pregnancy for my partner
- How to help my partner during pregnancy
- Smoking and drug use during pregnancy
- What to expect during doctor and home visits
- Help figuring out medical terminology
- Birth control
- Adoption or abortion
- DNA testing
- Jobs in my community
- Being a responsible father
- Calculating due date
- What to expect during my partner's labor and delivery
- How to help my partner during childbirth
- Caring for a newborn
- Government and community resources (W-2, housing, WIC, food, financial assistance)
- Where to find inexpensive car seats and cribs
- Caring for a child as he or she grows up
- Child support case review
- How to deal with sadness or depression
- HIV and other STDs
- Other (write in your own topic):

HOW DO YOU GET INFORMATION?

[**Information Sources** adapted from Song et al., 2013]

1. Please rate how often you use the sources below for information about **pregnancy and childbirth**.
2. Please rate how often you use the sources below for information about **caring for your child**.

(1 = *never*, 5 = *always*)

- Partner/the baby's mother
- Doctors or nurses
- Friends
- Family
- People from my church or community
- Internet
- TV, movies or magazines
- Books
- Other:

3. Please rate how much you agree with the statements below.
(1=*strongly disagree*, 5=*strongly agree*)

[Information Seeking Efficacy adapted from Song et al., 2013]

- I don't know how to search for information about caring for my child.
- I rarely have trouble searching for information about caring for my child.
- I feel confident searching for information about caring for my child.
- I am not sure how to search for information about caring for my child.

[Information Seeking Behavior adapted from Maibach et al., 2006]

- I don't have time to learn a lot of information about pregnancy or childcare.
- I try to read or watch stories about pregnancy or childcare.
- I like to get information about pregnancy or childcare from lots of sources.
- Before making a decision about pregnancy or childcare, I find out everything I can.

WHAT DO YOU THINK ABOUT BEING A DAD?

4. Please rate how much you agree with the statements below. (1=*strongly disagree*, 5=*strongly agree*)

[Paternal Uncertainty adapted from Song et al., 2013]

- I have questions about my child or my partner's pregnancy that have not been answered.
- There are many things about pregnancy or childcare that I am not sure about.
- I don't feel that I have enough information about pregnancy or childcare.

[Paternal Involvement, Satisfaction, Confidence, developed by researcher]

5. Please rate how:

Involvement (1 = not involved, 10 = totally involved)

- Involved you are in your partner's pregnancy or the care of your child.
- Involved you are in decisions about your partner's pregnancy or the care of your child
- Involved you are in you are in planning ahead for raising your child.
- Involved you would like to be in your partner's pregnancy or the care of your child.

Satisfaction (1 = not happy, 10 = totally happy)

- Happy you are with your involvement in your partner's pregnancy or the care of your child.

Confidence (1 = not likely/confident, 10 = totally likely/confident)

- Likely that you will have a healthy baby.
- Confident you are in raising a healthy baby.

5. Please rate how much you agree with the statements below. (1=*strongly disagree*, 5=*strongly agree*)

[Paternal efficacy adapted from Johnston & Mash, 1989]

- I would make a good role model for a new father to follow.
- Being a parent is easy and any problems are easily solved.
- I honestly believe I have all the skills to be a good father to my child.
- Being a good father is reward in itself.

WHO DOES WHAT? [Paternal Engagement adapted from Cowan & Cowan, 1998]

6. Use the numbers on the line to show how you two divide preparing for the baby. (1 = She does it all, **5 = We both do this about equally**, 9 = I do it all). If your baby has already been born, think back to how things were divided during the pregnancy.

Go to doctor visits.

Check out the Internet or watch videos about the growth of the baby.

Check out the Internet or watch videos about becoming a parent.

Help plan for the baby.

Help your partner stay healthy.

Learn how to bathe, feed, diaper, hold and comfort a baby.

7. Use the numbers on the line to show how you two divide taking care of your child. (1 = She does it all, **5 = We both do this about equally**, 9 = I do it all). If your baby has not been born, please mark how you think you will divide taking care of the child.

Feeding the baby

Changing the baby's diapers; dressing the baby

Bathing the baby

Responding to the baby's crying

Taking the baby out: walking, driving, visiting, etc.

Playing with the baby

WHAT TECHNOLOGY DO YOU USE?

8. Do you own a cell phone? (Yes _____ No)

9. If yes, do you use the Internet on your phone? (Yes _____ No)

10. How often do you use a cell phone?

1 = never

2 = rarely

3 = monthly

4 = 2-3 times a week

5 = daily

11. In your home, do you have access to:

Computer (Yes _____ No)

Internet (Yes _____ No)

12. If you use the Internet, how often do you go online?

1 = never

2 = rarely

3 = monthly

4 = 2-3 times a week

5 = daily

13. Please rate how much you agree with the statements below. (1=*strongly disagree*, 5=*strongly agree*)

Text

I don't know how to use text messaging.

I rarely have trouble using text message.

I feel confident using text messaging.

Internet

I don't know how to use the Internet.

I rarely have trouble using the Internet.

I feel confident using the Internet.

HOW DO YOU FEEL?

14. In the **past month**, how often have you: (1 = *never*, 5 = *often*)

[**Perceived Stress Scale**, Cohen, Kamarck, & Mermelstein, 1983]

Been upset because of something that happened you did not expect?

Felt that you were not able to control the important things in your life?

Felt nervous and "stressed"?

Felt confident that you can handle your problems?

15. In the **past month**, how have things been for you? (1 = *none of the time*, 5 = *most of the time*)

[**Mental Health Inventory-5**, adapted from Ware, Kosinski, & Gandek, 2000]

- You were a happy person.
- You felt calm and peaceful.
- You were a very nervous person.
- You felt downhearted and blue.

THE MOTHER OF YOUR BABY

16. What is your relationship status with the mother of your baby? Circle the best response.

- We are not in a romantic relationship with each other
- We are in a committed relationship, but not living together
- We are in a committed relationship and we live together
- We are married
- We are divorced
- We are separated

17. Please rate how much you agree with the statements below. (1=*strongly disagree*, 5=*strongly agree*)

[**Relational Closeness**, developed by researcher]

- I feel close to the mother of my baby.
- The mother of my baby and I talk to each other a lot.
- I relate to the mother of my baby well.
- The mother of my baby and I get along.

18. In the past month, how often has your partner: (1 = *never*, 5 = *often*, 6 = *don't know*)

[**Maternal Perceived Stress Scale**, adapted from Cohen, Kamarck, & Mermelstein, 1983]

- Been upset because of something that happened she did not expect?
- Felt that she was not able to control the important things in her life?
- Felt nervous and "stressed"?
- Felt confident to handle her problems?

19. In the past month, how have things been for you partner? (1 = *none of the time*, 5 = *most of the time*, 6 = *don't know*)

[**Maternal Mental Health Inventory**, adapted from Stewart, Ware, Sherbourne, & Wells, 1992]

- She was a happy person.
- She felt calm and peaceful.
- She was a very nervous person.
- She felt downhearted and blue.

INFO ABOUT YOU

1. What is your age? _____ years
2. What is your race/?
 1. White
 2. Black or African American

3. Hispanic or Latino
 4. Asian
 5. American Indian/Alaska Native
 6. Native Hawaiian/Pacific Islander
 7. Other
 8. I decline to share my ethnicity
3. Are you expecting a baby with your partner? (Yes No)
If yes, when is the baby due?
4. How many children do you have? _____ children
5. What is the age of your youngest child?
6. _____years OR _____months OR ___my baby hasn't been born
7. What is your education level?
1. Less than high school
 2. Some high school
 3. High school/GED
 4. Some college
 5. College (2 year Associate's degree)
 6. College (4 year BS/BA)
 7. Graduate degree
8. What is your household income each year?
1. \$0 to \$19,999
 2. \$20,000 to \$39,999
 3. \$40,000 to \$59,999
 4. \$60,000 to \$79,999
 5. \$80,000 to \$99,999
 6. \$100,000 and up
9. What is your work status?
1. Working full time (35 or more hours per week)
 2. Working part time (less than 35 hours per week)
 3. Self-employed (35 or more hours per week)
 4. Self-employed (less than 35 hours per week)
 5. Other form of paid work
 6. Not currently in paid work
10. Do you use, or have you ever used, Text4Baby? (Yes No)
11. Are you familiar with Text4Baby? (Yes No)
12. I am interested in participating in a follow-up study testing how text-messaging can give information to new or soon-to-be fathers. Please contact me (Yes No)

CURRICULUM VITAE

EMILY M. CRAMER

Department of Communication
University of Wisconsin–Milwaukee
2522 E. Hartford Avenue
Milwaukee, WI 53201

EDUCATION

Doctor of Philosophy, University of Wisconsin–Milwaukee (UWM), Department of Communication, *Health information behavior and paternal involvement of low-income expectant and recent fathers*, May 2014.

Doctoral advisor: Mike Allen, PhD

Committee members: Nancy Burrell, PhD, Sang-Yeon Kim, PhD, Edward Mabry, PhD, Hayeon Song, PhD, Lindsay Timmerman, PhD

Master of Arts, Multicultural and Organizational Communication, DePaul University, College of Communication, 2008

Bachelor of Arts, Communication and English, Marquette University, Diederich College of Communication and Helen Way Klinger College of Arts and Sciences, 2002

ACADEMIC APPOINTMENTS

Graduate Teaching Assistant, UWM Department of Communication, Milwaukee, WI, 2010-2014.

Lecturer, DePaul University, College of Communication, Chicago, IL, 2008-2010; 2014

Graduate Research Assistant, Obesity and Cancer, UWM Scientific and Medical Communications Laboratory, Milwaukee, WI, 2013

Writing Center Tutor, UWM Writing Center, Milwaukee, WI, 2012-2013

Fellow, UWM Graduate School, Milwaukee, WI, 2012-2013

Graduate Project Assistant, UWM Department of Communication and College of Engineering and Applied Sciences, Milwaukee, WI, 2011-2012

TEACHING EXPERIENCE

Graduate Teaching Assistant, University of Wisconsin-Milwaukee, 2010-2011, 2013-2014. *Human Communication & Technology*: Online, undergraduate course; two stand alone sections each semester with 25 students, Fall 2013-Spring 2014. *Public Speaking*: Undergraduate summer course, stand alone; one stand alone section with nine students, Summer 2013; *Interpersonal Communication*: Undergraduate basic course; one stand alone section of 25 students, Summer 2011; six sections of 20 students; Fall 2010-Spring 2011

Lecturer, DePaul University, 2008-2010, 2014. *Health Communication*: Undergraduate course; one stand alone section with 30 students; syllabus/course development, lectures, activities, and grading, Winter and Spring 2014. *Small Group Communication*: Undergraduate course; ten stand alone sections with 30 students; syllabus/course development, lectures, activities, and grading, 2008 to 2010.

Courses Prepared To Teach

Advertising/PR	Organizational Communication
Communication and Culture	Relational Communication
Communication Theory	Research Methods (Quantitative and Qualitative)
Introduction to Communication	

SCHOLARSHIP AND RELATED ACTIVITIES

Research Statement

I study information-gathering practices and interpersonal challenges that arise with the onset of a serious illness or change in health condition, particularly among low-income communities. My lines of inquiry include: (a) Health information-seeking practices in underserved populations and across cultures; (b) Interpersonal and spiritual communication at the end of life; (c) Mobile and social media in relationship management.

Journal Articles (Peer-Reviewed)

Becker, K., Cramer, E.M., Priddis, D., & Allen, M. (2014, in press). Talking about end-of-life preferences in marriage: Applying the Theory of Motivated Information Management. *Health Communication*.

Cramer, E.M., Tenzek, K.T., Allen, M. (2013). Translating spiritual care in the chaplain profession. *Journal of Pastoral Care and Counseling*, 67(1), 1-16.

Song, H., Cramer, E.M., McRoy, S., & May, A. (2013). Information needs, seeking behaviors, and support among low-income expectant women. *Women & Health*, 53(8), 824-842.

Song, H., May, A., Vaidyanathan, V., Cramer, E.M., McRoy, S. (2013). Experiments with a text-messaging system for answering consumer health questions. *Patient Education and Counseling*, 92(2), 182-187.

Allen, M., Bourhis, J., Burrell, N., Cramer, E.M., Dilbeck, K., England, N.S., Hawkins, J.M., Maier, M., Mullane, R., Omachinski, K., Omori, K., Pincon, D., Victor, A., Willes, K.L., Zymslinksi, A.N. (2013). Comparing communication doctoral programs, alumni, and faculty: The use of Google Scholar. *Journal of the Association of Communication Administration*, 32(1 & 2), 55-68.

Cramer, E.M. & Tenzek, K.E. (2012). The chaplain profession from the employer perspective: An analysis of hospice chaplain job advertisements. *Journal of Health Care Chaplaincy*, 18, 133-150.

- Song, H., Cramer, E.M., & McRoy, S. (Manuscript under revision, March 2014). Information behavior and technology use of men at risk for prostate cancer. *American Journal of Men's Health*.
- McRoy, S., Cramer, E.M., Owais, R.W., & Song, H. (Manuscript under revision, April 2014). Assessing technologies for information-seeking by low-income men about prostate cancer screening. *Journal of Biomedical and Health Informatics*.
- Kim, S., Lim, T., Song, H., Cramer, E.M., England, N., Ahn, S., Kim, Jihyun, Kim, H., & Kim, Junghyun. (Manuscript submitted, February 2014). Healthy food and cultural holism. *Journal of Applied Communication Research*.
- Kim, S., Lim, T., Song, H., Herrman, A., Cramer, E.M., Ahn, S., Kim, Jihyun, Ota, H., & Kim, H., Kim, Junghyun. (Manuscript submitted, March 2014). Exploring cultural differences in women's body weight perception: The impact of self-construal on perceived overweight and engagement in health activities. *Health Care for Women International*.
- Kim, S., Lim, T., Song, H., Hawkins, J., Cramer, E.M., Ahn, S., Kim, Jihyun, Kim, H., Kim, Junghyun, & Ota, H. (Manuscript submitted, March 2014). Communicating healthful food choice: Cultural difference in regulatory focus. *Journal of Cross-Cultural Psychology*.

Book Chapters (Peer-Reviewed)

- Cramer, E.M. (2013). Ensuring a good death: Where communication can intervene. In M. Eaves (Ed.), *Applications in health communication: Emerging trends*. Dubuque, IA: Kendall Hunt Publishing.
- Cramer, E.M. & Mabry, E.A. (in press). Exploring the interaction of media richness and family characteristics in computer mediated communication. In C. Bruess (Ed.), *Family communication in a digital age*.
- Cramer, E.M., Tenzek, K.T., Allen, M. (in press). Spirituality, social support, and the communicative role of the chaplain in veteran populations. In L.M. Webb & E. Sahlstein (Eds.), *A communicative perspective on the military: Messages, strategies, meanings*.

Conference Papers (Presented)

- Cramer, E.M., Tenzek, K.E., Allen, M. (2013, November). *Recognizing success in the chaplain profession: Connecting perceptions to practice*. Top Four Paper presented at the National Communication Association 2013 Convention, Spiritual Communication Division, Washington, DC
- Cramer, E.M. (2013, November). *Advancing a communication-based theoretical approach to understanding the use and prevalence of text messaging*. Presented at the National Communication Association 2013 Convention, Scholar to Scholar Division: Connecting "Old" and "New" Media Studies, Washington, DC

- Tenzek, K.T., Cramer, E.M., Allen, M. (2013, November). *Spirituality and coordinated management of meaning: Examining the chaplain's role in social constructions of a "good death."* Top Four Paper presented at the National Communication Association 2013 Convention, Communication as Social Construction Division, Washington, DC
- Cramer, E.M, Kim, S., Herrman, A., England, N., Kim, H., Kim, J. (2013, November). *Culture and context dependency: The impact on patient-physician communication.* Presented at the National Communication Association 2013 Convention, International and Intercultural Communication Division, Washington, DC
- Mullane, R., Cramer, E.M., Schneider, S. (2013, November). *"These experiences shape your life for good and bad": Integrating student and educator ideologies into anti-bullying initiatives.* Presented at the National Communication Association 2013 Convention, Scholar to Scholar Division: Education, Leadership and Social Support, Washington, DC
- Tenzek, K.E., Cramer, E.M., Allen, M. (2013, October). *Standing up for spirituality: Legitimizing the role of chaplains in health care interactions.* Top paper presented at the Ohio Communication Association 2013 Conference, Marietta, OH
- Becker, K., Cramer, E.M., Priddis, D. (2013, September). *"In sickness and in health:" Seeking information about spousal end-of-life preferences.* Poster accepted to the 2013 International Conference on Communication in Healthcare, Montreal, Quebec
- Kim, S., England, N., Cramer, E.M., Grimes, D., Ahn, S., Kim, H., & Kim, J. (2013, August). *Holistic-analytic thinking and somatization: A cross-cultural study.* Paper accepted to the annual convention of World Communication Association, Seoul, South Korea.
- Cramer, E.M., & Tenzek, K.E. (2013, April). *Spirituality, social support, and the communicative role of the chaplain in veteran populations.* Top Five Paper presented at the Central States Communication Association, Health Communication Division, Kansas City, MO
- Song, H., Cramer, E.M., McRoy, S., & May, A. (2013, April). *Information needs, seeking behaviors, and support among low-income expectant women.* Top Paper presented at the Central States Communication Association 2013 Convention, Health Communication Division, Kansas City, MO
- Cramer, E.M., & Ruiz, A. (2013, April). *Topic avoidance in close friendships: An exploratory study.* Top Student Paper presented at the Central States Communication Association, Interpersonal & Small Group Division, Kansas City, MO
- Kim, S., Lim, T., Song, H., Hawkins, J.M., Herrman, A. R., Kim, H., Ota, H., Kim, J., Kim, J, England, N., Tenzek, K., Cramer, E.M., Omori, K., Grimes, D., & Dilbeck, K (2013, February). *Promotive versus preventive dietary practice and self-construal: Communicating healthful food choice.* Top Paper presented at the

- Western Communication Association 2013 Convention, Health Communication Interest Group, Reno, NV
- Cramer, E.M. & Tenzek, K.T. (2012, November). *Translating spiritual care in the chaplain profession*. Paper presented at the National Communication Association 2012 Convention, Religious Communication Pre-Conference, Orlando, FL
- Cramer, E.M. & Mabry, E.A. (2012, November). *Exploring the interaction of media richness and family characteristics in computer mediated communication*. Paper presented at the National Communication Association 2012 Convention, Family Communication Division, Orlando, FL
- Kim, S., Lim, T., Song, H., Cramer, E.M., Tenzek, K., England, N., Herrman, A., Hawkins, J.M., Kim, H., Ota, H., Kim, J., Kim, J., Omori, K., Grimes, D., Dilbeck, K. (2012, November). *Integrating cultural worldviews into health self-assessment and behavior when a family member is ill*. Paper presented at the National Communication Association 2012 Convention, International/Intercultural Division, Orlando, FL
- Kim, S., Lim, T., Song, H., England, N., Herrman, A., Hawkins, J., Kim, H., Ota, H., Kim, J., Kim, J., Tenzek, K., Omori, K., Cramer, E.M., Grimes, D., & Dilbeck, K. (2012, November). *What's healthy? Community perceptions of healthy food*. Paper presented at the National Communication Association 2012 Convention, International/Intercultural Division, Orlando, FL
- Cramer, E.M. & Mabry, E.A. (2012, July). *The impact of computer-mediated communication technology on family communication patterns: An exploratory study*. Paper presented at the International Association for Relationship Research 2012 Conference, Chicago, IL
- Tenzek, K.E. & Cramer, E.M. (2011, November). *Legitimizing spirituality: Chaplain perspectives on education, training, and roles*. Paper presented at National Communication Association 2011 Convention, Health Communication Division, New Orleans, LA
- Cramer, E.M. (2011, November). *Giving voice to spiritual needs: Addressing patient spirituality when breaking bad news*. Paper presented at National Communication Association 2011 Convention, Convention Theme Unit, New Orleans, LA
- Cramer, E.M. & Tenzek, K.E. (2011, October). *The blending of chaplains' material and symbolic identities in hospice care*. Paper presented at the International Conference on Communication in Healthcare, Chicago, IL
- Cramer, E.M. (2011, October). *Self-discrepancy at the end of life: Facing Death and The Cost of Dying*. Paper presented at the Health Studies Division, Midwest Popular Culture Conference, Milwaukee, WI
- Tenzek, K. & Cramer, E.M. (2010, April). *Hospice chaplain training: A look at advertisements*. Paper presented at Central States Communication Association 2011 Convention, Health Communication Division, Milwaukee, WI

Conference Papers (Submitted & Accepted)

- Allen, M., Burrell, N., & Cramer, E.M. (2014, April). *Impact of ObamaCare: Good communication is profitable and saves lives*. Paper accepted to the Health Interest Group of the 2014 Central States Communication Association Conference, Minneapolis, MN
- Song, H., Cramer, E.M., McRoy, S., & Owais, R. (2014, April). *Information behavior and technology use of men at risk for prostate cancer*. Abstract accepted to 2014 Kentucky Conference on Health Communication.
- Becker, K., Cramer, E.M., & Priddis, D. (2014, April). *Problematic integration and dying wishes: Examining spousal information-seeking about end-of-life care preferences*. Paper accepted to the 2013 Kentucky Conference on Health Communication 2014 Conference, Lexington, KY
- Kim, S., Ahn, S., & Cramer, E.M. (2014, May). *The impact of self-construal on weight estimation and health practice*. Paper accepted to the Intercultural Communication Division of the International Communication Association 2014 Conference, Seattle, WA
- Kim, S., Song, H., Cramer, E. M., & Ahn, S. (2014, May). *Food preference and cultural holism*. Paper accepted to the competitive paper session of the Korean American Communication Association (KACA) at the International Communication Association 2014 Conference, Seattle, WA
- Cramer, E.M. (2014, November). *Health information behavior and involvement of low-income expectant and recent fathers*. Paper submitted to the National Communication Association 2014 Convention, Health Communication Division, Chicago, IL
- Cramer, E.M., Song, H., & Drent, A. (2014, November). *Social comparison practices and self-esteem on Facebook*. Paper submitted to the National Communication Association 2014 Convention, Human Communication and Technology Division, Chicago, IL
- Kim, S., Cramer, E. M., & Ahn, S. (2014, November). *Family illness, self-construal, perceived susceptibility, and health promotion: Implications for prosocial behavior*. Paper submitted to the National Communication Association 2014 Convention, International and Intercultural Communication Division, Chicago, IL
- Kim, S., Ahn, S., & Cramer, E. M. (2014, November). *Promotive versus preventive dietary practice and self-construal: Communicating healthful food choice*. Paper submitted to the National Communication Association 2014 Convention, Health Communication Division, Chicago, IL

Presentations, Guest Lectures, & Media

- Cramer, E.M. (2013, December). *Health information behavior, technology use, and engagement of low-income expectant and recent fathers: Preliminary data*.

- Presentation to City of Milwaukee Health Department Men's Health Referral Network, Milwaukee, WI
- Cramer, E.M. (2013, February). "*I have something to tell you, I ...:*" *Social penetration theory*. Guest lecture via Skype to students in Communication Theory course at Bloomsburg University, Bloomsburg, IN
- Luljak, T. (2013, [January 10](#)). How parents and college students communicate [Radio interview with E.M. Cramer and E.A. Mabry]. *UWM Today*. Milwaukee, WI: WUWM Milwaukee Public Radio 89.7
- Quirk, K. (2012, November). Facebook or phone call? Family dynamics might decide. *UWM Report*, 33(8), 13.
- Allen, M., Tenzek, K.E. & Cramer, E.M. (2012, April). *2011 Federation Prize Research Report: Communication at the end-of-life: The role of the chaplain*. Panel presentation accepted to the Central States Communication Association 2012 Convention, Cleveland, OH

AWARDS & RECOGNITION

- Amelia Lucas Trust Fund Scholarship, UWM Department of Communication, November 2013
- Melvin H. Miller Award for Outstanding Doctoral Research, UWM Department of Communication, May 2013
- Top Four Paper, Spiritual Communication Division, National Communication Association Convention, Washington, DC, 2013
- Top Four Paper, Communication as Social Construction Division, National Communication Association Convention, Washington, DC, 2013
- Top Paper, Ohio Communication Association 2013 Conference, Marietta, OH
- Top Paper, Health Communication Interest Group, Central States Communication Convention, Kansas City, MO, 2013
- Nancy Burrell Award, Top Student Paper, Interpersonal and Small Group Communication Interest Group, Central States Communication Convention, Kansas City, MO, 2013
- Top Paper, Health Communication Interest Group, Western Communication Association Convention, Reno, NV, 2013
- Distinguished Graduate Student Fellowship, 2012-2013 Academic Year
- John Paul Jones Scholarship, UWM Department of Communication, 2012
- Federation Prize, Central States Communication Association, 2011
- Chancellor Award, UWM Department of Communication, 2010

Outstanding Graduate Student Award, Multicultural & Organizational Communication,
DePaul University, Department of Communication, 2008

Marquette University Jesuit Scholarship, Marquette University, 1998 to 2002

PROFESSIONAL SERVICE

Paper Reviewer, Human Communication and Technology Division, National
Communication Association, Spring 2014

Paper Reviewer, Health Communication Interest Group, Central States Communication
Association, Fall 2013

Manuscript Reviewer, *Communication Quarterly*, Spring 2013

Mentor, First-Year PhD Student, Fall 2013 to present

Paper Reviewer, Communication Theory Interest Group, Central States Communication
Association, Fall 2012

President, Communication Graduate Student Council, Department of Communication,
University of Wisconsin–Milwaukee, Fall 2012

Vice President, Communication Graduate Student Council, Department of
Communication, University of Wisconsin–Milwaukee, Spring 2011

Graduate Affairs Committee Representative, Communication Graduate Student Council,
Department of Communication, University of Wisconsin–Milwaukee, Fall 2011

Vice President, Communication Graduate Student Council, Department of
Communication, University of Wisconsin–Milwaukee, Spring 2011

Paper Reviewer, Instructional and Development Communication Division, International
Communication Association, Fall 2010

Volunteer, Public Speaking Showcase, Department of Communication, University of
Wisconsin–Milwaukee, Fall 2010

PROFESSIONAL ASSOCIATION MEMBERSHIP

Central States Communication Association, 2014

International Communication Association, 2014

National Communication Association, 2014