TITLE

The Impact of Paternal Support on Maternal Stress among Pregnant African American Women

BY

Georgiana Logan

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First Reader *Shan Parker*

Second Reader *GKodjebacheva*

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Georgiana Logan

Psalm 34:1- "I will bless the Lord at all times: his praise shall continually be in my mouth"

Chapter 1: Introduction

Pregnant women who experience high levels of stress are at risk for adverse birth outcomes such as preterm delivery (baby born <37 weeks), low birth weight (baby weighing <2,500g) and infant mortality (Mulder, Medina, Huizink, Van den Bergh, Buitelar and Visser2002; Forde 1993; Lobel 1994; Alio, Bond, Padilla, Heidelbaugh, Lu and Parker 2011). Stress can be defined as a person's response to internal and external factors that influence physical and mental health leading to a chemical imbalance in the body. In the United States, low birth weight (<2,500g) and preterm delivery (<37 weeks) are the leading causes of infant death for African American infants (Dominguez, Dunkel, Glynn, Hobel, and Sandman 2012; Lobel 1994; Norebeck and Anderson 1989; Chen, Grobman, Gollen and Borders 2012).

African American women who endure chronic levels (a state of ongoing physiological arousal) (Czukas 2012) of stress in their everyday lives are likely to have two times the rate of preterm delivery, two times the rate of low birth weight (6.9 for whites vs. 14.1 for blacks) and twice the rates of infant morbidity and mortality (4.9 for whites vs. 13.7 for blacks) than whites (Dominquez, Schetter, Mancuso, Rini and Hobel 2005; Dole, Savitz, Siega, Hertz, McMahon, and Buekens 2004; Norebeck and Anderson 1989; Dominguez, Dunkel, Glynn and Hobel 2012).

Adequate partner support may help influence physical and mental health. Partner support may therefore reduce maternal stress lead to improved birth outcomes (Straughen, Caldwell, Young and Misra 2013,Ghaemmaghami, La Marca, Dainese, Haller, Zimmermann, and Ehlert 2013; Elsenbruch, Benson, Rucke, Dudenhausen; Pincus-Knackstedt, Klapp and Arck 2006). Researchers have suggested that health disparities in African American women, including adverse birth outcomes can be explained by stress and coping (Woods-Giscombe 2010,Stancil, Hertz-Picciotto, Schramm , Watt-Morse 2000, Giurgescu, Banks , Dancy and Norr 2013).

Stress: The Body's Response

When the body is stressed, a hormonal response activates and releases cortisol and adrenaline into the body. These hormones normally activate the fight-or flight response necessary for survival but when the body is chronically stressed, these hormones can remain elevated in the body too long and cause serious problems (Alio, Kornosky, Mbah, Marty and Salihu 2009; Sosa, Klaus, Robertson and Urrutia 1980; Dole, Savitz, Siega, Hertz, McMahon, and Buekens 2004). When a woman is pregnant, these stress hormones may reach the baby. This interaction of stress hormone to baby may impact the baby's development process such as birth weight (Dominguez, Dunkel, Glynn, Hobel, and Sandman 2008; Dole, Savitz, Siega, Hertz, McMahon, and Buekens 2004; Collins, Dunkel-Schetter, Lobel and Scrimshaw 1993; Dominguez, Dunkel, Mancuso, Rini and Hobel 2005). When a mother is stressed she may feel overwhelmed, and this in turn may impact her sleep, diet and prenatal care, maybe leading to negative long-term effects for the unborn baby.

Consequences of Stress: Low Birth Weight, Pre-term Birth and Infant Mortality

There are many consequences of stress that may have a negative impact on birth outcomes. Although this research does not focus on birth outcomes, it is important to discuss how stress affect associated birth outcomes for African-American women. Stress during pregnancy has been shown to be linked to adverse birth outcomes. Those outcomes have included preterm birth, low-birth-weight infants and infant mortality (Giurgescu, Kavanaugh, Norr, Dancy Twigg, McFarlin, Engeland, Hennessy and White-Traut 2013, Wadha, Entringer, Buss and Lu 2011, Collins, David, Handler and Wall 2004). Research from a stress report involving negative birth outcomes concluded in 2010 the United States reported, 12% of infants were born prematurely and 8% of infants were born with low birth weight. African American

women had 17% preterm birth rates and 13.5% low-birth-weight infants compared with 11% preterm birth and 7% low-birth-weight infants for non-Hispanic white women (Giurgescu, Kavanaugh, Norr, Dancy Twigg, McFarlin, Engeland, Hennessy and White-Traut 2013, Martin, Hamilton, Ventura, Osterman, Wilson and Mathews 2010). Previous studies have reported a direct association between reactivity to stress during pregnancy and adverse birth outcomes (McCubbin, Lawson Cox, Sherman, Norton and Read 1996; Hatch, Berkowitz, Janevic, Sloan, Lapinski and James 2006).Stress may therefore may be an indicator of why pregnant African-American women experience negative birth outcomes.

Black infants have far poorer birth outcomes than white infants in the United States (Lu, and Halfon. 2003).The reasons for these persisting racial disparities remain unclear (Lu, and Halfon. 2003). Women who are poor and African American, have two times the rate of LBW babies than any other race. Stress significantly contributes to LBW (Dole, Savitz, Siega, Hertz, McMahon, and Buekens 2004; Collins, Dunkel-Schetter, Lobel and Scrimshaw 1993; Dominguez, Dunkel, Mancuso, Rini and Hobel 2005). Low birth weight (LBW) rates for African American babies in Michigan remain stagnant. During the 2008-2010 periods, the LBW rate among African American babies was as nearly twice the rate of their white counterparts (Precourt-Debbink, and Bader 2011). Michigan on average in 2012 had multiple metropolitan areas with high levels of LBW disparities (7.0% for whites vs. 14.0% for blacks) between black and white infants. (Precourt-Debbink, and Bader 2011).

Pre-term birth, defined as a baby delivered less than 37 weeks is a major challenge for maternal-child health and a leading cause of infant morbidity and mortality (Wadhwa, Culhane, Rauh, Barve, Hogan and Sandman 2005, Ickovics, Kershaw, Westdahl, Schindler Rising, Klima, Reynolds, and Magriples 2003). For every 100 births among blacks in Michigan, approximately

18 are born preterm compared with 11 preterm births for whites (Xu, Grigorescu, Siefert, Lori, and Ransom 2009). Although implications for preterm birth are well characterized, there is a lack of data on partner support associated with stress with preterm birth rates (Wang, Zuckerman, Coffman and Corwin 1995, Warren 1997).

In 2013, the white infant mortality rate was 5.6 deaths per 1,000 live births in contrast to the rate for African Americans which were 11.9 deaths per 1,000 live births in Michigan (Pestroni and Franks 2003, Iyasu, Becerra, Rowley, and Hogue 1992, http://www.mdch.state.mi.us/pha/osr/Provisional/InfantDeaths2013.asp). Michigan is ranked number 43 in infant mortality for the United States. Researchers found significant differences between the infant mortality rates for African American mothers who have supportive networks versus African American women who do not (Schoendorf, Hogue, Kleinman, and Rowley 1992, Iyasu, Becerra, Rowley, and Hogue 1992). A supportive network is defined as "an informally interconnected group or association of persons that give help or assistance to someone (http://www.merriam-webster.com/dictionary)."

Purpose of the research

The purpose of this research is to investigate the impact of male partner support on maternal stress among pregnant African American women living in Michigan. Partner support may be crucial for pregnant African American women in terms of reducing stress which thereby may reduce adverse birth outcomes by providing comfort. Partner support is categorized in this research in terms of emotional, esteem, informational and tangible support (Cohen and Willis 1985). Emotional support is defined as expressive, being able to talk about pregnancy concerns and active listening. This type of support may be demonstrated through giving hugs or listening to problems. *Esteem support* focus on the partner's perceived esteem and perceived acceptance

during pregnancy. This may be shown through telling their partner they are doing a good job and how proud they are of them. It involves all the ways the partner boosts confidence in the pregnant mother. *Informational support* refers to the partner's help in defining, understanding and coping with events and *tangible support* refers to the partner's financial support and material resources. The type of partner support offered (emotional, esteem, informational and tangible) may have different influence on the pregnant mother's perceived stress.

Research questions

To investigate the impact of male partner support on maternal stress, two research questions need to be addressed. The research only focuses on heterosexual African-American couples living in Michigan. The research questions are as follows: What is the influence of overall paternal support on stress among pregnant African American women? It is hypothesized that having a supportive partner who is involved during pregnancy will reduce stress among pregnant women. Another question is: How do certain forms of paternal support (i.e. emotional, esteem, informational and tangible) influence stress? It is hypothesized that if pregnant women perceived to receive adequate partner support, stress levels would be low among these women. To further explain, having emotional, esteem and tangible support would lead to lower levels of stress among pregnant women, while having informational support would have a neutral affect as it may not be assessed has having more value than the other forms of support received from a partner. This is inferred because if a pregnant mother receives prenatal care, her physician may be giving the most informational support and may be valued more by the woman than receiving information from her partner.

Health Education Rationale:

Implications for this research allows for a subset of new studies to be considered in relation to partner support and why pregnant women may be stressed and how that stress can in turn affect pregnancy outcomes. Literature has shown that birth outcomes have been influenced by stress and African American women are more likely to experience adverse birth outcomes. If the lack of social support is related to stress in pregnant African American women, stress-coping and stress-prevention interventions may be developed to improve birth outcomes among African American women. Partner support directly affects stress and indirectly affects birth outcomes. The rationale for conducting the research only in African American women is to: 1. develop tailored interventions and 2. To reduce disparities seen among this subset of women.

Chapter 2: Brief Literature Review

Overview of Literature Review

The following section outlines studies that have been conducted on the associations between the various forms of social support and stress in pregnant African American women. The stress buffering hypothesis gives an overview of how social support may impact stress. The proposed conceptual model demonstrates how maternal stress is influenced by various determinants. Finally, the section on the social support theory presents how the various forms of social support, i.e. emotional, tangible, esteem and informational may influence stress among pregnant African American women.

Stress Buffering Hypothesis

"Women with low social support lack effective psychosocial resources, particularly social stability and social participation and therefore receive insufficient emotional and instrumental support from the partner, family and/or friends" (Larmarca, Leal, Sheiham and Vettore 2013).The buffering model concludes that support "buffers"(protects) persons from the potential influence of stressful events. The stress buffering hypothesis emphasizes that support may intervene between a stressful event and a stress response. A potential stressful event may be prevented through social support which will reappraise events that were deemed stressful and produce a response that lead to positive behavior (Cohen and Willis 1985). The goal of this study was to therefore study how partner support may act as a buffer to stress in relation to pregnancy.

Conceptual Model

A conceptual model is often used to provide readers with a backwards roadmap to how a problem developed. The conceptual model below was developed to demonstrate how maternal stress is affected by various types of support and how those support systems are influenced by

other factors. Factors such as education, employment, SES, income, number of children, environmental/societal factors etc. can have an indirect relationship meaning those said factors may influence maternal stress in the absence of presence of paternal support. For example, someone with a high income and no support may have the same stressors as stressed as someone with a low income and no support. Various and interrelated factors influence the support which in turns affects maternal stress. Informational support is influenced by insurance, access to healthcare and education. If a pregnant woman and her partner do not have insurance, they may lack the necessary or proper information regarding her pregnancy. A female with lower education may have difficulties experienced in comprehending or understanding information regarding her pregnancy. Not having access to healthcare or adequate healthcare can hinder informational support. In the developed conceptual model (see figure 1.1 below), many factors affect support which in turn affect maternal stress. Those factors and support can increase or decrease a pregnant woman's stress and has a direct influence on birth outcomes.
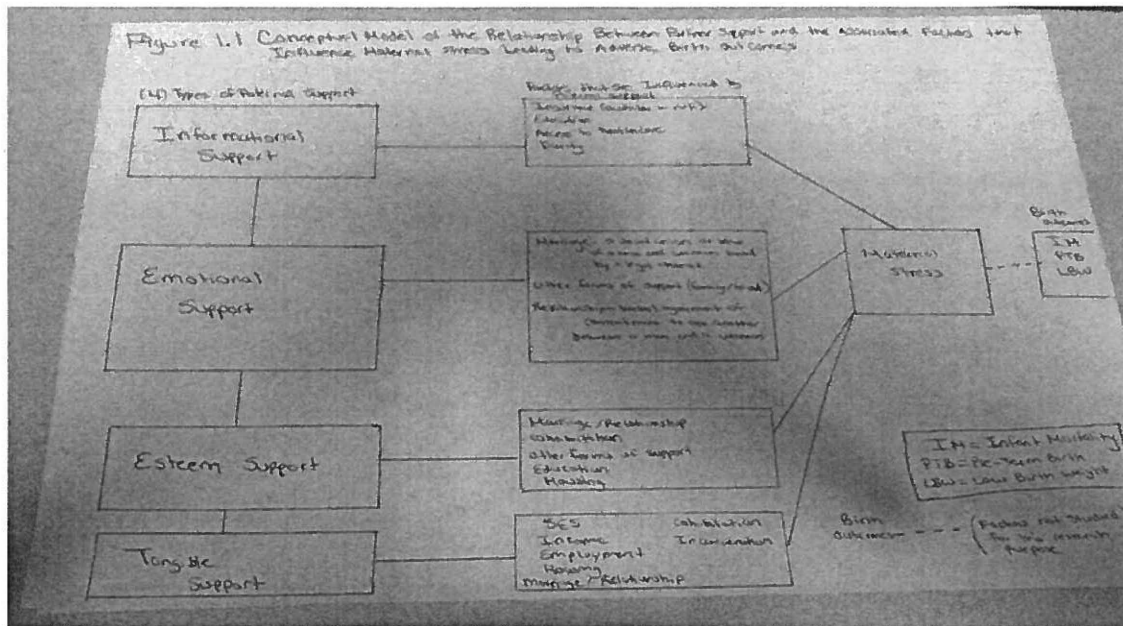
Figure 1.1 Conceptual model of the Relationship between Partner support and the Associated Factors that Influence Maternal Stress Leading to Adverse Birth Outcomes

Cohabitation

Emotional support may be influenced by a woman's marital status. Marriage is defined below as a joint union or vow of a man and woman bound by a legal contract. This quality of cohabitation may play a role in how a pregnant woman perceives partner support. Many couples may live together but may not be married. Cohabitation for some individuals may not necessarily mean the same thing. Some partners may only stay certain days of the week or may stay all the time. Black women were found to have children more frequently in cohabitating relationships (those outside of marriage) than their white counterparts, and factors such as income and education may influence cohabitation among these women (Goodwin and Mosher 2010, Manning 2001, Ibid; Graefe and Lichter 1999, Carter 1996).

Incarceration

Emotional support may have an indirect influence on pregnancy. Researchers found that an array of psychosocial stressors such as a jailed partner may contribute to maternal stress. When a partner is incarcerated, emotional support may lack and cause hardship among pregnant women (Braveman; Marchi; Egerter; Kim; Metzler; Stancil and Libet 2010, Lu and Halfon 2003). When the baby's father is absent from the home, there may be a lack of paternal emotional support. (Hobel, Goldstein and Barrett 2008; Casper and Hogan 1990; Barerra and Balls 1983; Hohmann and Bryndl 2009; Lespinasse, David, Collins, Handler, and Wall 2004). A partner may also be jailed and cannot physically be there for support, but may offer support through telephone conversations. A mother may perceive this as being enough support for the moment, depending on the situation.

Family and Friends

Other forms of support such as family and friends, may also buffer the effects of stress during pregnancy. If a pregnant woman has the support of her family such as mother and father and or friends, she may not be as concerned with having a partner. Because pre-term birth is one of the most significant problems in maternal-child health, understanding that family and friends act as a buffer to stress that counter-act birth outcomes is important (Wadhwa; Entringer; Buss and Lu 2012, Hodnett; Fredericks and Weston 2010).

Parity

The number of children a woman may have may also alter her stress level. If she already has a child, she will know what to expect when having a baby and may not need informational support. Maternal stress is influenced by support and there are co-variants such as financial and emotional support as discussed above that alter support which in turns alters stress.

The social support theory further illustrates the conceptual model in terms of defining the infrastructure needed to provide the best support to pregnant women in this study.

Social Support Theory

The theory of social support defines the infrastructure necessary for quality of life. This theory was chosen because there are various forms of support outlined by this theory such as appraisal, informational, instrumental (tangible) and emotional support (Hupcey 1998). Social support supplements professional support by providing love, reinforcement and acceptance to an individual. Supportive networks may contribute to the well-being of African American women during pregnancy and may buffer the impact of stress (Cohen and Wills,1985; Morgan, 1996).This research will investigate the association between type of partner support offered (emotional, esteem, informational and tangible) and the amount of maternal stress experienced by pregnant African American women.

Four Types of Partner Support

Emotional Support developed by the conceptual model above defines an aspect of paternal support that must be addressed. Perceived emotional stress is a self-reported variable. We know that supportive networks may potentially act as a buffer against stress. Because pregnancy is a significant life changing event, the lack of emotional support (expressive, ventilation and close support) during pregnancy can be a risk factor for many pregnant mothers (Elsenbruch, Benson, Rucke, Rose, Dudenhausen, Pincus-Knackstedt, Klapp, and Arck, 2006; St. John and Winston 1989; Jacobson 1986). African American women who receive more support from partners experience fewer pregnancy complications such as low birth weight and preterm births (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Oakley, Rajan and Grant 1990; Cohen and McKay 1984; Strughen, Caldwell, Young and Alford 2013). Various programs

have provided vast knowledge on effective ways to decrease maternal stress and reduce adverse birth outcomes among women, yet rates of low birth weight, preterm delivery, infant mortality and infant morbidity in pregnant African American women still are on the rise. Researchers have assessed emotional stress in pregnancy in relation to lacking support in the delivery room and found that having support in the delivery room significantly decreased the odds of emotional stress and having a low birth weight baby (Lespinasse, David, Collins, Handler, and Wall, 2004; Elboure, Oakley and Chalmers; Casper and Hogan 1990). In the above study, presence of support in the delivery room was a poor predictor of low birth weight due to stress.

As with emotional support, informational support needs to be considered. Informational support (i.e. partner's help in defining, understanding and coping with events) may vary by provider and context of delivery. Researchers have sought to understand the delivery of informational support through social media sites for low income, pregnant African American women. Authors found that through social support networks such as blogs for pregnant women, women accessed the discussion boards the most and used the ask-a-nurse feature frequently. The blogs also provided information on ultrasounds, stories of other pregnant women and spiritual support. Researchers concluded that having blogs helped reduced maternal stress and was the most effective way to offer informational support to pregnant women (Herman, Mock, Blackwell and Hulsey 2005). Other sources of informational support include giving advice, and gathering and sharing information related to an individual's condition in an effort to help with problem solving.

Individuals who seek informational support are likely to have less informational stress during pregnancy and a positive outlook on pregnancy (Shieh, McDaniel and Ke 2009). Researchers have examined how information needs, information-seeking behaviors and

informational support of low-income pregnant women impacted birth outcomes. They found that women with informational support from family, especially the father of the baby had increased levels of perceived informational support and a reduction in the amount of stress experienced during their pregnancy (Song, Kramer, McRoy and May 2013). It was hypothesized for this research that informational support would have a neutral effect on stress, as it may not be assessed as having more value than the other forms of support received from a partner. If a pregnant mother is receiving maternal care from a health professional, the information provided by the partner may not be as important.

Informational support may lead to reduced stress, as a woman's level of perceived esteem increases. Esteem support (i.e. maternal self-perceived esteem and perceived acceptance during pregnancy by the baby's father) has been shown to have beneficial effects on behaviors and emotions in pregnant African American women (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Zambrana; Dunkel-Schetter and Scrimshaw 1996). Pregnancy may be a challenging time for women due to changes in physical appearance (Gjerdingen, Froberg and Fontaine 1991; Dunkel, Sagrestano, Feldman and Killingsworth 1996; Higgins, Murray and William 1994). Esteem can play an important role in reducing physical and emotional strain experienced during pregnancy. Esteem may boost positive health behaviors and lifestyle choices for pregnant women such as seeking prenatal care, consuming healthy meals, and choosing to not smoke or drink alcohol or use drugs (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Aaronson 1989; Albrecht and Rankin 1989; Andresen and Telleen 1992, Molina and Kiely 2012). Partners may offer esteem boosters such as compliments on physical appearance and praise positive maternal behaviors.

Tangible support refers to the partner's financial support and material resources. In prior research, low tangible support accompanied by high stress during pregnancy lead to more premature births and low tangible support with low levels of stress lead to longer labor and more births by caesarian section (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Jacobson 1986; Cobb 1976). Tangible support can help pregnant women with costs for prenatal care and additional time off time (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Jacobson 1986; Aaronson 1989). Giblin et al, found that tangible and emotional support from the baby's father was a significant predictor of prenatal care initiation.

Table 1.1 (see appendix) summarizes previous studies that have been done to understand the sources of maternal stress. Based on Table 1.1, lack of social support is a risk factor for maternal well-being throughout pregnancy and has undesirable effects on pregnancy outcomes. The findings suggest that marital status is the most significant predictor of support from the baby's father. Findings also suggest that support from friends and family is more multifaceted, and is associated with ethnicity, SES, age, parity, and marital status. Perceived social support was associated with depressive symptoms. It is concluded that the primary benefits of having a father or male partner involved during pregnancy were reduced maternal stress levels and the encouragement of positive maternal behaviors. Most women had supportive networks of friends but derived their primary emotional and maternal support primarily from their partners. Support from the baby's father may alleviate or mitigate some of the effects of chronic stress. The emotional or romantic connection also was shown to heavily influence the level of involvement by the father. The conclusion made was that identifying sources and types of support should continue to be a goal of public health in efforts to reduce disparities.

Gaps in Literature

When assessing partner involvement, the amount, duration and type of support need to be considered. Research has been limited to studies relating social support to stress levels in pregnant African American women and have yet to provide many links to partner support and stress across the social support framework. There has been little evidence to show how male partner support (emotional, esteem, informational and tangible) impacts maternal stress. As Table 1 indicates that gaps remain when trying to understand how partner support affects maternal stress. Table 1.1 shows that there is a missing link when studying perceived partner support due to studies only focusing on the mother's perception of the support she receives. None of the studies in Table 1.1 surveyed men to understand how they perceived the amount of support they gave to their partners. This study addresses how partner support impact maternal stress by looking at four aspects of paternal support. Another limitation is that studies have been conducted only in some geographic regions such as Germany, England, California, Sweden, New York and Maryland and; the findings from these studies cannot be generalized to all parts of the US. Prior studies also did not assess how partner support affected stress and subsequently birth outcomes. Research also failed to acknowledge that there are many barriers that keep a father away from the expectant mother during pregnancy such as being prison, in the military, or being deceased. To date, studies have failed to confirm or show associations that partner support may reduce stress thereby reducing high rates of premature births, low birth weights and infant mortality among pregnant African American women. Studies in Table 1.1 do not question expectant mothers on what they perceive to be the best support system during pregnancy and what types of support would be more beneficial to have. This research seeks to understand the

mothers' perceived support and feelings regarding their pregnancy in relation to having or a lack of partner support.

Prior research has yet to show causal effect relationships between partner support and maternal stress since most studies have been cross-sectional. An issue of concern may be the use of the marital status variable rather than an indicator of quality of cohabitation (Table 1). The inability to test the impact of culture on ethnic differences in social support may also pose as a limitation in prior research. Recall bias is a potential limitation. Recall bias is a limitation because participants may not be able to accurately recall how they felt or what they did during a period of time in the past. Under-reporting is a limitation to all research. Under-reporting happens when participants don't accurately respond to questions that may be embarrassing or when their identity may be known. Respondents will answer questions with the wrong response and data will be under-reporting for that population in which a researcher is studying. Potential confounders need to be addressed. The confounder stated in Table 1 dealt with domestic violence. Depressive symptoms were measured rather than the diagnosis of clinical depression which could affect the measurement of maternal stress to partner support.

Study Hypothesis

This research sought out to help better understand how paternal support affects maternal stress in pregnant African-American women by studying what associations could be made between types of partner support offered and maternal stress in pregnant African American women. Furthermore; what are the type(s) lack of support (emotional, esteem, informational and tangible) that have the most impact on maternal stress. It was hypothesized that if pregnant women received or perceived to receive adequate partner support, stress levels would be low among these women. Having emotional, esteem and tangible support would lead to lower levels

of stress among pregnant women, while having informational support would have a neutral affect as it may not be assessed has having more value than the other forms of support received from a partner.

Chapter 3: Methodology and Design

Human Subjects Approval

Before conducting any research, Human Subjects Approval was acquired. The IRB Flint reviewed the study referenced above and determined that, as currently described, it is exempt from ongoing IRB review, per the following federal exemption category: EXEMPTION #2 of the 45 CFR 46.101. (b). My IRB submission HUM00083929 Pregnancy Support Survey received the exempt determination on April 9th, 2014.

Research Design

A cross-sectional study design was utilized. This method was used to make inferences about the possible relationship between partner support and maternal stress. This Cross-sectional study allowed for multiple variables to be assessed at once. However, because a cross-sectional study was utilized, causal effects could not be assessed. A 29 item survey tool was developed based on off items from the above mentioned survey tools.

Recruitment:

Study Participants were recruited utilizing Facebook and Twitter. A survey link was sent to personal contacts and then those contacts could send the survey link out to their personal contacts.

Inclusion Criteria:

The study was restricted to women living in Michigan who are African-American, pregnant and met the age requirements ($\geq$18). Women who were pregnant with more than one fetus, used alcohol or drugs, and who were considered high risk (subject to having complicated pregnancies) were excluded from the study. The exclusions helped to defer any other factors that may contribute to stress.

There was a five question screening tool used to exclude women from the study who did not meet inclusion criteria. Screening protocol included: online survey consent and four required questions (Are you older than 18 years, are you African-American, Are you currently pregnant, living in Michigan and Are you currently pregnant with more than one fetus, using alcohol or drugs or considered to be a high risk pregnancy?). The five question screening tool questions had to be answered, before the survey was administered. If participants answered no to any of the screening questions, they were re-directed to another webpage and thanked for their participation although they could not complete the survey.

Survey/Instrument Development:

The Pregnancy Support Survey was developed from the following validated surveys. Questions were used verbatim from each of the following scales; Perceived Stress Scale, MOS Social Support Survey, Tilburg Pregnancy Distress Scale, Multidimensional Scale of Perceived Support and the Pregnancy Risk Assessment Monitoring System (PRAMS). Psychometric property analysis was performed using SPSS and reliability of the survey tool was assessed. The reported Cronbach's alpha was 0.816. When selecting a combination of instruments to use, all questions associated with this research have been used with previous African American women and are culturally sensitive as described above.

This next section discusses psychometric properties of the questions utilized from each validated tool. Four instrument scales were used to answer my research questions. The two research questions this research sought to answer were 1. What is the influence of overall paternal support on stress among pregnant African American women? 2. How do certain forms of paternal support (i.e. emotional, esteem, informational and tangible) influence stress?

Table 3.1 Reliability of Partner Support Survey

Instrumentation	# of Questions	Types of Support	Cronbach's Alpha
Perceived Stress Scale	10	Stress	0.962
Medical Outcomes Study	20	Emotional, Informational, Tangible and Esteem	0.998
Tilburg Pregnancy Distress Scale	5	Emotional	0.987
Multidimensional Scale of Perceived Support	12	Stress	0.999

Table 3.1 comprises the reliability (Cronbach's alpha) of the four instruments utilized for the Pregnancy Support Survey. According to Table 3.1, the reliability of this scale for my sample population was 0.962 which indicates that the perceived stress scale was very reliable for this sample of pregnant women. Pregnant women who took the Medical Outcomes Study received a reliability score of 0.998 indicating that the instrument was very reliable for this sample of pregnant women. The Tilburg Pregnancy Distress Scale reported a reliability of .987 indicating that this scale was reliable for the population in this research. The Multidimensional Scale of Support indicated a reported reliability of .999, indicating that this instrument is very reliable for this population of pregnant women. Based on the reported cronbach's alpha, the Pregnancy Support Survey was a reliable measure to assess the associations between partner support and maternal stress.

The Medical Outcomes Study (MOS) was utilized to answer the research question; what is the association between types of partner support and maternal stress in pregnant African American women? I hypothesized that if pregnant women perceived to receive adequate partner support, stress levels would be low among these women. Having emotional, esteem and tangible

support would lead to lower levels of stress among pregnant women, while having informational support would have a neutral effect as it may not be assessed as having more value than the other forms of support received from a partner.

MOS (Medical Outcomes Study) Social Support Survey examines various dimensions of social support. This scale was utilized because it assesses support available to an individual and encompassed four support scales (emotional, informational, tangible and esteem) which have a reported reliability (Cronbach Alpha's >.91) (http://www.rand.org/pubs/reprints.html). The scale consists of twenty questions and is scored on a Likert scale of responses ranging from 1 (none of the time) to 5 (All of the time). This research utilized all questions because they asked the participant how often certain support was offered. Some questions included: How often do you have someone to help you if you were confined to bed and someone you can count on to listen to you when you need to talk (see appendix).

The Perceived Stress Scale measures an individual's perception of stress. The items in this scale ask questions on the individual's feelings and thoughts over the past month such as irritability, personal problems and coping skills. Responses are based on a five-point Likert scale with 0 (never) to 4 (Very often). Scores range in value from zero to over twenty-one. Higher scores indicate higher levels of perceived stress and increased susceptibility to stress-induced illness such as having a baby pre-term. Reliability has been reported in many studies to range from a Cronbach Alpha of 0.70-0.90 (Andreou, Alexopoulos, Lionis, Varvogli, Gnardellis, Chrousos and Darviri 2011, Leung, Lam and Chan 2010). In developing the tool for this study, all ten questions were utilized (see appendix). It was hypothesized as partner support increase maternal stress will decrease among pregnant women.

The Tilburg Pregnancy Distress scale was used to assess how do certain forms of paternal

support (i.e. emotional, esteem, informational and tangible) influence stress? It was hypothesized that if emotional partner support is present, maternal stress will be low. The Tilburg Pregnancy Distress Scale is a 16-question index designed to assess how a mother perceives her pregnancy. The index is used for this research because it assesses the mothers' perception of their pregnancy in relation to their partners. Response categories include very often, fairly often, now and then and rarely or never. The index has been recorded to have a Cronbach's alpha of greater than .80 (Pop, Pommer, Wijnen, Bergink and Pouwer 2011). Of the 16 questions in the survey, five were used for this research and include questions about perceived partner involvement (see appendix). These five questions were only utilized from the survey tool because they focus on social interaction in specific to partner involvement.

The Multidimensional Scale of Perceived Support answers the research question regarding the association between types of partner support and maternal stress in pregnant African American women. I hypothesized as partner support increase maternal stress will decrease among pregnant women.

MSPSS measures perceived adequacy of social support from sources such as family, friends, and significant others. The MSPSS is a twelve-item, seven point scale, with response categories of very strongly disagree to very strongly agree. This measure has a reported Cronbach Alpha of > .90 (Zimet, Dahlem, Farley 1988, Zimet, Powell, Farley, Werkman and Berkoff 1990). Scores for this scale range from 7-84 with a score of <48=low perceived support, >69=high perceived support and a score of 49-68 represent moderate perceived support. All twelve items were utilized for this study (see appendix).

Questions utilized from the Pregnancy Risk Assessment Monitoring System (PRAMS) were used for establishing a demographic profile and do not correspond to any research question. However, eight questions offer insight as to how a pregnant mother may perceive their partner's emotional, informational, tangible and esteem support.

PRAMS is a monitoring system developed by the CDC that collect state specific, population based data on the attitudes of pregnant mothers and their experience of pregnancy before, during and shortly after pregnancy. The goal of this index is to improve health of pregnant women and their babies by reducing adverse birth outcomes such as infant mortality. The version of the PRAMS used for this research is a modified version because the survey burdensome. Eight questions were utilized to understand pregnant women emotional, informational, tangible and esteem support (see appendix).

Coding of Questionnaire

Questions in two scales: the Perceived Stress Scale and Medical Outcomes Study were re-coded so that participant's responses are consistent from low to high. All scales were re-coded so that the minimum score a participant could receive was 0 and the maximum 100.

Statistical Analysis

Statistical analysis was performed using SPSS. Univariate descriptive analysis was conducted to assess demographic questions. To answer research question what is the influence of overall paternal support on stress among pregnant African American women, linear regression was used to assess the association between partner support and maternal stress. Maternal stress was the dependent variable and the four types of support were independent variables. The Cronbach's alpha for each scale was calculated using SPSS.

Chapter 4: Results

Table 4.1 Age, Education and Marital Status of Women Currently Pregnant who participated in the Survey

Demographic Profile	Valid Percent
Age (n=85)	
Age, mean: 25.8, SD: (+/-) 4.77	
18-24	47.1
25-29	28.3
30-34	23.4
35>	1.2
Education (n=97)	
Did not complete High School	2.1
Some College	55.7
Undergraduate Degree	27.8
Post Bachelor Degree	14.4
Marital Status (n=97)	
Single	70.1
Married	26.8
Widowed	2.1
Separated	1

Of the total sample (n=101) participants, 16 participants did not select their age. However, out of n=85participants, 47.1% of the study population were between age 18-24.Of the total population of pregnant African-American women who participated in the research (n=101), four participants did not select their level of education. However, out of n=96 participants, half of the sample 55.7% (n=54) had some college experience. Out of n=97 participants in the study population, 70.1% of pregnant women were single.

Table 4.2 Pregnancy Demographics Based on Mean number of Weeks Pregnant and Mean Number of Kids

Pregnancy Profile	Mean	Standard Deviation
# of weeks pregnant (n=94)	8.3 (16weeks)	4.32
# of kids (n=96)	1.5	0.95

Of the total sample (n=101) participants, 7 participants did not select how far along in weeks they were pregnant. However, out of n=94 participants, 43.7% of the study population were in their 2nd trimester. Of those 94 participants, 69.8% (n=67) of women were pregnant with their first child.

Table 4.3 Household Yearly Income, Source of Income and Perceived Partner Financial Support

Financial Profile	n	Valid Percent
Income (n=95)		
Unemployed	n=14	14.7
0-14,999	n=13	13.7
15,000-29,999	n=38	40.0
30,000-44,999	n=15	15.8
45,000-59,999	n=11	11.6
60,000>	n=4	4.20
Source of Income		
Employer (n=80)		79.2
Partner/Child Support		56.4
Parents/Relatives		24.8
TANF/Welfare/SSI/Social Security/Veteran/Pension		12.0
Partner Financial Support		
My partner supports the pregnancy financially (n=95)		66.3
I can rely on my partner financially		70.5
Health Insurance (n=85)		89.5

Of the total sample (n=101) participants, n=95 women reported a yearly income that fell between $15,000 to $29,999 dollars. Of those 95 women, 68.4% reported an income of less than $30,0000 dollars. According to Table 2.3, 79.2% (n=80) of women receive their income from their employer. Of the total sample (n=101) participants, 6 participants did not answer questions regarding if their partner supported them financially. However, out of n=95participants, 66.3% of the study population are supported by their partners and they felt they could rely on their partner

70.5% of the time as well. Of the total sample (n=101) participants, n=95 women reported

having some form of insurance. Of those 95 women, (n=85), 89.5%reported having insurance.

Table 4.4 The Occurrence of Life Negative Events, Perceived Pregnancy Experience and General Feelings Experienced During Pregnancy by Women

Things that did not happen during pregnancy (n=93)	Valid Percent	n	Mean	Standard Deviation
Got Separated from my husband	28.0	n=26	2.7	0.542
Got separated from my partner	78.5	n=73	2.1	0.417
Got divorced from husband	64.1	n=33	1.9	0.513
Husband/Partner lost job	81.9	n=77	2.1	0.282
Husband/Partner went to jail	82.8	n=77	2.0	0.416
Husband/Partner said he didn't want me to be pregnant (n=76)	80.9		1.9	0.466
Argued More than usual	73.4	n=69	2.6	0.482
Had a lot of bills I couldn't pay	91.4	n=85	2.0	0.440
Described Pregnancy Experience (n=94) (Sleep, diet and health)			Overall 2.67	Overall 1.36
Excellent	24.5	n=23		
Very Good	27.7	n=26		
Good	17.0	n=16		
Fair	18.1	n=17		
Poor	12.8	n=12		
Describe Feelings During Pregnancy				
Enjoying Pregnancy	56.5	n=92	1.7	0.959
Partner and I are enjoying pregnancy	56.5	n=92	2.1	1.37
Pregnancy brought partner and I closer	57.0	n=93	2.1	1.37
I feel supported by partner	58.1	n=93	2.1	1.36
I can share my feelings with my partner	59.1	n=93	2.0	1.34

Based on the mean score, most women in the sample did not experience negative events

during their pregnancy. These negative events referred to getting separated or divorced, having a

partner go to jail, arguing more than usual, etc. Of the total sample (n=101) participants, 7

participants did not describe their pregnancy experience in terms of sleep, diet and overall health.

However, out of n=94 participants, 69.2% (n=65) of the study population described their

pregnancy experience in terms of sleep, diet and overall health as being excellent or good. Over
50% of pregnant women reported enjoying their pregnancy with their partner and felt supported
by their partner.

Table 4.5 Analysis of Paternal Support in Relation to the Woman's Relationship with Baby Father and Pregnant Women's Views on Perceived Paternal Support

General Paternal Support	Valid Percent	n	Mean	Standard Deviation
Relationship With Baby Father(n=97)				
Relationship with Baby Father-Husband	32.0	n=31		
Relationship with Baby Father-Partner (not legally married)	39.2	n=38		
No Relationship	20.6	n=20		
I Do Not Know Who My Baby Father Is	8.2	n=8		
Perceived Paternal Support				
Other People Beside Partner/Husband to Rely On			2.6	1.1
Partner/Husband View on Pregnancy			2.7	1.1
How Happy With Partner/Husband Support			2.6	1.7

Of the total sample (n=101) participants, 4 participants did not describe their relationship with their child's father. However, out of n=97 participants, 40.6 % (n=40) were living with their baby father, but only 32% (n=31) reported being legally married. When asked who else lived in the household, 37.6% (n=38) of women reported children under the age of 14 currently lived in the household. However, the survey did not ask in specific if the children that were under 14 years of age were a relative such as a sibling or their child.

Table 4.6 Zip Codes of Women Currently Pregnant Living in Michigan

Zip Code Profile	Percent	n
48505	22.8	n=23
48504	19.8	n=20
48507	12.9	n=13
48532	8.9	n=9
48533 and 48502	10.0	n=10
48429 and 48240	6.0	n=6
48529, 48503, 48423 and 48076	8.0	n=8
48607, 48531, 48458, 48238, 48230, 48204 and 48126	7.0	n=7

The total sample size was (n=101) women. Of those women 42.6% (n=96) represent women living in the 48504 and 48505 zip codes. As of March 2013, black infant mortality in Michigan was declining, yet the rate of infant deaths was twice that of their white counterparts 11.9 deaths vs 5.6 deaths per 1,000 live births. (http://www.mdch.state.mi.us/InfantDeaths2013.asp). When we looked at the infant mortality rates by county, we saw that in Genesee County from 2010-2012, the infant mortality rate for black infants was 12.4 versus their white counterparts of a rate of 4.8 (http://www.mdch.state.mi.us/pha/osr/InDxMain/WtCoTbl.asp). When we further examined the zip codes housed within Genesee County, we learned that the zip codes of 48504 and 48505 are located in the city of Flint, Michigan. From 2010-2012 in Flint, black infant mortality rates were 14.1 versus their white counterparts of a rate of 7.6 This was significant because pregnant African-American women in this study represented 42.6% (n=43) of the total participants living within the 48504 and 48505 zip codes.

Table 4.7 Pregnancy Support Survey Outcomes

Instrument	Purpose	Dependent or Independent Variable	Hypothesis Addressed	Reliability	Findings
Perceived Stress Scale	How do certain forms of paternal support (i.e. emotional, esteem, informational and tangible) influence stress?	Dependent	I hypothesized as partner support increase maternal stress will decrease among pregnant women.	0.962	As partner support composite score increased, maternal stress composite score decreased
Medical Outcomes Study	What is the influence of overall paternal support on stress among pregnant African American women?	Independent	I hypothesize that if pregnant women perceived to receive adequate partner support, stress levels would be low among these women. Having emotional, esteem and tangible support would lead to lower levels of stress among pregnant women, while having informational support would have a neutral effect as it may not be assessed as having more value than the other forms of support received from a partner.	0.998	As partner emotional support composite score increased, maternal stress composite score decreased. As partner tangible support composite score increased, maternal stress composite score decreased. As partner esteem support composite score increased, maternal stress composite score decreased. As partner informational support composite score increased, maternal stress composite score decreased
Tilburg Pregnancy Distress Scale	How do certain forms of paternal support (i.e. emotional, esteem, informational and tangible) influence stress?	Dependent	I hypothesized that if emotional partner support is present, maternal stress will be low	0.987	As emotional support increases, stress decreases. 60% of pregnant women perceived to have emotional support available very often.
Multidimensional Scale of Perceived Support	What is the influence of overall paternal support on stress among pregnant African American women?	Independent	I hypothesized as partner support increase maternal stress will decrease among pregnant women.	0.999	As partner support composite score increased, maternal stress composite score decreased. 40-43% of pregnant women mildly agree that their partner is available for support

According to Table 4.7, the hypothesis was that as partner support increases, maternal stress will decrease. It was also hypothesized that if pregnant women perceived to receive adequate partner support, stress levels would be low among these women. Furthermore, having emotional, esteem and tangible support would lead to lower levels of stress among pregnant women, while having informational support would have a neutral effect as it may not be assessed as having more value than the other forms of support received from a partner. Based on study results as all four types of partner support scores increased, maternal stress scores were shown to decrease. When looking at the paternal support scores, the results have shown that women in the study perceived to value esteem and tangible support as the greatest (see Table 4.8).

RELATIONSHIP BETWEEN PATERNAL SUPPORT AND MATERNAL STRESS

The mean composite score for the different types of paternal support ranged from 56 through 63 (Table 4.8). Paternal support and Stress scores were recoded to a value of 0-100 to better show the association of paternal support on maternal stress. For paternal support, the higher the score, the more support was perceived. For stress, the lower the score, the less stress was experienced by the women. Paternal support scores showed an inverse relationship among stress scores. These mean composite score indicated moderate paternal support among the pregnant women in the sample. The mean maternal stress composite score was 13, which indicated relatively low levels of stress for the entire sample of women. The histogram for the stress variable was examined to determine the reason for the low level of stress.

Table 4.8 Mean and Standard Deviation Scale and Subscale Composite Scores

	Mean	Standard Deviation
Overall Paternal Support Composite Score	61	43.54
Emotional Paternal Support Composite Score	56	38.47
Informational Paternal Support Composite Score	56	38.47
Tangible Paternal Support Composite Score	60	43.22
Esteem Paternal Support Composite Score	63	43.43
Maternal Stress Composite Score	13	19.36

Distribution of Paternal Support and Maternal Stress Composite Score Variables

The histogram showed that the distribution of the stress variable was skewed to the left where many women experienced no stress thus explaining the low levels of stress for the entire sample (results not shown).The histograms for the different variables for types of parental support were also examined. They demonstrated that some women had very low levels of parental support while some women had very high levels of paternal support (results not shown).

There is an inverse relationship between partner support and maternal stress (see Table 4.9). As partner support composite score increased, maternal stress composite score decreased (B=-.814, p<.0001). As partner emotional support composite score increased, maternal stress composite score decreased (B=-.821, p<.0001).As partner informational support composite score increased, maternal stress composite score decreased (B=-.821, p<.0001). As partner tangible support composite score increased, maternal stress composite score decreased (B=-.709, p<.0001). Sixty-six percent of the variance in the dependent variable (maternal stress) can be explained by overall paternal support. This concludes that overall partner support can be shown to influence maternal stress 66% of the time. Between 50% and 67% of the variance in the dependent variable (maternal stress) can be explained by the four different types of paternal

support. This concludes that all four types of partner support can be shown to influence maternal stress 50-67% of the time. These variances are significant in the fact that the variance confirms an association between partner support and maternal stress.

Table 4.9 Influence of overall paternal support and types of paternal support on maternal stress. (*Results of linear regression analysis*).

Predictor	β (Standardized coefficient)	T	P-Value	R Square
Overall Paternal Support	-0.814	-13.005	p<.0001	0.66
Emotional Paternal Support	-0.821	-13.482	p<.0001	0.67
Informational Paternal Support	-0.821	-13.482	p<.0001	0.67
Tangible Paternal Support	-0.709	-9.951	p<.0001	0.50
Esteem Paternal Support	-0.754	-10.917	p<.0001	0.57

Based on Table 4.8 and 4.9, paternal support scores show an inverse relationship among stress scores. As partner support composite score increased, maternal stress composite score decreased. The reported data confirms an association between partner support and maternal stress.

Chapter 5: Discussion and Conclusion

Summary of Main Findings

The Pregnancy Support Survey was administered online among pregnant African-American women living in Michigan between April 20th 2014 and June 8th 2014. Most pregnant women lived in the 48504 and 48505 zip codes. This area represented parts of Flint, Michigan located in Genesee County. Most respondents were between ages 18-24, had some college experience, were single and made less than 30,000/yr. Although most women were not trying to become pregnant when they conceived, they described their pregnancy as being a happy time with few problems. Most women could rely on at least 3 to 4 people other than their partner. It was hypothesized that having a supportive partner who is involved during pregnancy would reduce stress among pregnant women 'and 2'. Having emotional, esteem and tangible support would lead to lower levels of stress among pregnant women, while having informational support would have a neutral effect on stress as informational support may be less important for pregnant women's stress levels. The primary finding was that as all types of perceived paternal support increased, maternal stress decreased. However, partner emotional and tangible support was assessed as having more impact on stress than the other forms of support.

Comparison of current findings to those of prior research

This study adds to the conception of the significance of an expecting mother's healthy relationship with her significant other, especially as a contributor to lower levels of stress among females throughout pregnancy. Literature has shown that birth outcomes have been influenced by stress, and African-American women are more likely to experience adverse birth outcomes (Straughen, Caldwell, Young, and Misra, 2013, Stancil, Hertz-Picciotto, Schramm and Watt-Morse 2000). Stress-coping and stress-prevention interventions may be developed to improve

birth outcomes among African American women. Women with perceived low social support may receive insufficient emotional and instrumental support from their partner, family and/or friends.

Studies found age and marital status to be the most significant predictors of support from the baby's father (Sagrestano, Feldman, Rini, Woo and Dunkel-Schetter 1999). Previous findings suggest that African-American women experience the least support from the baby's father than their white and Latino (Ghosh, Wilhel, Dunkel-Schettr, Lombardi and Ritz 2010). In this study, while most women in this sample were single, generally women could rely on their partner for support.

Similar to the overall finding of my study, a previous study concluded that the primary benefits of having a father or male partner involved during pregnancy reduced maternal stress levels (Redshaw and Henderson 2013). That study involved secondary data analysis collected in a 2010 national maternity survey of England which included responses from 4616 women. The goal of that study was to understand who was engaged during pregnancy and childbirth, in what way, and how paternal engagement influenced a woman's uptake of services, her perceptions of care, and maternal outcomes. Findings from Redshaw and Henderson concluded that over 80% of fathers were 'pleased or 'overjoyed' in response to their partner's pregnancy, over half were present for the pregnancy test, for one or more antenatal checks, and almost all were present for ultrasound examinations and for labour. Research showed that greater paternal engagement was positively associated with a pregnant woman's first contact with health professionals before 12 weeks gestation. Redshaw and Henderson used two ways to score paternal engagement to assess the degree of father engagement prior to birth based on the father's presence or absence during the initial pregnancy test or when pregnancy confirmed; one or more antenatal checks;

one or more ultrasound scans; one or more antenatal education classes; and during labour. Their score also included paternal involvement in finding information about pregnancy; participation in decision-making about antenatal screening; making a birth plan; finding information about labour and birth; and participation in decision-making during labour. The second score reflected the father's postnatal engagement. Redshaw and Henderson limitations included only having a response rate of 55.1%. Their study also suffered from under-reporting and was cross-sectional in nature, much like my research. Also although men completed a portion of the study, the researcher's conferred women probably completed the survey and therefore the research may not accurately reflect the father's views. This research differed from Redshaw and Henderson because it only studied pregnant African-American women in the United States. The research also only studied antenatal and intrapartum perceived social support.

Partner support may influence maternal behaviors during pregnancy. Prior studies defined positive maternal behaviors as not smoking and drinking alcohol (Alio, Lewis, Scarborough, Harris, and Fiscella 2013). From this study, 50 participants (mothers and fathers) were selected Across the US from 102 National Healthy Start Association sites. Participants participated in National Healthy Start Association Pre and post-natal health services and took part in focus group discussions. Findings suggested that the "involved" male was identified as either the biological father or male partner. Women described the ideal, involved father as present, accessible, available, understanding, willing to learn about the pregnancy process, and eager to provide emotional, physical and financial support. Women also identified a sense of togetherness as being important during pregnancy. Women with an involved male were less likely to smoke and drink alcohol during pregnancy.

The research defined positive maternal behaviors as receiving, adequate sleep, eating healthy, and being in a state of good general health. My study indicated that many women described their maternal behaviors in terms of sleep, diet and health as being good. Therefore, most or many African American women in the study may have healthy children. Below, the research discusses the findings related to each type of support.

Emotional Support

To assess emotional support several questions were asked. Participants were asked if they felt their partner along with themselves were enjoying the pregnancy together, did the pregnancy bring them closer together, do they feel supported by their partner and if they could share their feelings with their partner. From these questions, participants felt that fairly often their partners were enjoying the pregnancy along with them, the pregnancy has brought them closer together, they feel supported by their partner and they could share their feelings with their partner often. From my research 60% of pregnant women perceived to have emotional support available very often. As partner emotional support increased, maternal stress decreased. Because pregnancy is a significant life changing event, the lack of emotional support (expressive, ventilation and close support) during pregnancy can be a risk factor for pre-term birth and low birth weight for many pregnant mothers (Elsenbruch, Benson, Rucke, Rose, Dudenhausen, Pincus-Knackstedt, Klapp, and Arck, 2006; St. John and Winston 1989; Jacobson 1986). Although there was not an intervention that had been done on increasing emotional support in pregnant women, it would be suggested researchers conduct an intervention that helps increase emotional support over a period of time. Ways to increase emotional support could extend to team building activities, psychological counseling and sending couples on romantic dates during pregnancy.

Informational Support

While assessing emotional support, informational support was also considered. From the Medical Outcomes Survey, a variety of questions asked participants how often informational support was offered to them. Response categories ranged from none of the time to all of the time. The questions that were asked were, how often does your partner give you information to help you understand a situation, give you good advice about a crisis, turn to for suggestions about how to deal with a personal problem and whose advice you really want. Based on participant responses, pregnant women had a partner available to give them information to help understand a situation, advice about a crisis, could turn to for suggestions and wanted their partner's advice most of the time. Prior interventions have sought to understand the delivery of informational support through social media sites for low income, pregnant African American women. To increase informational support among pregnant women, it was recommended an intervention similar to that conducted by Herman, Mock, Blackwell and Hulsey (2005) be conducted. The authors found that through social support networks such as blogs, pregnant women accessed the discussion boards the most and used the ask-a-nurse feature frequently; thus, women were provided with direct access to a nurse. The blogs also provided information on ultrasounds, inspiration stories of other pregnant women, and spiritual support. Researchers concluded that having blogs helped reduce maternal stress and was an effective way to offer informational support to pregnant women (Herman, Mock, Blackwell and Hulsey 2005).

Researchers have examined how information needs, information-seeking behaviors and informational support of low-income pregnant women impacted maternal stress. They found that women with informational support from family, especially the father of the baby had increased levels of perceived informational support and reduced in the amount of stress experienced during

their pregnancy (Song, Kramer, McRoy and May 2013). Future research should examine whether the outcome is dependent on the type of person (i.e. partner or health professional) who delivers the informational support. It is believed that informational support received by health professionals has a greater impact on birth outcomes. Informational support received by partners or lack of informational support will have no effect on maternal stress as most pregnant women seek prenatal care and get the majority of health information related to their pregnancy from healthcare professionals. Informational support from partners may act as a buffer to informational support from professionals.

Esteem Support

Esteem support accompanies emotional and informational support when assessing maternal stress in pregnant women. This research assessed esteem support by asking participants numerous questions. Participants were asked if they were enjoying their pregnancy, to describe their pregnancy, if their partner cared about their feelings, if they get the emotional help and the support they need from their partner and if they could count on their partner when things go wrong and they are emotional. Participants responded that they were enjoying their fairly often and described their pregnancy as a happy time with a few problems. Pregnant women in the research mildly agreed that their partners cared about their feelings, could count on their partner when things go wrong and they are emotional and get the emotional help and support they need from their partner. Esteem support (i.e. maternal self-perceived esteem and perceived acceptance during pregnancy by the baby's father) has been shown to have beneficial effects on behaviors and emotions in pregnant African American women (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Zambrana; Dunkel-Schetter and Scrimshaw 1996). To study self-esteem in regards to social support, researchers selected 116 single mothers who had children ages 3 to 9

years old through community advertisements. Eligible mothers were assigned randomly to participate in a 10-week program of group sessions (1.5 hours per week). These sessions offered social support and education, with a parallel children's activity group, or to receive a standard list of community resources and then offered the option to participate in group sessions at the end of the follow-up period (Lipman and Boyle 2005). Most of the mothers in the sample reported having financial problems. Mothers in the intervention group had improved scores for self-esteem when compared to mothers in the control group. Results from the intervention were that participation in the community-based program of group sessions that offered social support and education to single mothers enhanced their self-esteem. Therefore recommend intervention should promote esteem support among pregnant mothers. Recommended future research should examine women's perceived self-esteem in pregnant African-American women via focus groups. A dialogue among pregnant women will help define esteem and identify interventions to increase esteem. The results of the focus groups may be used to develop future interventions.

Tangible Support

Tangible support in pregnancy can help researcher's provide and association among emotional, esteem and informational support. Tangible support refers to the partner's financial support and material resources. This research asked participants questions to assess how tangible support is associated with maternal stress. Participants were asked if they could rely on their partner financially, if their partner pays the bills, if they could count on their partner in a financial crisis, if their partner would prepare their meals if they were unable to and if their partner would to take them to the doctor if needed. The research concluded that women could rely on their partner financially most of the time and their partner paid the bills some of the time. Most women could rely on their partner in a financial crisis most of the time. Women also stated

that their partner was able to prepare their meals if they were unable to some of the time and take them to the doctor some of the time if they were unable to drive themselves. In prior research, low tangible support accompanied by high stress during pregnancy lead to more premature births (Dunkel, Sagrestano, Feldman and Killingsworth 1996; Jacobson 1986; Cobb 1976). Researchers have assessed tangible support via surveys that asked 300 postpartum women about the influence of social support, mainly tangible and emotional on their attitudes and maternal behaviors in relation to obtaining prenatal care (Giblin, Poland and Agar 1990). From the study, researchers found that tangible and emotional social support was correlated with positive maternal attitudes and behaviors such as not smoking and seeking prenatal care early during pregnancy. It is recommended that an intervention that assess the impact of tangible support on maternal stress and birth outcomes such as pre-term birth, low birth weight and infant mortality should be conducted. Researchers would have a control group that received no tangible help from research staff and have an intervention group that received 100 dollars per month and information sessions on ways to provide tangible support to pregnant women. From this intervention researchers would follow 100 men and their pregnant partners with 50 men in each group selected at random. Researchers would follow these men and women until the birth of the baby. From the births of the babies we could assess how tangible support played a role in birth outcomes. Data analysts would do a pre-posttest with the men to see how the men's perceptions of tangible support changed from beginning of the intervention to after the birth of the baby.

Programs in Michigan

Research interventions and programs that were done in Michigan and had been published were absent. It is recommended that Michigan derive programs tailored toward African-American women that will increase partner support and reduce maternal stress to combat poor

birth outcomes. There was not a program that was currently being done in Michigan to advance birth outcomes for this subset of individuals. This lack of knowledge leads researchers to question if public health efforts are tailored enough to combat the issues of infant mortality, pre-term birth and low birth weight experienced by African-Americans in Michigan. After reviewing several articles that have surveyed pregnant African-American women via survey on their perceptions of support and stress it was concluded that a focus in public health such be on effective ways to reduce infant mortality rates, number of pre-term births and number of low birth weight babies among African-Americans. It is suggested that individuals that are at greater risk for the poor birth outcomes in Michigan be selected for interventions first. Those communities that experience the most hardship and those economically deprived should be at the center of change.

Limitations and Strengths

The study had several limitations. The Pregnancy Support Survey was a cross-sectional study; therefore, causal effects could not be assessed. Because this study was limited to only pregnant African-American women who resided in Michigan, generalizations cannot be made for all pregnant African-American women and those who live outside of Michigan. The Pregnancy Support Survey was an anonymous online initiative where participants were subjected to a screening process. Although there was a screening process, this research couldn't confirm that all participants were truly African-American, women, or pregnant at the time of completion of the survey. All responses were based on the pregnant mother's perceived support from her partner. This research also did not account for the partner's perspective on how he provided support. Recall bias was also a limitation of this study. Some survey questions asked women to recount how their partners felt about their pregnancy prior to them becoming pregnant, such as did their partner want them to become pregnant. This research also failed to acknowledge that there are

many barriers that hinder a father from providing support to the expectant mother during pregnancy such as being in prison or the military, or being deceased. In addition, no long-term trends are examined by this research. Another limitation is that the linear regression was unadjusted. The sample was not collected using random selection. Missing data arise as a limitation to almost all statistical research. Some pregnant women, chose not to answer some questions in the survey. For example, five women did not select a response when asked what their age was. On average, n=97 answered the majority of questions.

There were numerous strengths to the research. All instruments used in the survey had high reliability (>0.90). Multiple items were used to assess each type of support. A total of 101 participants participated. Most women answered each survey question. Most questions asked about recent feelings and events that may have reduced the effects of recall bias.

Recommended Observational Study

In addition to the interventions discussed above, it is recommended that various observational studies be conducted to improve our understanding of maternal stress among pregnant women. Partner support may not be perceived in the same light by men and women. Focus groups will help participants define partner support and maternal stress and then assess perception of both male and female groups in relation to the definitions they established. In addition, future research should include male partners to better understand perceived paternal support in relation to maternal stress. It should assess what males think is the most important type of support to offer to pregnant women. Future research should assess barriers that male partners may have to providing support. Future research should also examine how partner support under certain conditions such as having a jailed partner, a deceased partner or a partner in the military affect maternal stress in pregnant African-American women. A longitudinal study

should follow both mothers and fathers prior to the conception until the birth of the baby to assess how support changes over time; the study should assess the influence of change in support on pregnancy outcomes. Researchers should examine how partner support under certain conditions such as having a jailed partner, a deceased partner, an unemployed, or a partner in the military affect maternal stress in pregnant African-American women via survey. Researchers could also conduct focus groups that allow both pregnant mothers and their child's father to define partner support and maternal stress and then assess their different perceptions on how much support the partner provides during pregnancy. It would be beneficial to assess how male partners perceive their contribution of support during pregnancy via survey. For a dissertation researchers could conduct a pre-screen analysis on how 100 pregnant women perceive their partner support and stress, and then follow the women over a nine month period to assess number of birth outcomes in terms of birth weight, infant mortality and pre-term births.

This new focus could provide a wealth of knowledge as to how partner support affects maternal stress. We know that maternal stress affects birth outcomes, so a long-term trend should be utilized to see how partner support affects maternal stress and how that stress affects birth outcomes.

Conclusion

This research sought out to help better understand how types of paternal support affects maternal stress in pregnant African-American women. The mean maternal stress composite score was 13, indicating relatively low levels of stress for the entire sample of women. Many women experienced no stress thus explaining the low levels of stress for the entire sample. Some women had very low levels of parental support while some women had very high levels of paternal support. As partner support increased, maternal stress decreased. Future research should assess

the influence of stress on birth outcomes in Michigan. The current research also suggests that different types of support may be equally or very important in preventing stress. Interventions should seek to promote different types of support. If we can enhance the level of partner support during pregnancy, we may be able to reduce negative birth outcomes that plague African-American communities.

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Appendix

Table 1.1 **Studies Related to Social Support and Maternal Stress**

Research Question/s	# of Participants	Geographic Region	Study Design	Results	Conclusion	Limitations

| The goal was to study the effects of social support during pregnancy on maternal depressive symptoms, quality of life and pregnancy outcomes. | 896 women | Berlin, Germany | Pregnant women completed three validated questionnaires.

The 22-item version of the social support questionnaire

Center for Epidemiological Studies Depression Scale

The SF-12 | Pregnant women with low support reported increased depressive symptoms and reduced quality of life.

In smokers, pregnancy complications occurred more frequently when given low support the proportion of preterm deliveries was greater given low support

Social support also had a significant impact on depressive symptomatology

Babies born to mothers with low social support during early pregnancy were smaller and had a markedly reduced birth weight by nearly 200 g on average

Social support networks affect pregnancy related health behaviors and lifestyle habits, including dietary habits and smoking | Lack of social support constitutes an important risk factor for maternal well-being during pregnancy and has adverse effects on pregnancy outcomes.

Lack of social support represents an important risk factor during pregnancy, and its consequences may be markedly exacerbated by additional risk factors such as smoking. | Cause effect

relationships cannot be established based on our data, and social support has been found to affect pregnancy outcome

even in women with little life stress |

The current research utilizes data from two large prospective studies on pregnancy and birth outcomes to examine social support during pregnancy. First, we examine ethnic differences in social support. Second, we examine whether ethnic differences in social support remain when controlling for relevant demographic variables, including age, parity, work status, marital status, and SES. We examine these relationships across sources (i.e., baby's father, family, and friends) and types (i.e., perceived, received, network integration) of support.	246 Pregnant Latino and African-American women	Orange County, CA	Assessments consisted of an interview as well as completion of a set of questionnaires.	When demographic variables were not controlled, ethnic differences emerged for most social support and social network variables. The most important variables in predicting support from the baby's father were age and marital status. Findings suggest that African American women experience the least support from the baby's father. Younger women reported more support from the baby's father than older women Women of higher SES perceived that more support was available from the baby's father than women of lower SES. African American women were least likely to be married	When controlling for demographic variables, ethnicity did not predict support from the baby's father. The findings suggest that marital status is the most important predictor of support from the baby's father, whereas support from friends and family is more complex, and is associated with ethnicity, SES, age, parity, and marital status.	The study did not include controls for marital status or report on ethnic differences in marital status. An issue of concern may be the use of the marital status variable rather than an indicator of cohabitation. Inability to test the impact of culture on ethnic differences in social support.
To determine whether black-white differences in maternal perceptions of HRQoL exist, and if so, to elucidate the	175 women	Baltimore City	HRQoL was measured using the Medical Outcomes Survey Short Form (SF-36)	Black women were younger, less educated and more likely to be single, unemployed and on Medicaid 22% of AA women reported depressive	Black women reported lower ratings of quality of life Perceived social support was correlated with depressive	Sample only included black and white women from one urban area Depressive symptoms were measured rather than the diagnosis of clinical depression There were other potential confounders that they were unable

				symptoms	symptoms	to adjust for in the analysis such as domestic violence
effects of depressive symptom level, social support and clinical factors on these differences				Black women received less social support than their white counterparts		
To examine the relative contributions of social ties and social support to the rates of LBW and PTB	4443 women	New York City	Women in New York City participated in PRAMS survey from 2004-2007	Did not find a consistently protective effect of social ties and support	Identifying sources and types of support that are protective of birth outcomes should continue to be a goal of public health	Future research should include examination of both quantity and quality of social ties and support
To define male involvement during pregnancy	50 mothers and fathers	Across the US from 102 National Healthy Start Association sites	Participated in National Healthy start Association Pre and post-natal health services and took part in focus group discussions	The "involved" male was identified as either the biological father or male partner

Women described the ideal, involved father as present, accessible, available, understanding, willing to learn about the pregnancy process, and eager to provide emotional, physical and financial support | The benefits of a father or male partner during pregnancy reduced maternal stress levels and the encouraged positive maternal behaviors

The emotional or romantic connection can heavily influence the level of involvement by the father | Individual, family, community, societal and policy factors play a role in barring of diminishing the involvement of fathers during pregnancy |

| To understand who was engaged during pregnancy and childbirth , in what way, and how paternal engagement may influence a woman's uptake of services, her perceptions of care, and maternal outcomes | 4614 women | England | 2010 National maternal survey | Over 80% of fathers were pleased or overjoyed about their partner's pregnancy

Father's whose partners were age 25 and under were less enthusiastic about the pregnancy

Partners of black women were less likely to be present | There is considerable socio demographic variation in partner support and engagement

Women with greater partner involvement reported less worries about pregnancy

Father's serve an important role in supporting women during pregnancy | Response rate was 55.1%

Under-reporting from women who were young, single and those living in deprived areas

Cross sectional survey

Women probably completed responses on their partner's behalf and may not accurately reflect the father's views

Recall bias |

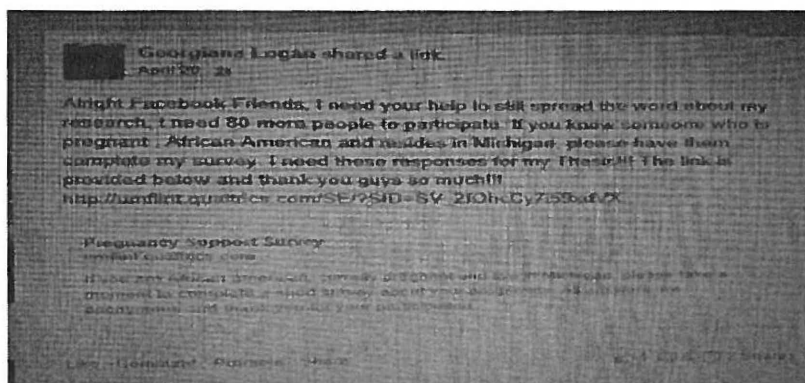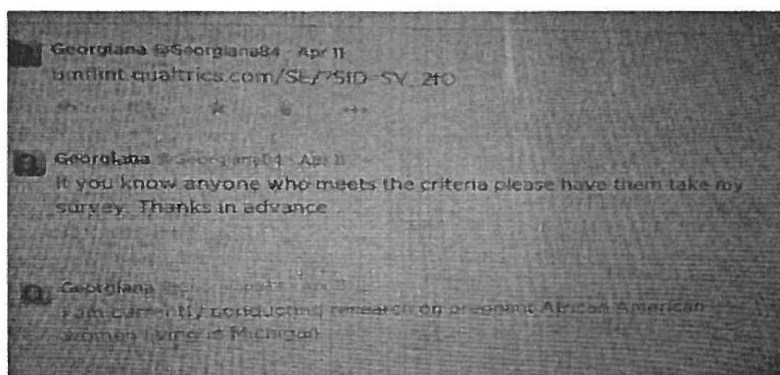**Figure 1.2: Facebook Recruitment**

Figure 1.3: Twitter Recruitment

Medical Outcomes Study (MOS)

- ❖ Some to help if you were confined to bed

- ❖ Someone you can count on to listen to you when you need to talk

- ❖ Someone to give you good advice about a crisis

- ❖ Someone to take you to the doctor if you needed it

- ❖ Someone who shows you love and affection

- ❖ Someone to have a good time with

- ❖ Someone to give you information to help understand a situation

- ❖ Someone to confide in or talk about yourself or your problems

- ❖ Someone who hugs you,

- ❖ Someone to get together for relaxation

- ❖ Someone to prepare your meals if you were unable to do it yourself

- ❖ Someone whose advice you really want

- ❖ Someone to do things with to help get your mind off things

- ❖ Someone to help with daily chores if you were sick

- ❖ Someone to share your most private worries and fears

- ❖ Someone to turn to for suggestions about how to deal with a personal problem

- ❖ Someone to do something enjoyable with

- ❖ Someone who understands your problems

- ❖ Someone to love and make you feel wanted

Perceived Stress Scale (PSS)

❖ In the last month, how often have you been upset because of something that happened unexpectedly?

❖ In the last month, how often have you felt that you were unable to control the important things in your life?

❖ In the last month, how often have you felt nervous and "stressed"?

❖ In the last month, how often have you felt confident about your ability to handle your personal problems?

❖ In the last month, how often have you felt things were going your way?

❖ In the last month, how often have you found that you could not cope with all the things you had to do?

❖ In the last month, how often have you been able to control irritations in your life?

❖ In the last month, how often have you felt that you were on top of things?

❖ In the last month, how often have you been angered because of things that were outside of your control?

❖ In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?).

Tilburg Pregnancy Distress Scale (TPDS)

- ❖ I am enjoying my pregnancy

- ❖ I feel like my partner and I are enjoying the pregnancy together

- ❖ The pregnancy has brought my partner and I closer together

- ❖ I feel supported by my partner

- ❖ I can really share my feelings with my partner

Multidimensional Scale of Perceived Support (MSPSS)

- ❖ My partner is around when I need reassurance about my pregnancy

- ❖ I can share my joys and sorrows with my partner about my pregnancy

- ❖ My partner is a real source of comfort to me

- ❖ My partner cares about my feelings

- ❖ I get the emotional help and the support I need from my partner

- ❖ My partner really tries to help me cope with my pregnancy by offering feedback and advice

- ❖ I can count on my partner when things go wrong and I am emotional

- ❖ I can talk about my pregnancy problems with my partner and he offers feedback

- ❖ My partner is willing to help me make decisions about my pregnancy

- ❖ My partner really tries to compliment me during this pregnancy

Pregnancy Risk Assessment and Monitoring System (PRAMS)

1. When you got pregnant with your new baby, were you trying to get pregnant?

    - Yes
    - No

2. Are you currently receiving WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?

    - Yes
    - No

3. How would you describe your pregnancy?

    - One of the happiest times of my life
    - A happy time with few problems
    - A moderately hard time
    - A very hard time
    - One of the worst times of my life

4. Pregnancy can be a difficult time for some women. These next questions are about things that may have happened before and during your most recent pregnancy. This question is about things that may have happened during the 12 months before your new baby was born. For each item, circle Y (Yes) if it happened to you or circle N (No) if it did not. (It may help to look at the calendar when you answer these questions.)

    - I got separated or divorced from my husband or partner
    - My husband or partner lost his job
    - I argued with my husband or partner more than usual
    - My husband or partner said he didn't want me to be pregnant
    - I had a lot of bills I couldn't pay
    - My husband or partner or I went to jail

5. When you got pregnant, did your new baby's father live with you?

    - Yes
    - No

6. When you got pregnant, what relationship did you have with your new baby's father? Check one answer

    - He was my husband (legally married)
    - He was my partner (not legally married)
    - He was my boyfriend

- He was a friend
- No relationship

7. During the 12 months before you became pregnant, what were the sources of your household's income? Check all that apply

   - Money from family or friends
   - Money from a business, fees, dividends, or rental income
   - Paycheck or money from a job
   - Food stamps or WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)
   - Aid such as Temporary Assistance for Needy Families (TANF), welfare, public assistance, general assistance, or Supplemental Security Income (SSI)
   - Unemployment benefits
   - Child support or alimony
   - Social security, workers' compensation, disability, veteran benefits, or pensions

8. Which of the following statements best describe your husband/partner's view about your pregnancy?(Check only one)

   - He wanted me to get pregnant
   - He wanted me to get pregnant but had some concerns (financial, emotional)
   - He didn't care one way or the other if I got pregnant
   - He didn't want me to get pregnant