

A COLLABORATIVE, INTERSECTIONAL APPROACH TO HEALTH
DISPARITIES IN PREGNANCY

By

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ABSTRACT

TITLE: A Collaborative, Intersectional Approach to Health Disparities in Pregnancy

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Health disparities in maternal-child outcomes (preterm birth, low birthweight, infant mortality, and maternal mortality) are substantial, well documented, and in many cases, growing worse. Many research approaches have focused on single risk factors, yet many risk categories (e.g., minority status, socioeconomic status, violence, substance abuse, and mental health issues) overlap substantially. Further, stress and discrimination are potentially common factors to risk categories, but their role in maternal-child health disparities is not well understood. This mixed-method, participatory research study aimed to address this gap by describing the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income mothers. The study focused on mothers' experiences of stress and discrimination related to race, socioeconomic status, violence, mental health issues, and/or substance use, using an intersectional framework to understand how these factors overlapped and intersected.

A mixed-methods survey with demographics, six quantitative measures and qualitative interview probes was developed from literature review. The unique perspective and expertise of participants in the study was privileged in the design of the study questions and in the interpretation of the findings. Eight low-income mothers (lay advisors) evaluated the survey for appropriateness, completeness, understandability, and

offensiveness, and additional questions were added in a collaborative revision process with lay advisors. Measures were the Detroit Area Study Discrimination Questionnaire (DAS-DQ), Perceived Stress Scale (PSS), Center for Epidemiologic Studies Revised Scale (CESD-R), Posttraumatic Stress Checklist Civilian Version (PCL), My Exposure to Violence measure (MyETV), and Danger Assessment (DA). These measures described women's lifetime exposures to discrimination, perceived stress levels, depressive and PTSD symptoms, and lifetime exposures to violence. Semi-structured qualitative interview questions covered the same domains, as well as asking participants to describe their priorities for information and support for mothers.

Twenty-four participants took part in the interviews. All were low-income mothers who were currently pregnant and/or had given birth in the past three years, and were recruited from WIC clinics, a low-income health clinic, and Healthy Start sites in the metropolitan Portland area. Interviews were conducted in women's homes or private and safe settings of their choosing, e.g., coffee shops or cafes. Women were compensated for their time at each interview. The investigator administered quantitative measures followed by the qualitative questions; the qualitative interview portion of the interview was audiotaped and transcribed.

Quantitative measures were analyzed for descriptive purposes, with frequencies, means, standard deviations, and ranges of scores reported. Qualitative data were analyzed and coded using a qualitative descriptive approach. A priority was describing experiences of stress and discrimination associated with risk categories for poor maternal-child outcomes, and how these categories of risk overlapped and intersected. Mothers' priorities for support and information to ameliorate the impact of stressors was also a

priority. Interviews continued until data saturation was reached. Study findings were returned to lay advisors for discussion, interpretation, and revision.

Mothers in the sample were very low income, with over half under federal poverty guidelines, and financial difficulties were the most prevalent stressor. Violence exposures across the lifespan were extremely high, as were levels of depressive and posttraumatic stress disorder symptoms. Six themes emerged from the qualitative analysis: 1) stress impacted women's health negatively; 2) the various stressors in women's lives intersected in complex ways; 3) childhood socioeconomic status impacted adult stress levels and health; 4) health care providers played a clear role in mitigating or exacerbating mothers' difficulties; 5) many mothers feel isolated and alone, and this compounds their stress tremendously; and 6) women feel that they can generally find information and resources for themselves, but most identify connecting with other mothers with similar lives, difficulties, and interests as important to reduce the impact of stress.

Vulnerable mothers who have multiple risk categories for poor maternal-child outcomes feel that stress has a substantial impact upon their health. Risk factors and stressors overlap in women's lives substantially, and the intersectional framework is a useful lens for examining these complex relationships. Health care providers can be extremely important in addressing stress in women's lives; adopting the trauma-informed care model is one way to provide the empathetic and connected care that vulnerable women need from their caregivers. A key aspect of this model is the facilitation of connections between women, which was a high priority for mothers in this sample. The CenteringPregnancy model, a model for group prenatal care, may be one way to help

facilitate such connections in the health care setting, and the concept was appealing to mothers interviewed. Future research is needed to explore the impact of such interventions on mothers' health outcomes.

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CHAPTER 1

Introduction

Maternal-child health disparities are substantial, well documented, and, in many cases, growing worse (Office of Disease Prevention and Health Promotion, 2000). While much of health disparities research to date has focused on individual level biologic and behavioral factors (Mullings & Schulz, 2006), the Centers for Disease Control and Prevention (CDC) has called for research on maternal-child health disparities to describe “not only the biologic factors but also the social, economic, psychological, and environmental factors that contribute to maternal and infant deaths” (Centers for Disease Control and Prevention, 1999; Social Determinants of Health Working Group, 2005).

Background and Significance

In 1900, for every 1000 live births, six to nine women in the U.S. died of pregnancy-related complications; one in ten infants died before their first birthday (Centers for Disease Control and Prevention, 1999). From 1915-1997, the infant mortality rate dropped more than 90%, and from 1900-1997, the maternal mortality rate dropped almost 99%. This is attributed to many factors, including environmental and nutritional improvements, prenatal education, antibiotics, advances in medicine and disease surveillance, better access to health care, Medicaid and other federal health programs, higher education, and improved standards of living overall (Centers for Disease Control and Prevention, 1999).

However, despite these advances, tremendous disparities in pregnancy outcomes exist, and in some cases, they are growing worse. Minority status is a clear risk factor; for example, black women face a threefold higher risk of infant and maternal mortality

compared to white women. Low socioeconomic status is also associated with poor outcomes. Finally, trauma, mental health issues and substance abuse have been associated with adverse outcomes in pregnancy. The clustering of disparities in disadvantaged groups may suggest a complex etiology of disparity that includes the impact of chronic stress and social position, and the interaction of multiple factors on multiple levels (Lu & Halfon, 2003).

Many research and intervention approaches to health disparities have focused on single risk factors, i.e., the “single smoking gun” (Geiger, 2006). However, social risk factors and disadvantages often do not occur singly or in isolation; rather, they are often intimately intertwined, and are produced simultaneously “such that, in any given situation, the unique contribution of one factor might be difficult to measure” (Mullings & Schulz, 2006). For example, women and minorities are most likely to be of low socioeconomic status in the US, and the relative contributions of minority status and SES to poor outcomes are not well understood. Little is known about how social factors interact to produce risk. It has been asserted that we cannot expect to successfully address health disparities until we understand these interactions, and what underlies differences in maternal and infant outcomes (Gennaro, 2005).

Organizing Framework: Social and Structural Determinants of Health

Social risk factors may be characterized as social determinants of health, or “the social conditions within which living takes place” (Commission on Social Determinants of Health, 2007b). The World Health Organization (WHO) has proposed a model (Doherty, Gilson, & EQUINET, 2006) whereby social determinants of health (defined as socioeconomic status, gender, race, ethnicity, and others) lead to social stratification. This

social stratification in turn impacts health in a number of ways, through a “vicious cycle” set up by inequity.

In this model, social determinants arise within a wider global, national, and local context of values, rights, and policies (i.e., structural determinants of health). These social and structural determinants lead to a system of social stratification, described as not merely differential access to resources but also power, with differential exposure to “multilayered and routinized forms of domination” and vulnerability to illness (Crenshaw, 1994). This in turn leads to health inequity and finally differential consequences of illness, which in turn reinforce and perpetuate social stratification.

Significance to Nursing

The World Health Organization and others have recognized that the actions of nurses, other health care providers, and health systems—as intermediary determinants of health—play a critical role in health disparities (Doherty et al., 2006; House & Williams, 2003). In the WHO model, intermediary determinants act throughout the cycle to worsen, lessen, or have no impact upon the effects of social stratification. Health care is considered a “key site for contestation of existing equality” (Doherty et al., p.5). For example, health systems can positively impact health disparities by providing access to care, yet they can also have negative impact by adding to the costs and barriers to healthy behaviors (Doherty et al., 2006) and through provider bias, stereotyping, or miscommunication (Smedley, Stith, & Nelson, 2003). The model illustrates the importance of health care providers, health systems, and policies in addressing health disparities (Doherty et al., 2006).

Nurse researchers are well positioned to conduct research that illuminates and describes the complex relationships that lead to persistent health disparities. In their mission statement, the National Institute for Nursing Research (NINR) has also emphasized health disparities research as an area of emphasis for nurse scientists. NINR recognizes that the particular nursing focus on health promotion, disease prevention, and cultural sensitivity lead naturally to a role for nurse-scientists as uniquely qualified leaders in health disparities research, who can identify and develop culturally appropriate, community-based, multi-level individual, family, and community interventions designed to sustain health-promoting behaviors over time (Grady, 2005; National Institute of Nursing Research, n.d.). Like the CDC, NINR has called for such health disparities research to widen to encompass multiple variables that may impact health, such as minority status, socioeconomic status, geographic location, disability, and unrecognized co-morbid conditions (National Institute of Nursing Research, n.d.).

While the mechanisms by which poor infant and maternal outcomes are produced are not well understood, the pattern of distribution suggests that these outcomes are related to structural and social determinants that produce health disadvantage. The undue burden of health disparities among vulnerable population groups largely reflects the impact of preventable, avoidable, and systemic conditions and policies (Hofrichter, 2005). In a 2005 commentary, Baker and colleagues asserted:

That certain health conditions commonly referred to as social determinants . . . are linked to health outcomes is something on which most of us can agree . . . [but] despite our growing understanding of the importance of social determinants of health, we have had very little guidance in how public health practitioners and systems can influence social determinants in order to address health disparities (p. 553; Baker, Metzler, & Galea, 2005).

To improve infant and maternal outcomes and eliminate disparities, we must identify where changes may be made to address health disparities in policy and in the health care system (Anachebe, 2006). Social location at the intersection of multiple systems of domination (i.e., gender, race, class) provides minority and low-income women with a unique and privileged knowledge of those systems (Weber, 2006). Thus, health disparities research to describe the effects of social determinants and social stratification and reduce adverse outcomes in pregnancy benefits from collaborative, participatory approaches that privilege the viewpoint of such women, to identify areas for intervention (Israel, Eng, Schulz, & Parker, 2005).

Purpose of Study

This mixed-methods, participatory research study, “A Collaborative, Intersectional Approach To Health Disparities In Pregnancy,” illuminated the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income pregnant women and mothers of young children, who are most at risk to experience poor outcomes in pregnancy. Interviews were conducted with pregnant women and women who had given birth within the previous three years, to examine the challenges that pregnant women and women with young children face related to multiple and often intertwined categories of risk, including social class, racial or ethnic minority status, IPV, mental health and substance abuse.

Interviews focused on women’s experiences of stress and discrimination, how risk factors for preterm birth/low birth weight, infant mortality, and maternal mortality intersected and overlapped in women’s experiences, and what women identified as their needs and priorities for support to reduce the impact of these risk factors. This study

privileged the perspective of women who experienced them to describe how the relationships of multiple categories of risk underlie the persistent and serious disparities in maternal health, and to design culturally appropriate interventions to reduce the long-term adverse consequences of poor pregnancy outcomes. The specific aims of the study were to:

- 1) Describe the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income women, using an intersectional framework to analyze interwoven risk factors related to preterm birth/low birth weight, infant mortality, and maternal mortality, particularly women's challenges related to race, class, trauma, violence, mental health issues, and/or substance use, including experiences of stress and discrimination;
- 2) Describe what pregnant women and mothers with young children up to three years old identify as their informational needs and priorities for support to improve pregnancy outcomes; and
- 3) Iteratively and collaboratively, with lay advisors in a group, develop the content of a culturally competent health promotion information resource for women, and identify social service, health provider, and health system needs to support pregnant women and mother with young children to improve pregnancy outcomes.

CHAPTER 2

Review of the Literature

The literature review in this chapter begins with a discussion of the conceptualization of social and structural determinants of health, including a model for facilitating the understanding of how these determinants produce and support health disparities as proposed by the World Health Organization. The chapter then moves to a discussion of disparities in preterm delivery, low birthweight, infant mortality, and maternal mortality in the United States. The literature regarding specific social and structural determinants of health (racial/ethnic minority status, socioeconomic status, intimate partner violence, and substance abuse) as it relates to these outcomes will be reviewed. The contribution of depression and posttraumatic stress disorder, a health outcome also often intertwined with these determinants, will also be discussed. The chapter concludes with a summary of the literature and a review of the critical feminist theory of intersectionality.

Organizing Framework: Social and Structural Determinants of Health

Social determinants of health have been conceptualized and defined in various ways. Raphael (2006) describes a growing interest over the last two decades, in understanding these “nonmedical and nonbehavioral precursors of health and illness” (p.652), as related to the organization and distribution of economic and social resources. Social determinants of health, defined broadly, represent the conditions in which people grow, live, work, and age (Commission on Social Determinants of Health, 2007a). Raphael (2006) noted that most of social determinants constitute “mid-level determinants of health” without a unifying critical social science perspective or “master conceptual

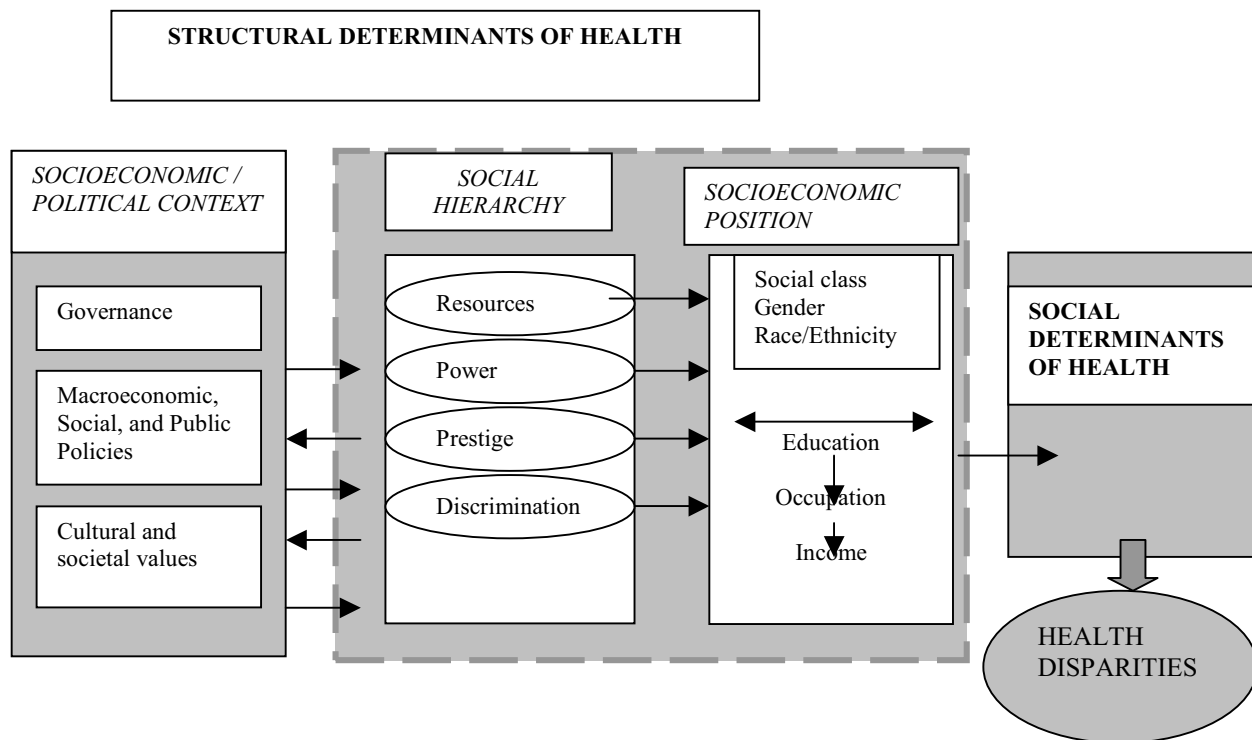
scheme” to illuminate the larger social, political, and economic processes that drive the distribution and shape of social determinants of health.

WHO Conceptual Framework For Determinants Of Health

The World Health Organization’s Commission on Social Determinants of Health (CSDH) has recently authored a conceptual framework (Commission on Social Determinants of Health, 2007b) that addresses this need for a critical “master conceptual scheme.” The Commission concluded that the concept of “social determinants of health” has been defined variously and used somewhat ambiguously, to include both “the social factors promoting and undermining the health of individuals and populations and...the social processes underlying the unequal distribution of these factors between groups occupying unequal positions in society” (p. 24).

The CSDH framework attempts to resolve this ambiguity by differentiating between two types of determinants of health (see Figure 1). The first type represents upstream, distal social processes. These are termed structural determinants of health, and are described as the social and political mechanisms that generate, configure and maintain hierarchies of power that lead to disadvantage for some groups and advantages for others. The CSDH framework elucidates how these structural determinants of health interact to produce and reinforce the distribution of the social conditions of living—the social determinants of health.

Figure 1. World Health Organization Framework of Social Determinants of Health



In the CSDH framework, structural determinants of the health are divided into three linked domains: the socioeconomic/political context, the socioeconomic hierarchy, and socioeconomic position/status. The socioeconomic/political context includes governance (which includes patterns of discrimination), macroeconomic, social, and public policies, and cultural and societal values. This context exerts an influence on health by producing a social hierarchy; i.e., differences in power, prestige, and experiences of discrimination. The social hierarchy leads to differential socioeconomic position. Socioeconomic position is an aggregate concept that includes both an individual's material resources, and their level of prestige or status in the social

hierarchy. Race or ethnicity, gender, and social class, which are considered structural determinants in this model, additionally influence socioeconomic position/status.¹

Application of the WHO Framework to Maternal Health

Application of the CSDH framework to maternal-child outcomes demonstrates the role that social and structural determinants of health (race/ethnicity, socioeconomic status, violence exposure, and substance abuse) play in health disparities. Both infant and maternal mortality have been strongly linked to racial minority status and socioeconomic status, which are defined as structural determinants of health in the CSDH framework.

Social determinants of health (violence and substance use) are also related to poor maternal-child outcomes. Specifically, exposure to trauma and violence, in particular intimate partner violence (IPV), has been linked to infant and maternal mortality. IPV exposure for women is common across the lifespan, including during pregnancy, and represents a significant stressor. In general, the past literature on social determinants of health has not referred specifically to violence as a determinant of women's health (see Table 1). However, as previously discussed, the CSDH framework defines gender as a structural determinant of health, due to differential treatment and oppression of women and girls, and further asserts that the health effects of intimate partner violence are "brutal and immediate" (p. 31)(Commission on Social Determinants of Health, 2007b). In this framework, the role of IPV as a stressor clearly rests as an element within the social/environmental-psychosocial category of social determinants of health. Substance

¹ The terms "socioeconomic position" and "socioeconomic status" have been used interchangeably in the literature; this chapter will use the term socioeconomic status, or SES, from this point forward.

use during pregnancy is a biological/behavioral category in the CSDH model of social determinants of health, and is a documented risk factor for poor maternal-child outcomes.

Mental health problems, specifically depression and posttraumatic stress disorder (PTSD), would be represented in the CSDH framework as health outcomes in and of themselves, not as structural or social determinants of health. However, the literature suggests that depression and PTSD represent independent risk factors for poor maternal-child health outcomes. Further, these mental health problems have strong associations with both IPV and with substance abuse in women. Depression has also been associated with both minority racial status and social class, adding another level of risk for poor outcomes related to structural determinants of health. The intertwining of depression and PTSD with the social and structural determinants considered in this study, and with the maternal-child outcomes of interest, suggests that depression and PTSD are necessarily included in this study, which aims to take a complex look at social risk factors for women and their infants.

Preterm Birth, Low Birthweight, Infant Mortality, and Maternal Mortality in the US

At the turn of the 20th century, for every one thousand live births, six to nine US women died from pregnancy-related complications, and approximately one in ten infants died before the age of one year (Centers for Disease Control and Prevention, 1999; Hoyert, 2007). From 1915 to 1997, the infant mortality rate (i.e., the number of infants born live but that die before the age of one year) dropped more than ninety percent to 7.2 per 1000 live births. The approximate rate of decline in the overall infant mortality rate from 1966 to 1981 was fifty percent (Singh & Yu, 1995). Similarly, from 1900 to 1997,

the maternal mortality rate dropped almost 99% to less than 0.1 reported deaths per 1000 live births (Centers for Disease Control and Prevention, 1999).

These improvements related to both infant and maternal mortality have been attributed to many factors, including better nutrition, milk pasteurization, antimicrobial drugs and other advances in clinical medicine and disease surveillance including better access to health care, Medicaid and other federal health programs, and higher education and higher standards of living overall (Ashton, 2006; Centers for Disease Control and Prevention, 1999). However, despite these advances, and other efforts to address maternal-child health based on the best evidence available, tremendous health disparities in infant and maternal outcomes persist. Many outcomes have actually worsened, largely due to widening disparities. In particular, incidence of low birth weight (LBW) and very low birth weight (VLBW), which are leading causes of infant death and associated with long-term disability, has actually increased over the last decade. The US maternal mortality rate has not improved in twenty-five years (Office of Disease Prevention and Health Promotion, 2000). The burden of infant and maternal mortality is clearly disproportionately borne by vulnerable and underserved communities (Gennaro, 2005; Lu & Halfon, 2003).

Preterm Birth and Low Birthweight

Any discussion of infant mortality rates in the United States would be incomplete without addressing the interrelated issues of preterm delivery and low birth weight, which represent leading factors for infant morbidity and mortality, as the two most important predictors of an infant's subsequent health and survival (Ashton, 2006; MacDorman, Callaghan, Mathews, Hoyert, & Kochanek, 2007; Mathews & MacDorman, 2007). In the

most recently available (2004) data, preterm delivery and/or low birthweight caused 15.7% of infant mortalities overall, second only to congenital/genetic defects as a cause of infant deaths (20.5%) (Mathews & MacDorman, 2007).

Currently, one in eight (12.5%) infants are born preterm (MacDorman, Callaghan, Mathews, Hoyert, & Kochanek, 2007), i.e., before 37 weeks of gestation (March of Dimes, 2002). Preterm labor has been the focus of intensive research, and attempts have been made for more than three decades to predict and prevent preterm birth. Preterm delivery has been associated with multiple gestation, previous preterm delivery, uterine or cervical abnormalities, extremes of maternal age, smoking, and maternal race, with African American women at substantially higher risk than other women (Ashton, 2006; Mathews & MacDorman, 2007). Despite a substantial body of biomedical and behavioral research, the etiology of preterm labor is poorly understood, and successful prediction and prevention of preterm birth remains elusive (Badr, Abdallah, & Mahmoud, 2004; Institute of Medicine, 2006). The rate of preterm birth has increased thirty percent since 1981 (Anachebe, 2006), at an estimated cost of \$26.2 billion annually (Institute of Medicine, 2006).

Low birthweight (LBW) and very low birthweight (VLBW) are defined as infant weights at delivery less than 2500 grams and less than 1500 grams, respectively (Mathews & MacDorman, 2007). The most common cause of LBW/VLBW is a short gestation (i.e., preterm birth), but it can also result from intrauterine growth restriction, or IUGR. IUGR infants may be born at full term, or they may be born preterm (Badr et al., 2004; Institute of Medicine, 2006).

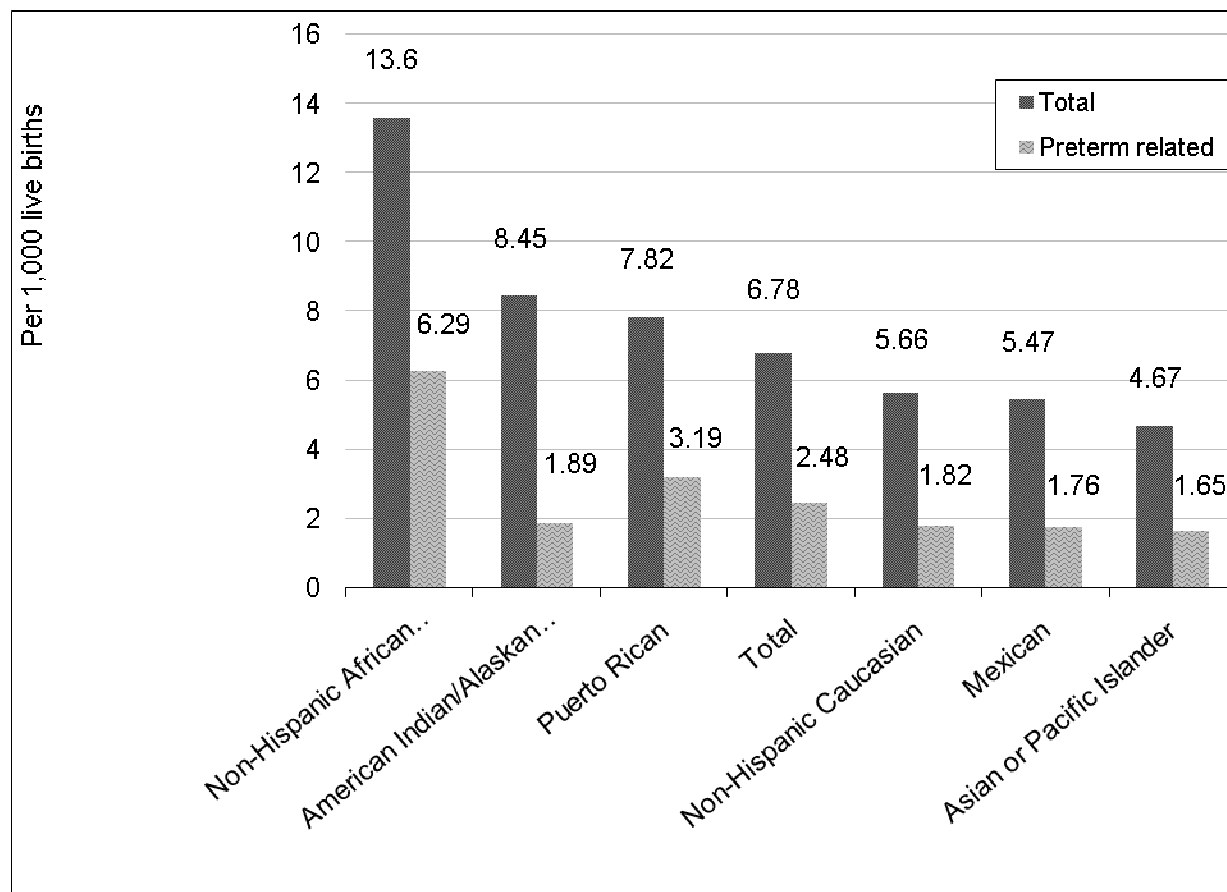
Infant Mortality

The National Vital Statistics System (NVSS) of the National Center for Health Statistics tracks infant mortality rates for the United States. Total infant mortality statistics tracked by the NVSS include infant deaths up to one year of age (Mathews & MacDorman, 2007). Rates are typically presented as the number of infant deaths under the age of one year per 1,000 live births. Since 1983, the NVSS has also linked birth certificate information (e.g., gestational age, maternal race, ethnicity, age, and smoking status) with death certificate information (e.g., cause of death) for each U.S. infant that dies under the age of one year (National Vital Statistics System, 2007). The linkage creates some delays in the release of the data set, hence the current data are from the 2004 file, but the linkage allows for more detailed analysis and better understanding of trends and associated factors in infant deaths (National Vital Statistics System, 2007).

According to the most recent data from the NVSS, the aggregate U.S. infant mortality rate (unadjusted for other risk factors) was 6.78 infant deaths per 1,000 live births. This is the lowest aggregate rate ever reported. However, in contrast to the historical declines of infant mortality rate over the last century, the infant mortality rate has declined little since 2000 (MacDorman et al., 2007). In addition, the US has one of the worst infant mortality records in the developed world (Save The Children, 2006), a status that has been called “a national disgrace” (Hogue & Vasquez, 2002). Little progress has been made toward meeting the Healthy People 2010 goal of reducing infant mortality to below 4.5 deaths per 1,000 live births (U.S. Department of Health and Human Services, 2000). While a handful of states have reached this target for Caucasian or Asian/Pacific Islander infants, no state has reached this target for African American,

Latino, or American Indian/Alaskan Native mothers (Anachebe, 2006). A major contributing factor to the U.S. infant mortality rate is the significant differences that exist based on race and ethnicity (see Figure 2).

Figure 2. US infant mortality rates by race and ethnicity, 2004 data.
Source: National Vital Statistics System, NCHS, CDC (Mathews & MacDorman, 2007).



African American, Native American, and Latina mothers, who are also the most likely to receive inadequate prenatal care (March of Dimes, 2002), are also the most likely to deliver a preterm infant. African American babies are at the highest risk, as they are most likely to be born prematurely and at low birth weight, and more than twice as likely to die than Caucasian ones (Centers for Disease Control and Prevention, 1999;

MacDorman et al., 2007; Mathews & MacDorman, 2007). Asian and Pacific Islander women have the lowest overall rates of preterm birth. The reasons for racial and ethnic differences in preterm birth rates are poorly understood (Ashton, 2006; Institute of Medicine, 2006).

For non-Hispanic African American and Puerto Rican women, preterm birth/low birthweight is the leading cause of infant mortality, causing 21.8% and 16.1% of infant deaths respectively in these groups (Mathews & MacDorman, 2007). Infant deaths resulting from sequelae of preterm birth were 3.5 times higher for African American (6.29 per 1,000 live births) than for non-Hispanic Caucasian (1.82 per 1,000) mothers. In fact, in 2004, the preterm-related infant mortality rate for African American mothers was higher than the total combined preterm-related infant mortality rate for non-Hispanic Caucasian, Mexican, and Asian/Pacific Islander women. The preterm-related infant mortality rate for Puerto Ricans (the poorest Latina subgroup) was 3.19 per 1,000 live births, a figure 75% higher than for non-Hispanic Caucasian mothers. Preterm-related infant mortality rates for Native American/Alaskan Native (1.89 per 1,000), Mexican (1.76), and Asian or Pacific Islander (1.65) women were not significantly different from those for non-Hispanic Caucasian women. The overall high rates of infant mortality rates for Native American/Alaskan Native infants is driven primarily by disproportionate risk for sudden infant death syndrome, or SIDS (Anachebe, 2006).

Maternal Mortality

The National Vital Statistics System (NVSS) also tracks maternal mortality rates. Maternal mortality refers to the deaths of pregnant women or those who are within 42 days of pregnancy, regardless of pregnancy duration, from any cause related to pregnancy

or aggravated by the pregnancy or its management) (Hoyert, 2007). Accidental or incidental deaths are not included in maternal mortality rates. The NVSS is the major source of pregnancy-related mortality information (Horon & Cheng, 2001). Information from US death certificates (completed by physicians, medical examiners, or coroners) is compiled into the NVSS by the National Center for Health Statistics (NCHS). The rates are computed by dividing the number of deaths by the number of live births in the same calendar year and are presented as rates per 100,000 live births (with live births used in the denominator as an approximation of the population of women at risk of a maternal death). Maternal mortality rates were gathered by the race of the mother beginning in 1989; prior to that, it was the race of the child that was used. By NVSS estimates, maternal mortality fluctuates annually, but has remained relatively consistent since 1978, hovering between 7 to 9 maternal deaths per 100,000 live births. Changes in the reporting guidelines that broadened the definition of maternal deaths resulted in about a thirteen percent increase in the number of deaths identified as maternal deaths between 1998 and 1999. The rate increased again between 2002 and 2003 to an overall rate of 12.1 deaths after a separate question (i.e., check-box) about the pregnancy status of female decedents (to facilitate identification of late pregnancy-associated deaths) became a standard item on the U.S. Standard Certificate of Death. This rate is considerably higher than the Healthy People 2010 goal of reducing maternal deaths to 3.3 deaths per 100,000 live births (U.S. Department of Health and Human Services, 2000).

As high as maternal mortality rates reported are, the NVSS as a data source has certain limitations that lead to an underestimation of actual maternal mortality (Campbell, Glass, Sharps, Laughon, & Bloom, 2007; Horon, 2005; Horon & Cheng, 2001). The

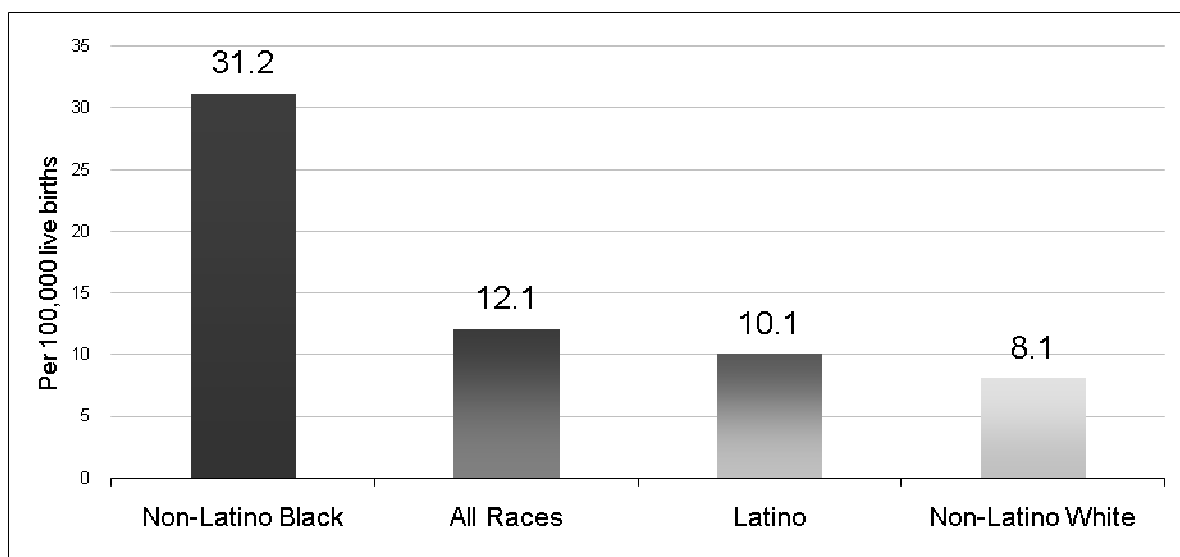
examiner does not always have information related to pregnancy status, and thus these data are missing or marked as “unknown” in a substantial number of cases (Campbell et al., 2007; Horon, 2005; Horon, & Cheng, 2001). Late maternal deaths are those that occur more than 42 days after the end of pregnancy, and are not included in NVSS statistics, and early pregnancies or pregnancy losses may particularly be missed (Horon & Cheng, 2001). In addition, as of 2003, only twenty-one states have adopted the use of the standard question (Hoyert, 2007). Therefore, pregnancies (and thus pregnancy-associated deaths) are likely undercounted in the NVSS, and the NVSS does not identify as many events as active surveillance efforts. For example, researchers have revealed that 35-38% more maternal deaths may be identified through surveillance efforts other than by the death certificate alone (Horon, 2005; Horon & Cheng, 2001). Despite these limitations, the NVSS does have utility for examining trends. NVSS data clearly demonstrates that, as with infant mortality, maternal mortality is patterned by race. African American mothers have the highest mortality rates, with death rates consistently three times the rate of Caucasian women. In 2003, the maternal mortality rate for African American women was 31.2 deaths per 100,000 live births, compared to 8.1 for Caucasian women (see Figure 2). The majority of these maternal deaths are from preventable causes, i.e., hemorrhage, ectopic pregnancy, and hypertension (Centers for Disease Control and Prevention, 1999). Maternal deaths documented for Native American/Alaskan Native women from seven selected years between 1980 and 2001 show between one and six total maternal deaths in each year; for Asian/Pacific Islander women in the same reporting period, eleven to eighteen total maternal deaths were reported. Rates per 100,000 live births were not calculated for American Indian or Alaska Native and Asian

or Pacific Islander mothers as rates based on fewer than 20 total deaths are considered unreliable (National Center for Health Statistics, 2006). In response to some of the limitations of the NVSS for capturing maternal deaths, the Centers for Disease Control & Prevention's Division of Reproductive Health and the American College of Obstetrics and Gynecology launched a voluntary maternal mortality surveillance system in 1987, known as the Pregnancy-Related Mortality Surveillance System (PMSS) (Chang et al., 2003). Health departments in the fifty states, the District of Columbia, and New York City provide CDC with copies of death certificates and available linked outcome records (i.e., birth certificates or fetal death certificates) of all deaths occurring during or within one year of pregnancy. Additional deaths are identified via state maternal mortality review committees, the media, and individual providers. CDC epidemiologists review relevant birth or fetal death certificates to determine whether the deaths are pregnancy related. The PMSS differs from the NVSS in that it is an active surveillance system, and the temporal boundary for maternal deaths is wider. The NVSS data includes pregnancy-related deaths during pregnancy and up to 42 days after the pregnancy ends, whereas the PMSS includes pregnancy-related maternal deaths up to one year after the end of the pregnancy.

The most recent publication of data from the PMSS is an analysis of 4,200 maternal deaths occurring from 1991 to 1999. Pregnancy-related mortality ratios were calculated by using the number of deaths obtained from the PMSS (numerator) and live-birth data (denominator) obtained from the 1991 to 1999 data compiled by the National Center for Health Statistics (Chang et al., 2003). The overall pregnancy-related mortality ratio was 11.8 deaths per 100,000 live births for the nine-year surveillance period. The

ratio significantly increased from 10.3 in 1991 to 13.2 in 1999. In comparison, the NVSS maternal mortality rate for 1999 was 9.9 deaths per 100,000. Low education was associated with maternal death; however, pregnancy-related deaths for African American women were three to four times higher than that for Caucasian women at any education level (Figure 3).

Figure 3. US maternal mortality rates by race and ethnicity, 2003 data.
Source: National Vital Statistics System, NCHS, CDC (Hoyert, 2007).



Other racially distinct patterns were reported and African American women remained at high risk, with a risk ratio for pregnancy-related deaths of 3.7 (95% CI; 2.9, 4.7). Unlike Caucasian women in the sample, African American women who died were more likely to be married than not. Risk for African American women increased substantially with age and was most evident for women over the age of thirty-nine years. African American women were twice as likely as Caucasian women to die of ectopic pregnancy (8% vs. 4%, $p < .001$). However, the leading causes of death (embolism, hemorrhage, and pregnancy-induced hypertension) did not differ for the two groups.

Thus, in general, the etiology of mortality is not different for African American women; in other words, pregnant African American women are not dying for reasons different from Caucasian women—they are simply dying at a much higher rate.

Race, Racism, and the Construction of Race

The population-based data on maternal-child outcomes make it clear that pregnant racial and ethnic minority women (in particular, African American and Native American women) suffer disparately from risk for preterm birth, low birthweight, infant mortality, and maternal mortality, despite many years of research and intervention designed to reduce such outcomes. However, these data also hint that other factors may interact with racial and ethnic minority status to further increase risk. US data is typically abstracted by racial and ethnic category, not by measures of social class (e.g., income), yet it can be discerned that minority women who are also poor face additional risk. We must address the gaps in the scientific body of knowledge in order to have a better understanding of how socioeconomic status interacts synergistically with racial and ethnic minority status, as well as other risk factors for poor outcomes not reflected in these data, such as exposure to violence. This knowledge is needed to devise more effective interventions in the future.

Many theories have been advanced for the documented racial disparities in infant and maternal mortality rates. In the case of preterm delivery and African American women, the studies on individual risk factors abound, including associations of preterm delivery with maternal genital infections, extremes of maternal age, low education, substance abuse, history of previous preterm delivery, and certain medical conditions such as hypertension and diabetes (Anachebe, 2006; Mathews & MacDorman, 2007).

Wise (1993) critiqued “the tyranny of the p value,” with “a remarkable proliferation of studies reporting associations between infant mortality and a vast array of singular variables or risks” (p. 8-9), with little regard to how risk factors might interact in the real world. Wise further critiqued such acontextual approaches as playing into stereotypes of maternal responsibility for infant death, and distracting attention away from addressing the lack of health care and social service funding and infrastructure in many communities.

Since Wise’ critique appeared fourteen years ago, broader explanatory frameworks have in fact appeared in the literature. Some structural and social elements are hypothesized to contribute to the high rates of preterm delivery for African American women. These include elevated maternal stress and anxiety, and exposure to racism across the lifespan (a stressor in and of itself) (Anachebe, 2006). Other factors that have been suggested as possible contributors include underlying disparities in pregnancy morbidity, barriers that exist in access to and use of healthcare services, and differences in the content and quality of health care received by African American women (Anachebe, 2006; Chang et al., 2003). However, a clear understanding of the etiology of elevated preterm birth risk related to race remains elusive.

Conceptualization and Measurement of Race

The conceptualization and measurement of race/ethnicity are challenges that may contribute to the confusion around the origin of health disparities. Historically, race has been considered a biological construct, and mainstream discourse has tended to attribute racial health disparities to biological, genetic, cultural, or lifestyle differences between racial groups (Drevdahl, Taylor, & Phillips, 2001; Geiger, 2006; Mullings & Schulz,

2006; Wise, 1993). However, it appears little, if any, of the difference in child or maternal outcomes can be attributed to actual biologic or genetic differences between groups. A preponderance of evidence suggests that the notion of race as a biological or genetic construct is, at best, problematic and “a poor marker for genetic variation” (Patrick & Bryan, 2005), given the greater genetic variation *within* races than between them (House & Williams, 2003). General agreement has emerged throughout the contemporary scientific literature that race is primarily a social construct (House & Williams, 2003; Lu & Halfon, 2003; Mullings & Schulz, 2006; U.S. Census Bureau, 2001; Winkler, 2004; Zambrana & Dill, 2006).

In federal data, race and ethnicity are separate and distinct identities: race is conceptualized as a socially recognized and defined status without biological basis, and ethnicity or origin is the heritage, nationality group, lineage, or country of birth of the person or the person's parents or ancestors before their arrival in the United States. People who identify their origin as Spanish, Hispanic, or Latino (the only category of ethnicity specifically tracked in this data) may be of any race. In addition to their race, persons are also categorized by membership in one of two ethnicities: Hispanic/Latino, and Not Hispanic or Latino (U.S. Census Bureau, 2001). These guidelines only apply to federal data collected after 1997, thus comparison of data based on race or ethnicity across different collection periods can be problematic (U.S. Census Bureau, 2001).

Such racial and ethnic categories, while commonly used in nursing and other health research, are often undefined or used inconsistently in not only research reports but in federal guidelines and census data (Drevdahl, Taylor, & Phillips, 2001). Further, these categories are often “absurdly broad” (Geiger, p.271). For example, by the federal

guidelines described above, “Latina” can refer to women of many diverse subgroups, (e.g., of Mexican, Puerto Rican, Dominican, Spanish, Cuban, Central American, Brazilian, Chilean, or Argentinean origin) who may have very different backgrounds, experiences, and outcomes.

To illustrate the limitations of overly broad categories, we may consider the example of infant mortality among Latinas. As an overall group, infant deaths among these women have been favorable, running parallel with the rates in Caucasian women (Mathews & MacDorman, 2007). However, large differences exist for Mexican-Americans and Puerto Ricans, who comprise the largest Latino subgroups. Both of these subgroups suffer many disparities using other measures of morbidity and mortality when compared to the majority population. However, Puerto Ricans have the worst health outcomes of any Latino subgroup, including the third highest rate of overall infant mortality for all racial and ethnic groups (7.78 to 8.88 deaths per 1,000 live births). This is considerably higher than the rates for Mexican-Americans at 5.22 to 6.03 (Mathews & MacDorman, 2007). The preterm-related infant mortality rate specific to preterm birth for Puerto Ricans is 81% higher than Mexican-Americans (Mathews & MacDorman, 2007). These findings may relate to Puerto Rican’s status as the poorest Latina subgroup (Bishaw & Iceland, 2003). Puerto Rican identity as a mixed-race ethnic group may add an additional intersection of risk (Zambrana & Dill, 2006).

Thus, wide variation in pregnancy outcomes exists not just between but also within specific ethnic or racial groups. The variation is not well understood or described (Gennaro, 2005) and may represent the influence of other social determinants of health, one of several limitations of using a racial or ethnic lens solely to explain or address

health disparities. The etiology of disparity in pregnancy outcomes is likely multifactorial, and that individual environmental, health, and societal factors very likely interact with minority status to influence outcomes (Gennaro, 2005; Mullings & Schulz, 2006).

Another critique of the measurement and use of racial categories in research is related to who defines the race of participants, how groups are categorized, and whether participants can be assigned to more than one category of race/ethnicity, which further complicates extrapolation of data related to health disparities (Drevdahl et al., 2001; Winkler, 2004). Race may be commonly used in the place of unmeasured confounders (e.g., cultural, social, and environmental influences) but it is a poor substitute for careful measurement of these variables given the “absurdly broad” categories (Winkler, 2004). Approaches that attribute disparities to cultural/behavioral differences may fail to allow for a dynamic, complex, nuanced, or socially situated view of culture, and may reify or essentialize culture as a fixed, uniform, unchanging entity handed down from one generation to the next (Mullings & Schulz, 2006).

Race as a Lived Experience

However, despite these shifting paradigms of race, there is no denying that race remains an important predictor of health status (Isaacs & Schroeder, 2004; Mullings & Schulz, 2006). Racial and ethnic health disparities occur in a broader social context of inequality and historic and contemporary discrimination (Carlson & Chamberlain, 2004; House & Williams, 2003; Smedley et al., 2003). Race is included in the WHO framework on structural and social determinants of health because of the difficulty and discrimination that minorities face. Race as a lived experience is a well-documented

phenomenon, and racism, i.e., “an ideology of inferiority that is used to justify the differential treatment of racial outgroups” (p. 105) (House & Williams, 2003), is believed to be a potent contributor to health disparities (Carlson & Chamberlain, 2004; House & Williams, 2003; Lu & Halfon, 2003; Smedley, Stith, & Nelson, 2003).

According to Crenshaw (1994), “to say that a category such as race or gender is socially constructed is not to say that that category has no significance in our world.” Consideration of the cumulative health impacts of inequality and discrimination has recently sparked recent interest in the physiological burden, i.e., the “wear and tear”, of such experiences across the lifespan (Carlson, 2005; Geronimus, 1992, 1996, 2001). Acute or chronic experiences of discrimination are stressors in and of themselves; further, they may magnify the impacts of other stressors that are not related to race (Williams, Neighbors, & Jackson, 2003). The WHO framework emphasizes the effects of discrimination as the mechanism for health disparities, as well as the difficulty in separating the effects of discrimination from the impact of other determinants associated with disadvantaged social positions (low income, poor education, poor housing etc.) that are intertwined with racism (Commission on Social Determinants of Health, 2007b).

Specific to pregnancy, investigators compared 104 African American women who delivered VLBW infants with 208 controls (African American women who delivered term, normal birth weight babies) (Collins, David, Handler, Wall, & Andes, 2004). As a retrospective design, this study was subject to recall bias. Nonetheless, findings are intriguing. There was an association between perceptions of lifetime and pregnancy exposures to discrimination and the risk for delivering a VLBW infant (adjusted OR 2.6, 95% CI 1.2, 5.3). The effect was strongest in college-educated women and those in their

twenties, and did not differ by income quartile, insurance status (i.e., Medicaid vs. other), or onset of prenatal care (i.e., early vs. late/none). A prospective study with 1,962 pregnant women yielded a positive, though smaller, relationship between high levels of perceived racism and preterm birth (adjusted OR 1.4, 95% CI 1.4, 2.9) (Dole et al., 2003).

The hypothesized relationship of stress and discrimination as etiologic factors in preterm delivery and low birthweight has been discussed extensively in the literature, particularly as it relates to African American women, (Anachebe, 2006; Geronimus, 1992, 1996; Hogue & Bremner, 2005; Hogue et al., 2001), although it remains to be well researched. Hogue and Vasquez (2002) argued that stress from discrimination likely affects maternal-child outcomes for other women of color as well, although this has received less attention in the scientific community. They discussed the “epidemiologic paradox” or “immigrant advantage” (Rosenberg, Chiasson, & Raggio, 2001, June), particularly noted among Mexican-American women, who have not suffered the same disparities of low infant birth weight as have African American women, despite similar economic disadvantage. In an analysis of 2,890,898 birth certificates in the 1994 NVSS dataset, Buekens and colleagues (2000) concluded that Mexican American infants were actually lower birth weight, on average, than non-Latino Caucasian babies but that preterm birth rates were lower as well. Buekens et al. suggested that given the inherent unreliability of gestational age assessment, many “heavy preemies” in Mexican Americans are in fact misclassified term births. They suggested the “immigrant advantage” is perhaps specifically an advantage of lower rates of preterm birth among Mexican American women.

However, other data suggests that among Mexican American women, recent immigrants have more favorable outcomes over more acculturated women, for reasons that are not well understood. Further, the protective factor appears to decrease for Mexican American women the longer they live in the U.S (Rosenberg et al., 2001, June; Zambrana, R. E., Scrimshaw, Collins, & Dunkel-Schetter, 1997). Zambrana et al. (1997) found low-income Mexican American women ($n = 366$) born in the U.S. or who had lived in the U.S. since ten years of age had low rates of LBW births (4.9%). However, this was nearly twice the rate of a comparison group of more recently immigrated Mexican women ($N = 545$), who had LBW rates of 2.6%, despite nearly identical mean gestational age at delivery and similar rates of preterm birth. Thus, low aggregate rates of preterm birth and/or low birth weight among Mexican American women may further mask intragroup differences related to acculturation, stress, and perhaps discrimination.

It is clear that more research is needed to better understand the patterns of maternal-child outcomes among racial and ethnic minority women. This study is designed to address the gap in the literature described by Williams and Jackson (2005), who proposed that research on health disparities in racial and ethnic minorities should consider the factors of socioeconomic status and exposure to stressors, including discrimination. In the current study, participants were asked to self-define their race and ethnicity for the study. Qualitative questions and probes were designed to elicit women's experiences related to stress and discrimination, and the DAS (Detroit Area Study) measure of discrimination was administered to all participants, regardless of race or ethnicity. Questions on the DAS were not asked with reference to race or ethnicity, but in the generic context of unfair treatment, and respondents were asked whether they

attributed the unfair treatment they have experienced to ethnicity, gender, race, age, religion, physical appearance, sexual orientation, and/or socioeconomic status.

Socioeconomic Status (SES)

As previously noted, the terms “socioeconomic status” (SES), “social class”, and “socioeconomic position,” have often been used interchangeably in health research.

Socioeconomic status, or SES, as used here is congruent with the WHO conceptualization of SES, which includes both resource-based and status-based concepts and measures.

Resource-based refers to material and social resources and assets, most readily measured via income, wealth, and education; inadequate resources are often described as “poverty” and “deprivation.” Status links to occupational prestige, income, and educational level, but more specifically refers to individuals’ rank in a social hierarchy (Commission on Social Determinants of Health, 2007b).

The literature review provides ample evidence that disparities in preterm birth/LBW, infant mortality, and maternal mortality are clearly demonstrable along categories of racial and ethnic membership. The race-based health disparities in infant and maternal mortality, between African Americans and Caucasians in particular, are well documented and have actually been worsening (Centers for Disease Control and Prevention, 1999). However, wide variations in pregnancy outcomes exist within ethnic or racial groups, which are not well understood (Gennaro, 2005) and may represent the influence of other determinants of health. Attributions of health differences entirely to race or ethnicity may ignore the contribution of other factors (Adler & Ostrove, 1999; Braveman et al., 2005) and reflect “a poverty in the means of measurement” (p. S69; Patrick & Bryan, 2005).

As previously noted, the scientific consensus is that race and ethnicity do not represent biologically or genetically distinct categories, and elevated risk for minority women and children likely results from social factors, such as structural and socioeconomic inequities, discrimination, and stress. Women and minorities are more likely to be poor, and a growing body of literature demonstrates that socioeconomic status (SES), independent of race, is an extremely important social determinant of poor pregnancy outcomes. Lower socioeconomic status is strongly associated with poor pregnancy outcomes, including pregnancy-induced hypertension, preterm delivery, low birth weight, and maternal and infant mortality (Hogue et al., 2001; Kramer et al., 2001; Rich-Edwards & Grizzard, 2005).

Some studies have examined and discussed racial differences in health without substantively considering the potential additive factor of socioeconomic status (Adler & Ostrove, 1999; Geiger, 2006). The most notable example of this narrowed focus is the landmark Institute of Medicine (IOM) publication *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Smedley et al., 2003).

Yet, race/ethnicity and SES clearly interact in many maternal-child outcomes, with minority women of low SES the most at risk in the majority of studies. However, untangling the interaction of race, gender, and class is complex, particularly in light of the measurement issues related to SES. Some evidence has suggested that controlling for SES explains a significant proportion of the relationship between health disparities and race/ethnicity (Smedley et al., 2003). For example, in one study, large and significant racial and ethnic disparities in rates of unintended pregnancy were attenuated when adjusted for poverty status, maternal education, and paternal education (Cubbin et al.,

2002), and a marked inverse gradient was demonstrated between SES and pregnancy intendedness. Infant mortality rates generally decrease with increasing educational level. This pattern may reflect the effects of more education on health behaviors, but also of the higher incomes levels associated with more education (Mathews & MacDorman, 2007). The higher risk of infant mortality among teenage mothers may be in part due to the impact of socioeconomic factors, i.e., less education and less income (Mathews & MacDorman, 2007).

However, in the majority of studies, racial and ethnic minority status remains a significant contributor to health disparities after adjusting for socioeconomic status and other factors (Geronimus, 2000; Isaacs & Schroeder, 2004; Smedley et al., 2003). For example, in one population-based, retrospective, nested case-control study of maternal mortality, African American and Caucasian women of the same SES (as measured by education level) still had disparate risk of poor outcomes such as maternal mortality (Saftlas, Koonin, & Atrash, 2000). Likewise, in 2004 data, for African American women who are educated at a college level or higher, the infant mortality rate was high (9.9 infant deaths per 1,000 live births) whereas the rate for high-school educated Caucasian women was substantially lower (6.5 deaths per 1,000; Ashton, 2006; Mathews & MacDorman, 2007). In an analysis of 1988 NVSS data, Singh and Yu (1995) found that income did not explain racial disparities, with African American women earning \$35,000 or more annually with high infant mortality rates (16.6 per 1,000 live births) compared to Caucasian women who earned less than \$10,000 per year (11.2 per 1,000).

It is unclear how much these findings might be different using income measures more sensitive to the accumulation of wealth, to SES over the life-course, or to subjective

socioeconomic status. Similar to research on the relationship between race/ethnicity and health, research on socioeconomic status and health has suffered from conceptual and measurement issues. It is clear that the relationship between racial/ethnic minority status and SES in maternal-child outcomes is not well understood and remains an area for exploration.

The body of research linking socioeconomic status (SES) and health has increased dramatically over the last fifteen years (Adler & Ostrove, 1999). SES has been shown to be important at all levels of SES. In the Whitehall II Studies of British civil servants (Singh-Manoux, Adler, & Marmot, 2003; Singh-Manoux, Marmot, & Adler, 2005) participants were organized into socioeconomic groups by occupation (from unskilled manual workers at the bottom, to executives at the top). Health improved in a linear, stepwise gradient as SES increased, a surprising finding given that none of the participants were poor, and all had access to free medical care (Braveman 2007). Adjustment for smoking, diet, and exercise did not explain the relationship. In other studies, multiple health disparities have been demonstrated to occur along an SES gradient, including cardiovascular disease, diabetes, metabolic syndrome, arthritis, tuberculosis, chronic respiratory disease, gastrointestinal disease, breast, bladder, and colon cancer survival, and accidental and violent deaths, as well as poor pregnancy outcomes (Adler & Ostrove, 1999; Hogue et al., 2001; Kramer et al., 2001).

There may be intergroup differences in the strength and shape of this SES-associated gradient, particularly by race/ethnicity and gender (Braveman et al., 2005), suggesting the interaction of multiple social determinants such as gender and race. Social class differences within racial and ethnic groups may be substantial (Adler & Ostrove,

1999; Geiger, 2006; Gennaro, 2005; Isaacs & Schroeder, 2004). However, in general, women and racial and ethnic minorities in the US are more likely to be of low SES. According to the 2000 census, one-third of households headed by women who are single parents fell below the federal poverty threshold (Bishaw & Iceland, 2003). Non-Latino Caucasians had the lowest poverty rates, whereas the highest rates were found among African Americans, American Indians/Alaskan Natives, and Latinos of any race or ethnicity, and persons of more than one race (Bishaw & Iceland, 2003).

Conceptualization and Measurement of SES

Documenting this association is made more difficult by the fact that much of the available health data in the United States, including perinatal surveillance data (Andersen & Mortensen, 2006), contains relatively little information about social class (Braveman et al., 2005; Isaacs & Schroeder, 2004). For example, while states typically collect race data for death certificates, only recently has information on education been collected and not by all states (Adler & Ostrove, 1999; Isaacs & Schroeder, 2004). Therefore, many analyses can only address racial differences in mortality data.

Conceptualization and measurement issues related to SES present an additional challenge to understanding the relationship between socioeconomic position and health. Patrick and Bryan (2005) suggested that the failure to detect some socioeconomic or lifestyle stressor that influences maternal outcomes does not mean that the association does not exist, stating, “we may have a poverty in the means of measurement” (p. S69). Thus, thoughtful measurement of SES is crucial in health disparities research. Prior to the mid-1980’s SES was recognized as a confounder, and was most commonly used only as a

control variable (Adler & Ostrove, 1999; Braveman et al., 2005). Studies that measured SES frequently used a “poverty threshold” model, which describes individuals as being above/below the poverty line, with the assumption being that status below the poverty line was associated with poor health outcomes, and status above the line was not. By the mid-1980’s evidence of the limitations of this approach was accumulating, in that the health effects of SES were not only demonstrable in those experiencing extreme poverty, but also continued at higher levels of SES as well (Adler & Ostrove, 1999).

Investigators have more recently used individual-level indicators such as income or education (in the United States), or occupation (more commonly used in Europe) to measure SES, with these variables often treated as largely collinear and interchangeable. While all of these variables are moderately correlated, they are likely markers for distinctive aspects of social position with different impacts on health, and results may differ depending on which is chosen for analysis (Braveman et al., 2005; Stewart & Social Environment Working Group, 2002). Each approach has advantages and disadvantages (Stewart et al.). However, most studies use a single measure of SES, with no discussion of the limitations (Braveman et al., 2005).

Education level, as a relatively stable measure that reflects both income and occupation, is a popular measure of SES (Andersen & Mortensen, 2006). It is less sensitive for respondents than income and less likely to produce missing data (Adler & Ostrove, 1999). However, education is confounded by income, gender, and race to some extent, and only appears to relate to health status above the poverty level. When gender or race is factored in, equivalent education may not result in equivalent income (Braveman, et al., 2005; Burgard, Stewart, & Schwartz, 2003).

Low education and/or income also are thought to predict increased health risk behaviors (Lantz et al., 1998), a relationship that has been suggested to explain at least some of the association between SES and health. This hypothesis leads to health risk behaviors as a frequent target for health disparities interventions. However, in one well-done longitudinal, population-based study (Lantz et al., 1998) examining the effects of education, income, and health risk behaviors on mortality, health risk behaviors (smoking, overweight, and lack of exercise) were significantly associated with lower education and income, and both lower income and lower education were associated with greater mortality. However, the effects of education on mortality were fully mediated by income. Health risk behaviors (smoking, overweight, and lack of exercise) were significantly associated with lower education and income but explained only a modest proportion of the variance in mortality (12 to 13%), suggesting why efforts to promote healthier behaviors among disadvantaged groups has not been a “magic policy bullet” to address persistent health disparities in the context of larger social determinants of health.

Occupation may reflect both social status and environmental exposures (Andersen & Mortensen, 2006; Hogue et al., 2001; Lantz et al., 1998), but is rarely used to measure SES in the United States. Occupation presents its own limitations as it requires the construction of meaningful occupational categories, and fails to account for respondents who are outside the paid labor force (who are most frequently female), and the chronically unemployed (Braveman, et al., 2005; Burgard et al., 2003).

Income is another common SES measure. However, it is not always predictive of family purchasing power or the availability of income within a household, is age-dependent and unstable, and cannot be easily compared unless one knows the size and

composition of the household (Stewart & Social Environment Working Group, 2002) Further, income is not an adequate proxy for wealth (i.e., accumulated resources and assets). Wealth is often an indicator of income over the life course (Stewart & Social Environment Working Group, 2002) and can serve as a buffer in difficult times, such as unemployment or illness.

One of the most critical issues in the measurement of SES and interpretation of research results rests in the findings that people at similar income levels but different races can have dramatically different levels of wealth (House & Williams, 2003). In other words, SES measures are not commensurate across racial groups, thus truly adjusting SES in analyses is inherently problematic (House & Williams, 2003). A re-analysis of data from multiple population-based surveys and the 2000 Census (Braveman, et al., 2005) revealed that even at the lowest income quintile, Caucasian households averaged more than 400 times the wealth of African American households. In higher income quintiles, Caucasians had three to nine times the accumulated resources of African Americans. In addition, estimates of the direction, magnitude, or significance of racial and ethnic health disparities changed depending on whether or how education and income were included in the analyses. The authors concluded that racial/ethnic health disparities cannot be assumed to be reducible to only socioeconomic differences, but that conclusions should be reached carefully when considering how aspects of SES have generally been measured inadequately or not at all (Braveman, et al., 2005).

In addition to the association of individual SES, the context of community SES may be important as well. Some evidence suggests that relative income inequality or the distribution of income across members of society may be important, with less egalitarian

societies having poorer overall health (Hofrichter, 2005). In a 2004 systematic review, Spencer (2004) examined the evidence linking income inequality to low birth weight and infant mortality in wealthy nations. Methodological differences between studies hampered some comparisons; however, Spencer concluded that reasonable preliminary evidence exists to support a positive correlation between income inequality and infant mortality. A similar positive relationship was found between income inequality and low birth weight; however, only three studies addressed birth weight, so evidence was more limited for this relationship. The mechanisms that underlie such associations are not clear (Spencer, 2004). Other evidence of community SES as a factor comes from studies that have found that living in socioeconomically disadvantaged neighborhoods was associated with increased risk of preterm delivery, low birth weight, and neonatal mortality, independent of individual SES (Luo et al., 2004; Pearl, Braveman, & Abrams, 2001; Pickett, Ahern, Selvin, & Abrams, 2002; Rauh, Andrews, & Garfinkel, 2001). Likewise, this finding points out that SES and racial/ethnic health disparities are best understood in a “multivariate, causal, and life course framework” (House & Williams, 2003).

The Life Course Perspective

An added challenge to interpreting the relationship of SES to health rests in the standard research practice of measuring only current or recent SES (an SES “snapshot”) that may underestimate how SES varies across the life span (the “life course” perspective). The life course perspective suggests that maternal-child health disparities stem not only from exposures to risk factors during pregnancy, but from accumulated risk related to inequities experienced by mothers throughout the course of their lives (House & Williams, 2003; Lu & Halfon, 2003). Further, socioeconomic status has both

intragenerational and intergenerational components (House & Williams, 2003). SES in childhood generally is related to SES in adulthood, and may influence adult health independently of adult SES. Long-term low SES is even more devastating to health, in what has been described as a “dose-response” relationship (Geronimus, 2000). Therefore, findings in studies such as the previously referenced nested case-control study of maternal mortality (Saftlas et al., 2000), in which African American and Caucasian women of the same SES (as measured by education level) still had disparate risk for poor outcomes such as maternal mortality, may have been different if the investigators had been able to measure wealth, or SES across the life span, such as the social position of women’s parents or grandparents.

Perceived SES

Subjective social status reflects where individuals perceive themselves to be ranked in the social hierarchy. In some studies, subjective social status has demonstrated a stronger relationship with health than objective SES measures (i.e., income, education). These associations remain significant when objective indicators of SES were also entered into analytic models (Adler & Stewart, 2007, March). For example, in the Whitehall II Studies of British civil servants (Singh-Manoux, Adler, & Marmot, 2003; Singh-Manoux, Marmot, & Adler, 2005), men and women with higher subjective social status had lower prevalence of angina, diabetes, depression, and better perceived general health. Wright and Steptoe (2005) found that the impact of subjective social status on cortisol awakening response (a measure of general stress) was independent of age, body mass index, smoking, time of waking, educational qualifications, financial strain, number of chronic illnesses and medication count in a sample of retired adults ($n = 93$). Wright and Steptoe

concluded that subjective social status might be particularly useful in providing an aggregate measure of lifetime social position not so effectively captured by objective markers of SES.

This current study considered the problems with the limitations of measures of SES, as described within this literature review, and the importance of thoughtfully conceptualizing and measuring this structural determinant of health. Traditional measures of SES (income, education) were combined with a subjective measure of socioeconomic status, the MacArthur Scale of Subjective Social Status. This scale has been used in a number of studies with diverse populations (Adler & Stewart, 2007, March). The measure is intended to capture individuals' sense of their place in society, as a "composite measure" or cognitive average of SES (Singh-Manoux, Marmot, & Adler, 2005). In a simple pictorial format, it presents an "SES ladder" and asks individuals to place an "X" on the rung on which they feel they stand. There are two versions of the ladder, one linked to traditional SES indicators (SES ladder) and the second linked to standing in one's community (community ladder). This combination of measures was intended to capture the full range of socioeconomic status among women in the study, as reflected by resource-based measures of income, education, and wealth, in combination with a status-based measure, the SES ladder. (See Chapter 3 for a description of measures.)

Violence and Trauma

The ways in which multiple structural and individual risk factors such as racial or ethnic minority status and SES interact together synergistically has yet to be well described. Further, structural determinants of health such as minority race or ethnicity

and low-income status may often intersect with other, often-overlooked stressors, which increase the risk for poor pregnancy outcomes. Such stressors include the high prevalence of lifetime exposures to violence and trauma among women (Bloom, Curry, & Durham, 2007; Bohn, 2003; Gleicher, 1998; Seng, 2002).

Trauma across the Life Course

Childhood exposure to violence and trauma has been found to be common, usually concealed by participants and unrecognized and undocumented by their health care providers, and strongly associated with poor health outcomes like adult organic disease, social malfunction, mental illness and addiction (Felitti, 2004; Felitti, et al., 1998). Later in the life course, approximately one-fourth to one-third (25 to 30%) of women will be victims of intimate partner violence (IPV) during their lifetime (Campbell, 2002; Tjaden & Thoennes, 2000) most likely during childbearing years (Tjaden & Thoennes, 2000).

Intimate Partner Violence (IPV) In Pregnancy

In a 2000 review of thirteen studies, most in clinical settings (Gazmararian et al., 2000) the prevalence of IPV during pregnancy ranged from 0.9% to 20.2%. More recent studies have reported prevalence rates of physical abuse during pregnancy ranges from 2.5% to 28.9% (Bacchus, Mezey, & Bewley, 2004; Denham, 2003; Johnson, Haider, Ellis, Hay, & Lindow, 2003; Martin, Mackie, Kupper, Buescher, & Moracco, 2001; Renker & Tonkin, 2006; Saltzman, Johnson, Gilbert, & Goodwin, 2003).

The differences in prevalence estimates may be attributable in part due to the sample chosen (for example, low-income versus affluent), measurement issues (such as whether women were asked face to face or not, status or racial concordance of the inquirer, or

how many times women were asked), the many barriers women face to disclosure of abuse, and the lack of a common definition of IPV (Ballard et al., 1998; Campbell & Lewandowski, 1997; Gazmararian et al., 2000; Plichta, 2004). Most studies reported rates between 3.9% and 8.3%, which translates into approximately 156,000 to 332,000 pregnant women who experience violence each year. Thus, violence may be a more common problem in pregnancy than preeclampsia, gestational diabetes, and placenta previa, conditions for which pregnant women are routinely screened (Gazmararian et al., 2000). This has serious health implications, as violence in pregnancy has been consistently associated with significant and serious health risks.

IPV and Health Outcomes in Pregnancy

Physical health outcomes. As previously noted, preterm birth and/or low birth weight is the leading cause of mortality among African American infants (Mathews & MacDorman, 2007). Across multiple studies (Curry, Perrin, & Wall, 1998; El-Kady, Gilbert, Xing, & Smith, 2005; El-Khoury et al., 2004; Lipsky, Holt, Easterling, & Critchlow, 2003; McFarlane, Parker, & Soeken, 1996; Neggers, Goldenberg, Cliver, & Hauth, 2004; Renker, 1999; Yost, Bloom, McIntire, & Leveno, 2005), violence in pregnancy has been documented as a risk factor for low birth weight (Campbell, 2002; Murphy, Schei, Myhr, & Du Mont, 2001). Maternal low weight gain, smoking, or both may mediate the relationship between IPV and low birthweight (McFarlane et al., 1996). Abusers might pressure their wives or girlfriends not to gain weight, or the stress from abuse could lead to smoking and low weight gain (Campbell, 2002; Curry et al., 1998).

Evidence is less consistent for other maternal child outcomes (Campbell, 2002; Gazmararian et al., 2000). Nonetheless, violence in pregnancy has been also associated

with preterm labor (Berenson, Wiemann, Wilkinson, Jones, & Anderson, 1994; Cokkinides, Coker, Sanderson, Addy, & Bethea, 1999; El-Kady et al., 2005; Neggers et al., 2004), poor maternal weight gain and anemia (McFarlane et al., 1996) infections (Curry, Perrin, & Wall, 1998; McFarlane, Parker, & Soeken, 1996), bleeding (Curry et al., 1998; El-Kady et al., 2005; Greenberg, McFarlane, & Watson, 1997), placental abruption (El-Kady, Gilbert, Xing, & Smith, 2005), uterine rupture (El-Kady et al., 2005), chorioamnionitis (Berenson et al., 1994), kidney infection (Cokkinides, Coker, Sanderson, Addy, & Bethea, 1999), low infant birth weight, and infant death (El-Kady et al., 2005; Yost, Bloom, McIntire, & Leveno, 2005).

The intendedness of the pregnancy may also be a factor in these outcomes. Unintended pregnancy is associated with infant and maternal morbidity and mortality, a relationship that has been explained as the sequelae of maternal behavior such as delayed prenatal care or substance use (Anachebe, 2006). However, these factors are also correlated with intimate partner violence. This explanation does not account for the separate and perhaps synergistic risk associated with intimate partner violence, which has also been associated with unplanned pregnancy (Campbell, Pugh, Campbell, & Visscher, 1995; Curry et al., 1998; Gazmararian et al., 1995; Goodwin, Gazmararian, Johnson, Gilbert, & Saltzman, 2000; Stewart & Cecutti, 1993). Women who experience IPV are often subjected to forced sex, sexual abuse, and diminished ability to negotiate safer sex practices and contraception (Campbell, 2002). As suggested by Goodwin and colleagues (Goodwin, Gazmararian, Johnson, Gilbert, & Saltzman, 2000), abuse and unintended pregnancy may be part of an ongoing climate or cycle of risk factors. For example, abusers may control a woman's access to contraception or coerce a woman into having a

child (Campbell, Pugh, Campbell, & Visscher, 1995). Pregnancy may also result from forced sex. In a 2005 study, over two-thirds (68%) of physically abused women reported sexual assault by their intimate partner, and most reported repeated sexual assault; twenty percent experienced a rape-related pregnancy (McFarlane et al., 2005).

Mental health outcomes. IPV in pregnancy has also been associated with high stress, depression, and emotional distress (Bacchus, Mezey, & Bewley, 2004; Benedict, Paine, Paine, Brandt, & Stallings, 1999; Bullock, Bloom, Curry, Davis, & Kilburn, 2006; Curry, 1998; Flynn, Walton, Chermack, Cunningham, & Marcus, 2007; Stewart & Cecutti, 1993). It is not surprising, then, that IPV in pregnancy has been linked to cigarette smoking (Bullock et al., 2006; Curry, 1998; Curry et al., 1998; Goodwin et al., 2000; Martin, Beaumont, & Kupper, 2003; Martin, English, Clark, Cilenti, & Kupper, 1996; McFarlane et al., 1996) and the use of drugs and alcohol (Curry, 1998; Curry et al., 1998; Martin et al., 2003; Martin et al., 1996; McFarlane et al., 1996; Renker, 1999). During pregnancy, the symptoms of somatic distress associated with violence, such as digestive and eating problems, abdominal or pelvic pain, urinary tract and vaginal infections, headaches, backaches, and fainting, as well as mental distress (Campbell, 2002) can lead to high utilization of medical services (Bloom, Curry, & Durham, 2007). These symptoms can be difficult to disentangle from the normal physiological and psychosocial changes of pregnancy for women who experience violence during pregnancy (Bacchus, 2004; Neggers, 2004; Reichenheim, 2004).

Maternal mortality. In addition to its association with potentially deadly complications in pregnancy, IPV may be a significant direct factor in maternal mortality risk. Recent data suggest up to one-fifth of pregnancy-associated deaths (i.e., occurring

during or within one year of pregnancy) are the result of murder (Horon & Cheng, 2001; Krulewitch, Pierre-Louis, de Leon-Gomez, Guy, & Green, 2001). Women in the US are nine times more likely to be murdered by an intimate partner or ex-partner than a stranger (Fox & Jawitz, 2004), and the majority of these murders (65 to 70%) occur in relationships in which the woman has been abused (Campbell et al., 2007; Campbell et al., 2003). Thus, IPV may be responsible for many cases of maternal mortality (Boy & Salihu, 2004; El-Kady et al., 2005; Horon & Cheng, 2001; Krulewitch, Pierre-Louis, de Leon-Gomez, Guy, & Green, 2001) including those for which no clear cause is identified (Horon & Cheng, 2001; Krulewitch et al., 2001).

Social and Structural Determinants of Health and IPV

Structural determinants of health intersect with abuse, in that the most marginalized women are both disparately impacted by IPV and the least likely to disclose abuse to health care providers or to access resources. For poor women, violence can limit their ability to escape from poverty, and poverty, in turn, makes it more difficult to escape the violence and recover from the damage done by it. Consistent associations have been found between IPV in pregnancy and socioeconomic factors that increase risk and/or limit women's resources and options for escaping violence. These include low income (Bohn, Tebben, & Campbell, 2004; Bowen, Heron, Waylen, & Wolke, 2005; Bullock et al., 2006; Goodwin et al., 2000; Martin et al., 2001), low educational attainment (Bohn, Tebben, & Campbell, 2004; Bowen, Heron, Waylen, & Wolke, 2005; Bullock, Bloom, Curry, Davis, & Kilburn, 2006; Gazmararian et al., 1995; Goldstein & Martin, 2004; Martin et al., 2004; Martin, Mackie, Kupper, Buescher, & Moracco, 2001; Stewart & Cecutti, 1993), and unemployment (Bowen et al., 2005; Stewart & Cecutti,

1993). Some studies have also found that abused pregnant women are more likely to be single (Bullock et al., 2006; Gazmararian et al., 1995; Goodwin et al., 2000), young (Bowen 2005; Bullock et al., 2006; Gazmararian et al., 1995; Goodwin et al., 2000; Martin et al., 2001; Stewart & Cecutti, 1993), and to live in substandard or crowded housing (Bowen, 2005; Goodwin et al., 2000).

In a prospective, longitudinal cohort study of 7,591 women (Bowen, Heron, Waylen, & Wolke, 2005), the numbers of “social adversities” or social risk factors faced by a pregnant woman were assessed: single, having her first child at a young age, low education, financial difficulties, inadequate housing, mental illness, substance abuse, trouble with the law, or lack of social support. These social risk factors predicted not only current abuse, but also future victimization up to three years later. A better understanding of how women navigate these multiple and intersecting issues is needed. For pregnant women experiencing abuse and contending with poverty, discrimination, housing problems, depression, addiction, or other issues, the abuse may not be her most pressing priority (Curry, Durham, Bullock, Bloom, & Davis, 2006; Lutz, Curry, Robrecht, Libbus, & Bullock, 2006).

The relationship between IPV in pregnancy and race or ethnicity is less consistent, and whether racial and ethnic minorities face greater risk of IPV in pregnancy is unclear (Bohn, 2003; Bullock et al., 2006; Gazmararian et al., 2000; Goodwin et al., 2000). Although some studies have found higher rates of IPV among non-Caucasian women (Bullock et al., 2006; Gazmararian et al., 2000; Goodwin et al., 2000) some studies have found no relationship between IPV and race (Bacchus et al., 2004; Martin, English, Clark, Cilenti, & Kupper, 1996; Martin et al., 2001, 2004). Whether racial and

ethnic minorities face greater risk of IPV in pregnancy is unclear. What is quite clear is that abuse and minority status may intersect in the health system. Minority women may have more reasons not to ask health care providers for help, including reduced trust, cultural, institutional, or language barriers, and fear of racism and racial stereotyping (Campbell, Sharps, Gary, Campbell, & Lopez, 2002; Hampton, Oliver, & Magarian, 2003; West, 1996). The National Black Women's Health Project has called IPV the primary health issue for African American women (Campbell et al.). More research is needed to understand violence from minority women's perspectives, and to understand the multiple dimensions and contexts in which such violence occurs, including the impact of SES, mental health issues, substance use, and experiences of discrimination, including structural racism (Campbell et al.). This study addressed this gap.

Barriers to Disclosure of IPV

Pregnancy may be the only time in a woman's life when she has frequent contact with a health care provider and thus represents a potential opportunity for screening and intervention for abuse. While some abused pregnant women may have delayed entry into prenatal care (McFarlane et al., 1996) or not obtained care at all (Gazmararian et al., 1995), others may use health care services more frequently than non-abused pregnant women (Bloom et al., 2007; Stewart, 1994; Stewart & Cecutti, 1993; Webster, Chandler, & Battistutta, 1996), providing multiple opportunities for health care providers to intervene. Researchers (Berenson, Wiemann, Wilkinson, Jones, & Anderson, 1994; McFarlane, Soeken, & Wiist, 2000; Stewart & Cecutti, 1993) and professional organizations (American College of Nurse Midwives, 1995; American College of Obstetricians and Gynecologists, 1995; American Medical Association, 1992; Ashton,

2006; Family Violence Prevention Fund, 1999) recommend universal screening for violence during pregnancy. Screening, in and of itself, may represent an intervention, in that it reinforces to the pregnant woman that abuse is serious and that the health care provider cares and is available to provide help (McFarlane, Soeken, & Wiist, 2000). However, actual screening rates in pregnancy are typically low (Chamberlain & Perham-Hester, 2000; Durant, Colley Gilbert, Saltzman, & Johnson, 2000; Renker & Tonkin, 2006; Wiist & McFarlane, 1999). The low screening rates exist despite strong evidence that both abused and nonabused women generally support screening and, in fact, report frustration and disappointment when health care providers fail to screen or to provide adequate information about IPV even with the presence of obvious injuries (Dienemann, Glass, & Hyman, 2005; Lutz, 2005).

The recommendations of these professional organizations and women's own preferences to be screened have recently been challenged. It has been argued that while screening improves identification of abused women, no interventions have been shown to improve outcomes and that such interventions must be available before screening can be recommended (D'Souza & Garcia, 2004; Gazmararian et al., 2000; Ramsay, Richardson, Carter, Davidson, & Feder, 2002). The most recent recommendation from the U.S. Preventive Services Task Force (2004) stated that insufficient evidence exists regarding relative benefits or risks to allow recommendation for or against routine screening of women for intimate partner violence (U.S. Preventive Services Task Force, 2004). This potentially leaves pregnant women with the difficult choice of having to initiate the conversation about abuse, making any opportunity for education dependent on that choice.

The literature provides some insight into how treacherous abuse disclosure is for pregnant women. Many barriers exist to abuse disclosure or to leaving an abusive partner, and there are often compelling reasons to stay. Leaving the abuser places many women at high risk for poverty and homelessness (Moe, 2007); they may conclude that staying with the abuser is a better choice for the sake of the baby or children (Libbus et al., 2006; Lutz et al., 2006). Further, leaving may not reduce the exposure to violence; it is well documented as a risk factor for an increased level of danger for the abused woman (Campbell, Glass, Sharps, Laughon, & Bloom, 2007). She may risk retaliation from the abuser if he discovers she has even disclosed the abuse to others (Cloutier et al., 2002; Tilley & Brackley, 2004). In addition, some abused pregnant women may be in denial and some may not readily identify themselves as victims, particularly if violence has been pervasive in their lives or if they fight back (Libbus et al., 2006). Shame, guilt, confusion, blame, and embarrassment may keep abused women silent (Goldstein & Martin, 2004; Libbus et al., 2006; Lutz, 2005).

Some additional barriers to reaching out for help may be specific to pregnancy. Abuse survivors describe a sense of “dual self” that may be exacerbated by pregnancy (Libbus et al., 2006; Lutz, 2004, 2005; Lutz, Curry, Robrecht, Libbus, & Bullock, 2006), in which they feel torn between their idealized, “public” pregnancy and their private reality of abuse, and engage in a process of guarding and revealing, weighing the benefits and costs of each. Abused pregnant women desire respect for their privacy, autonomy, and their own personal timelines (Dienemann, Glass, & Hyman, 2005; Lutz, 2005), and may fear abuse disclosure will bring judgment (Curry, Durham, Bullock, Bloom, & Davis, 2006; Lutz, 2005) or unwanted pressure to either stay in the relationship (Rose,

Campbell, & Kub, 2000) or to leave (Curry, Durham, Bullock, Bloom, & Davis, 2006; Lutz et al., 2006).

Social and structural barriers. In addition to these barriers, structural and social barriers come into play for many women, in that initiating conversations about abuse may be particularly difficult for women who are additionally marginalized by such experiences as racism, poverty, substance abuse, language barriers, or homelessness (Libbus et al., 2006). Studies repeatedly show that many abused women are reluctant to seek help from formal systems such as health care providers or IPV services (Coker, Derrick, Lumpkin, Aldrich, & Oldendick, 2000; Curry et al., 2006; Gondolf, 2002; Pakieser, Lenaghan, & Muelleman, 1998; Rose et al., 2000), particularly minority women both in pregnant (McFarlane, Soeken, Reel, Parker, & Silva, 1997) and nonpregnant samples. This may be a result of mistreatment by and consequent mistrust of formal systems (Curry et al., 2006; Gondolf, 2002). In addition, IPV services are often geared toward and primarily serve Caucasian, English-speaking women (Donnelly, Cook, van Ausdale, & Foley, 2005).

In the past 25 years, IPV awareness, policies, services, and programs have all increased (Campbell et al., 2002; Glass, Rollins, & Bloom, in press). Appropriate community responses to abuse are coordinated across all levels of the community (i.e., health care, victim services, child welfare and protective service agencies, and the civil and criminal justice systems) (Campbell et al., 2002). Unfortunately, some areas lack even basic services for abused women or their children, and marginalized abused women may be more vulnerable to losing their children when the community fails to provide even the most minimal support, such as shelter (Schechter & Edleson, 1999). This lack of

services combined with the socioeconomic, physical, and mental health sequelae of abuse clearly increase women's vulnerability and extremely high proportions of homeless women report histories of physical and sexual assault across the lifespan (Bassuk, Buckner, Perloff, & Bassuk, 1998; Bassuk et al., 1997; Browne & Bassuk, 1997). For women who seek help for abuse, inappropriate, absent or unhelpful systems responses may additionally increase their vulnerability to poverty, food instability, and homelessness (Baker, Cook, & Norris, 2003). Even in areas where a safety net is available for abused women, the services provided may be fragmented, uncoordinated, or inadequate. As Davies noted (Davies, n.d.):

For too long, some efforts to assist battered women and their children escape from violence have overlooked their basic human needs. Legislation, policy, services, and advocacy often focus on physically separating the battered woman and her children from the abusive partner, but do not guarantee that there will be a roof over their heads, food on their table, or health care available when they need it. Reducing the risk of physical violence will not make battered women and their children 'safe' without also providing opportunity for long-term financial stability (p.4).

Davies further asserted that programs intended to lift poor women out of poverty (i.e., temporary government benefits, housing assistance, and job training or employment) have often overlooked the impact of previous or ongoing intimate partner violence in women's circumstances. Similarly, simply handing a woman a resource card with phone numbers for domestic violence services, and failing to intervene to address the other stressors in abused women's lives (particularly when she is unable to leave the abusive partner), may further add to the physical and mental health sequelae of violence. In interviews with 107 low-income women, fifty reported past-year physical abuse from an intimate partner (Eby, 2004). The abused women in the sample were significantly more likely than the other low-income women to report stress related to a number of

other issues. The other issues included money problems, having to move, fights with friends or neighbors, dealing with welfare and other sources of government aid, being a victim of property damage or theft, trouble with partner's family, having utilities shut off, experiencing a miscarriage or stillbirth, having an abortion, receiving a jail sentence or detention, and/or starting classes at school. Significantly, among the abused women in the sample, 58% reported that their most stressful or upsetting event of the past month was *unrelated to the abuse*. Similar findings have been reported in studies with abused pregnant women, who may be navigating other difficult circumstances and lack of resources (Curry et al., 2006). Abused pregnant women may conclude, then, that no one can really help them (Lutz, 2005). This may be a particularly salient factor for women who rely on the abusive partner for tangible resources, such as financial support, housing, transportation, health insurance, or other vital resources (Cloutier et al., 2002; Curry et al., 2006; Libbus et al., 2006; Lutz et al., 2006; Moe, 2007).

Failures of social institutions (e.g., the criminal justice system, social services, and health care) to appropriately respond to abused women may act to further entrap women in abusive relationships, and their difficulties in navigating such systems may be exacerbated further by the intersection of structural determinants of inequality such as poverty and racism (Moe, 2007). Abused women with immigration issues, language barriers, addiction problems, or criminal records may face additional barriers to navigating legal and social service systems or finding employment and safe housing (Moe, 2007). In six states, mandatory reporting laws require healthcare providers to report IPV to law enforcement, which may further disempower the abused woman (Glass & Campbell, 1998).

Disclosure of abuse may have other unintended consequences related to larger systems issues. The majority of abused women care deeply about their children's well-being (Campbell, 1998; Schechter & Edleson, 1999), and often base their decisions on the safety, needs, or best interests of their children (Libbus et al., 2006; Lutz, 2005; Lutz et al., 2006; Tilley & Brackley, 2004). However, fears of being reported to child protective services and/or losing custody of one's children—obviously a very negative outcome for women—are shared by abused women. Poverty and homelessness significantly increase women's likelihood of child protective services involvement (Culhane, Webb, Grim, S., & Culhane, 2003), and women of color are particularly vulnerable to involvement with child welfare and to losing custody of their children permanently (Culhane et al., 2003; Family Violence Prevention Fund, 2005; Roberts, 2002).

In some communities, domestic violence automatically mandates the opening of a child protection case (Schechter & Edleson, 1999). Abused women may be charged with "failure to protect" their children, despite the system's inability to hold the actual perpetrator of the violence accountable. This is exacerbated by limited advocacy services for abused women in the child welfare system. In an increasing trend, "witnessing" violence may lead to child welfare involvement; that is, the system alleges that witnessing the abuse of their mother has victimized the children. While witnessing abuse is clearly detrimental to children, this policy may result in the abused woman and her children being further victimized by the "solution" of removing children from her care (Schechter & Edleson, 1999).

More research is needed to understand violence from vulnerable mothers' perspectives, and to understand the multiple dimensions and contexts in which such violence occurs, including the impact of SES, mental health problems, substance use, and experiences of discrimination, including structural racism. This study grows out of the scientific literature, in that reviewing the impact of racial/ethnic minority and socioeconomic status and intimate partner violence demonstrates that all of these health determinants are related to poor infant and maternal outcomes, and are often intertwined in ways that increase risk. We need a better understanding of how the experience of intimate partner violence during pregnancy is compounded by structural and social determinants of health, including the impact of services and policies, discrimination, racism, and chronic stress. We need to know what women themselves identify as the information, resources, and supports they need most, before we can meaningfully intervene and reduce health disparities in infant and maternal mortality. We can no longer afford to examine these determinants of infant and maternal health in isolation from each other, because they so often co-occur and compound each other.

Mental Health Problems and Substance Abuse Issues

Qualitative interviews with 127 racially/ethnically diverse and distressed low-income women who brought their children to community mental health clinics for care revealed the difficulties mothers had due to their own mental health problems (Anderson et al., 2006). Mothers were eligible for the study if they screened positive for mood or anxiety disorder symptomatology using standardized screening measures. Nearly three out of four women screened for the study had significant mood disorder symptomatology. While virtually all acknowledged that they knew they were depressed and/or anxious,

most were accessing treatment for their children and not themselves. Women viewed their symptoms as a normal reaction to extreme life stress, including the constraints of poverty and lack of resources, experiences of violence and trauma through the lifespan, and their worries about their children. They described how clinicians consistently failed to listen to them or to respect their expertise in their own lives. These women believed they needed concrete help, and that medication and counseling could not change what needed to change—the external circumstances of their lives. Mothers in the sample also expressed concern that disclosing their problems to the “system” would result in their own shortcomings being used against them, placing them at risk for losing custody of their children. This concern provides a potent example of the health care system as a social determinant of health in the WHO model (Doherty et al., 2006), and how structural determinants, including the role of policies, can influence health outcomes.

Mothers’ difficulties with mental health problems and substance abuse issues may act to further increase the risk for poor infant and maternal health outcomes, and as such deserve to be addressed in an intersectional analysis of risk factors. Like violence, mental health problems are under-recognized contributors to poor pregnancy outcomes (Bohn, 2003; Seng, 2003; Seng, Kohn-Wood, & Odera, 2005), which should be considered in health disparities research.

Over lifetime, women are more likely than men to be diagnosed with depression, anxiety, and posttraumatic stress disorder (PTSD) (Cassano & Fava, 2002; Deykin et al., 2001; Lecrubier, 2004; Salganicoff, Ranji, & Wyn, 2005; Stein, McQuaid, Pedrelli, Lenox, & McCahill, 2000), perhaps related to their higher risk for exposure to lifetime trauma and abuse (Benedict et al., 1999; Felitti et al., 1998; Jainchill, Hawke, & Yagelka,

2000). Rates of serious mental illness (i.e., diagnosable mental, behavioral, or emotional disorders resulting in substantial functional impairment) in national data are higher for women than men in all age groups, with 11.5% of women overall reporting past-year serious mental illness, compared to 6.7% of men (Substance Abuse and Mental Health Services Administration, 2004). Some evidence suggests that a dose-response relationship exists between depressive or somatic symptoms and the number of lifetime exposures to violence (Arnow, 2004; Edwards, Holden, Felitti, & Anda, 2003; Nicolaidis, Curry, McFarland, & Gerrity, 2004).

Depression

Depressive and anxiety disorders reach peak prevalence for women during their childbearing years (Blehar, 2003; Substance Abuse and Mental Health Services Administration, 2004; World Health Organization, 2002). Social factors such as younger age, greater parity, less education (Gotlib, Whiffen, Mount, Milne, & Cordy, 1989) and history of depression, poor social support, partner conflict, or ambivalence about pregnancy (Altshuler, Hendrick, & Cohen, 1998; Smith et al., 2004) add to the risk for antepartum depression. Depression in pregnancy is common, and whereas postpartum depression has received considerable attention, depressive symptoms may in fact be more common during pregnancy than the postpartum period (Evans, Heron, Francomb, Oke, & Golding, 2001; Gotlib et al.). In a 2004 systematic review (Bennett, Taddio, Koren, & Einarson, 2004), prevalence rates for depression during pregnancy were reported as ranging from 7% and 24.6% in the first trimester, 9% to 48.9% in the second trimester, and 8.8% to 51.4% in the third trimester. Symptoms of depression in pregnancy include

fatigue, decreased concentration, somatic symptoms, and weight changes, and these may be misattributed to the changes typical in pregnancy (Kelly, Russo, & Katon, 2001).

Depression during pregnancy has been associated with low SES and racial/ethnic minority status (Bowen & Muhajarine, 2006), tobacco and alcohol use (Bowen & Muhajarine, 2006), and with exposure to violence (Anderson, Marshak, & Hebbeler, 2002; Bacchus et al., 2004; Bohn, 2003; Campbell, Poland, Waller, & Ager, 1992).

Depression in pregnant women has been linked to dysregulated neuroendocrine profiles in pregnant women, including elevated cortisol and lower levels of dopamine and serotonin. These neuroendocrine disruptions may at least partially explain research findings that demonstrate an association between depression and obstetric complications including low birth weight and preterm delivery (Bacchus et al., 2004; Field, Diego, & Hernandez-Reif, 2006; Kelly et al., 2002).

Depression, anxiety disorders, and posttraumatic stress disorder are often correlated in pregnancy (Campbell et al., 1992). However, as with intimate partner violence, screening rates for depression, anxiety, and posttraumatic stress disorder (PTSD) in pregnancy are low. Thus, women who subsequently remain undiagnosed and untreated, suffer in silence (Andersson et al., 2003; Birndorf, Madden, Portera, & Leon, 2001; Kelly et al., 2001; Seng, 2002; Smith et al., 2004).

Posttraumatic Stress Disorder (PTSD)

PTSD occurs when trauma survivors suffer acute or chronic reactions following trauma exposure. Women, who face disproportionate risk of abuse and violence (Farley & Patsalides, 2001; McNutt, Carlson, Persaud, & Postmus, 2002; Tjaden, 1998), also have higher rates of PTSD diagnosis than men. It is not “a normal reaction to an extreme

stressor;” rather, it is a distinct, chronic, debilitating and recurrent biopsychosocial reaction that occurs among a subset of trauma survivors. Dysregulated physiological stress systems and effects on functioning, mental health, and physical health characterize PTSD (Seng, 2003). It may be comorbid with anxiety and/or depression (O’Campo et al., 2006). The population-based National Comorbidity Survey estimated the prevalence of lifetime PTSD for women between 10.4 and 12.3 percent, with prevalence rates of 25 to 50 percent among women exposed to abuse or assault (Breslau, Davis, Andreski, & Peterson, 1991; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Among the most vulnerable women, prevalence rates may be higher. In a survey of 216 low-income housed mothers and 220 homeless mothers, lifetime violent victimization rates were found ranging from 79% for low-income housed mothers to 88% for homeless mothers. Lifetime PTSD prevalence was 34.1% and 36.1%, respectively; comorbid mood and anxiety disorders, and substance use disorders, were also highly prevalent (Bassuk, Buckner, Perloff, & Bassuk, 1998).

Prevalence estimates of PTSD, specific to pregnancy, range from three to eight percent (Loveland-Cook et al., 2004; Smith, Poschman, Cavaleri, Howell, & Yonkers, 2006; Smith et al., 2004). The neuroendocrine and behavioral sequelae of PTSD may increase the risk of ectopic pregnancy, miscarriage, hyperemesis, preterm contractions, and fetal growth disturbances (Seng et al., 2001), as well as isolation, depression, anxiety, and suicidality (Seng, 2003; Smith et al., 2006). The need for (and current lack of) adequate screening and treatment of PTSD during pregnancy is strongly supported in the literature (Loveland-Cook et al., 2004; Seng et al., 2001; Smith et al., 2006; Smith et al., 2004) and by PTSD survivors themselves (Seng, Sparbel, Low, & Killion, 2002).

Substance Abuse Issues

Substance abuse issues are not infrequently associated with mental health problems among women and together with violence exposure are likely to represent another substantial barrier for mothers in disclosing problems to the “system.” In the most recent data (2002-2003) from the National Survey on Drug Use & Health (NSDUH; Substance Abuse and Mental Health Services Administration, 2004), among pregnant women age fifteen to forty-four years of age, 4.3% reported illicit drug use, 9.8% reported alcohol use (with 4.1% reporting binge drinking), and 18% reported smoking tobacco in the month prior to the survey. The associations of tobacco, alcohol, and drug use and poor pregnancy outcomes are well documented (Barron & Lindheimer, 2000; Burrow & Duffy, 1999; Gleicher, 1998; Kennare, Heard, & Chan, 2005). For example, the infant mortality rate among smokers in the most recent national data set was 70% higher (11.4 per 1,000) than for non-smokers (6.54) (Mathews & MacDorman, 2007). However, the limitation of smoking as a comprehensive explanatory factor is evident when one considers that while the infant mortality rate for African Americans is more than double that of Caucasians, Caucasian women are nearly 50% more likely to smoke in pregnancy (Ashton, 2006; Mathews & MacDorman, 2007).

Substance Abuse and Co-Occurring/Intersecting Issues

Population-based surveys have documented the prevalence of co-occurring mental health problems and substance abuse, so-called “dual diagnosis” (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In the most recent NSDUH data, 21.3% of respondents over the age of 18 years reporting past-year serious mental illness also report dependency on or abuse of illegal drugs or alcohol, nearly triple the 7.9% of those who

did not report serious mental illness (Substance Abuse and Mental Health Services Administration, 2004). Evidence is limited regarding the impact of dual diagnosis on pregnancy outcomes (Kelly et al., 2002).

A large population-based retrospective cohort analysis of birth outcomes in 521,490 deliveries used a data set linking hospital records with birth and infant death records for an estimated 95% of deliveries in California during 1995 (Kelly et al., 2002). In this study, 2.8% of women had a documented psychiatric illness (e.g., mood, psychotic, anxiety, somatoform, disassociative, eating, sleeping, or adjustment disorders) or substance abuse issue. Both race and SES (as measured by insurance status) were factors in psychiatric or substance use diagnoses (or both), as these women were significantly more likely to be either African American or Caucasian, insured by Medi-Cal, single, and to have had more than three prior deliveries and inadequate prenatal care.

In multivariate logistic regression analysis, women diagnosed with psychiatric illness, substance abuse, or dual diagnosis had significantly increased risk for delivering an infant that was preterm and/or low birth weight than women with no documented diagnosis of psychiatric illness or substance abuse issues. Specifically, psychiatric diagnoses were associated with a 154-gram lower mean infant birth weight, substance use diagnoses with a 355-gram decrease, and dual diagnoses with a 272-gram decrease. Adjusted odds ratios for psychiatric diagnosis were as follows: for LBW (birthweight < 2500g; adjusted OR 2.0, 95% CI= 1.7, 2.3); VLBW (birthweight < 1500 g; adjusted OR 2.9, 95% CI 2.1, 3.9) and preterm delivery (adjusted OR 1.6, 95% CI 1.4, 1.9). Substance abuse diagnosis was associated with increased risk for LBW (adjusted OR 3.7, 95% CI 3.4, 4.0); VLBW (adjusted OR 2.8, 95% CI 2.3, 3.3), and preterm delivery (adjusted OR

2.3, 95% CI 2.4, 2.6). Women with dual diagnoses had similar increased risk as the previous two categories, with increased odds of LBW (adjusted OR 3.0, 95% CI 2.8, 3.2); VLBW (adjusted OR 3.0, 95% CI 2.5, 3.5), and preterm delivery (adjusted OR 2.3, 95% CI 2.4, 2.6). In light of the well-documented low rates of screening for and diagnosis of mental health problems and substance abuse issues in prenatal care, these findings likely underestimate the magnitude of the increased risk for poor infant outcomes in these three groups of women (Kelly et al., 2002).

African American women were over-represented in the groups with psychiatric and/or substance use diagnoses, and also had elevated perinatal risk, with adjusted odds ratios that ranged from 1.6 to 2.6 for low birth weight or preterm delivery compared to Caucasian women. The authors stated that odds ratios were calculated controlling for ethnicity, marital status, and adequate prenatal care as potential confounders. The authors did not define their use of the term “ethnicity,” a term that has been used inconsistently in research (Drevdahl et al., 2001). The authors further made no reference to race as a potential confounder, despite much data to suggest that African American women are at elevated risk, and it appears that they used the term ethnicity broadly to encompass all racial and ethnic categories. Therefore, it is not possible to determine if race interacted with these diagnoses for African American women to elevate their risk of poor outcomes further. This dataset had the limitation that it did not contain information about trauma histories or violence exposure among the cohort. Mental health problems, substance abuse, and a history of physical and/or sexual abuse often overlap substantially (Bohn, 2003; Dickinson, deGruy, Dickinson, & Candib, 1999; Flynn, Walton, Chermack, Cunningham, & Marcus, 2007; Kendler et al., 2000; Ouimette & Brown, 2003).

This constellation of intersecting, overlapping issues is often unaddressed in substance abuse treatment (Newmann, Greenley, Sweeney, & Van Dien, 1998). Conversely, services for domestic violence victims (e.g., hotlines, shelters, support groups, or advocacy centers) are often not equipped to deal with victims with addiction problems (Moe, 2007). Likewise, most studies of pregnant women have examined these risk factors separately, and no published studies to date have tested the effectiveness of simultaneous intervention for mental health problems, substance abuse, and violence during pregnancy (Flynn, Walton, Chermack, Cunningham, & Marcus, 2007).

Abused pregnant women with alcohol or substance abuse issues represent a particularly vulnerable group. Substance abuse may be one way that pregnant women cope with trauma, distress, and the mental health sequelae of abuse, such as post-traumatic stress disorder (Martin et al., 2003; Seng, Low, Sparbel, & Killion, 2004). They may also lack the support needed to abstain (Martin et al., 2003). The double stigma of substance abuse and violence in pregnancy likely represents a tremendous barrier to seeking help, and the added factor of mental health problems for mothers with dual diagnosis can only create additional difficulties. This study is designed to begin to describe how these factors interact synergistically in women's lives, and in combination with other structural and social determinants of health, and what type of support and resources women identify as critical to promote better maternal-child outcomes.

Addressing Health Disparities in Research

Intersectionality

Illuminating how these factors interact synergistically is best supported by an approach that supports a complex analysis of relationships. The literature review

demonstrates that while the mechanisms by which disparities in infant and maternal mortality are produced are not well understood, the pattern of distribution illustrates that these outcomes are related to structural and social determinants that produce health disadvantage (Hofrichter, 2005). To eliminate disparities, we must not only identify where they exist, but where changes may be made to address them (Anachebe, 2006). “Social factors in the 21st century continue to warrant close investigation,” (Gennaro, 2005) and health disparities will likely persist, and continue to widen, until we have a better understanding of these social factors.

This study was based on the assumption that research that considers structural and social determinants may help illuminate how health disparities aggregate in poor and minority populations (Lu & Halfon, 2003), and how to address them effectively. This assumption was informed by the previously discussed WHO model, which illustrates how structural determinants act to produce and reinforce social determinants of health, which produce health outcomes (Figure 1).

A limitation of the WHO model, however, lies in how it generally describes how social factors influence each other in primarily additive, subtractive, or null terms. The critical feminist theory of intersectionality provided a framework for this study (Crenshaw, 1994; Mullings & Schulz, 2006), adding a level of complexity in describing how social determinants of health overlap and intertwine in ways that are not merely additive, but reactive. Intersectionality is not intended to be a totalizing theory of explanation for human experience (Crenshaw, 1994) but provides a theoretical framework for rich description of how structural and intermediary determinants of health are linked. As in the WHO model, intersectionality accounts for how health risk is not

just based on individual biology or behavior but also tends to be distributed along a hierarchical gradient of social position.

Intersectionality assumes that race, class, and gender inequality are produced simultaneously “such that, in any given situation, the unique contribution of one factor might be difficult to measure”(Mullings & Schulz, 2006). This suggests that research approaches that analyze multiple social determinants of health as individual (not social) characteristics or discrete, disconnected elements results in reductive findings that only address proximate causes of health disparities. This approach was used in this study in order to “lay bare the full complexity and specificity” of women’s issues, including the “structural and dynamic dimensions of the interplay of different policies and institutions” (Association for Women's Rights in Development, 2004).

Intersectionality posits that inequalities are not just reflective of differences in resources, but also differences in power between groups. Intersectional scholars adopt a stance of engaged subjectivity and reflexivity, with an emphasis on critical reflection of the social locations of researcher and researched. Participatory, collaborative methodologies and holistic description of meaning within participants’ lives are valued, with the end goals of empowering participants, providing rich descriptions of the complex processes by which intersecting social inequalities are created, maintained, and challenged at the individual and institutional levels. Therefore, intersectionality is most congruent with a participatory research approach, and with a design that allows for holistic description, such as qualitative or mixed-methods approaches. Their social location at the intersection of multiple systems of domination (i.e., gender, race, class) provided the women to be recruited for this study with a unique and privileged

knowledge of those systems (Weber, 2006). Health disparities research to describe the effects of social determinants and social stratification and reduce adverse outcomes in pregnancy must privilege the viewpoint of such women.

The intersectional approach explicitly informed this study in four crucial ways. The first is that this approach underlies the deliberate choice to study multiple variables (i.e., racial/ethnic minority status, discrimination, socioeconomic status, violence, mental health problems, and substance abuse issues) that have most often been studied separately in poor infant and maternal outcomes. The second is in the recruitment of diverse and primarily low-income women for the study, largely from community sites that serve a high proportion of women who have had exposure to violence, mental health problems, and/or substance abuse issues. Third is the emphasis in the analysis phase in identifying connections, intersections, overlap, and the relationships and interrelationships of these factors in women's lives. Finally, the intersectional approach is reflected in the use of a participatory research approach in this study.

Participatory Research Approach

Working with marginalized groups, such as the population of interest in this study, and employing a critical framework such as intersectionality is enhanced by using intentionally power-sharing approaches such as participatory research methods.

Participatory research, also known as community-based participatory research or CBPR, is a dialogic, collaborative orientation to inquiry that intentionally blurs the line between “researcher” and “researched.” It challenges traditional “outside expert,” “drive-by” research approaches, and is generally described as springing from emancipatory, critical social theory origins (Wallerstein & Duran, 2005). In the critical theory paradigm,

social, political, economic, cultural, ethnicity and gender factors combine to shape reality. The researcher and the participant are interactively linked and engaged in a dialogic approach to inquiry, and values indeed influence research findings.

CBPR is an umbrella term (Minkler & Wallerstein, 2005) intended to encompass numerous variations, such as participatory action research, participatory research, action research, cooperative inquiry, and feminist research. These variations may differ in terms of goals and change theories but share a core set of principles and values, including a participatory, cooperative, empowering co-learning process between community members and researchers, which balances research and action.

When researchers come into a community, collect data, and leave, the outcomes of research may only benefit the researcher themselves. Such so-called “drive-by data collection” can foster a sense of exploitation and mistrust among community members. Even worse are harms that may befall communities if research is inaccurate, is designed or interpreted in ways that are harmful or blaming of participants, or does not consider the safety and confidentiality of participants (Riger, 1999). In contrast, sharing control of the research process and the production of findings, minimize the risk of these types of harms, and are highly congruent with critical theories such as intersectionality.

CBPR is particularly useful in the study of complex and stubborn public health issues, in which a focus on individual-level risk factors tends to obscure the contributions of social determinants of health, visibly demonstrated in the patterning of disease distribution by SES and by racial minority status (Israel, Schulz, Parker, & Becker, 1998). Many of the health issues addressed by this approach are not amenable to being addressed by any individual or group working alone, thus the collaborative aspect is

crucial (Roussous & Fawcett, 2000). CBPR is appropriate for research questions where the validity and quality of research findings will be enhanced by engaging local knowledge, ultimately enhancing the relevance and usefulness of findings (Israel et al., 1998). A 2004 AHRQ review of CBPR studies (Viswanathan et al., 2004, July) suggests that community involvement can increase intervention quality and recruitment, as well as research capacity within the community, and improve descriptive measures, research methods, and dissemination of results. It should be noted that although local and specific knowledge and expertise is used, results from CBPR projects are often transferable and applicable elsewhere (Macaulay et al., 1999).

Summary

To improve infant and maternal outcomes and eliminate disparities, we must not only identify where disparities exist, but where changes on different levels may be made to address them (Anachebe, 2006). Approaches that account for structural and social determinants of health are needed (National Institute of Nursing Research, n.d.; Social Determinants of Health Working Group, 2005), and a better understanding of not just how such factors occur, but how they intersect and overlap to produce disparities, is crucial (Mullings & Schulz, 2006). Finally, to accurately and adequately describe such relationships, the voices of those most affected by disparities must be privileged by using participatory and power-sharing approaches.

The challenges and health risks faced by poor and minority women with multiple and stigmatizing risk factors for poor outcomes—including exposure to violence, mental health problems, and/or substance abuse issues—are substantial, and the barriers to seeking help equally so. It can be clearly seen that social determinants such as race and

SES, and associated factors such as trauma and violence, mental health and substance abuse are important factors related to pregnancy outcomes. Further, they are not discrete and separate entities, but are often intimately intertwined. Research is needed to understand from the perspective of women who experience them how these relationships underlie the persistent and serious disparities in maternal health (National Institute of Nursing Research, n.d.). This study recruited women with multiple issues, and working collaboratively with them, privileged their viewpoint to identify their needs and priorities for support.

CHAPTER THREE

Methods

This mixed-methods, participatory research study was conducted in two phases. The purpose of this study was to examine structural and social determinants and associated factors of pregnancy-related disparities among a group of vulnerable adult mothers, and to describe how such factors intersect in their experience. Such factors included the challenges related to class, minority status, trauma, violence, mental health problems, and/or substance use, and experiences of stress and discrimination.

The specific aims of the study were to:

- 1) Describe the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income women, using an intersectional framework to analyze risk factors related to poor pregnancy outcomes, such as class, trauma history, violence exposure, mental health issues, illegal substance use, and stress and discrimination associated with race/ethnicity and other factors.
- 2) Describe what women who are currently pregnant and/or have young children (up to 3 years old) identify as their informational needs and priorities for support to reduce poor pregnancy outcomes.
- 3) Iteratively and collaboratively, with community advisors, a) develop the content of a culturally competent health promotion information resource for pregnant women and mothers with young children, and b) identify social service, health provider, and health system needs to support pregnant women and mother with young children to reduce poor pregnancy outcomes.

The study design elements were chosen to be most congruent with an intersectional framework and with the purpose and specific aims of this study. These elements included a participatory research approach and a mixed methods approach. In this study, the qualitative method (qualitative description) predominated and the quantitative measures were used for primarily descriptive purposes, a mixed-methods design known as a nested approach. A “concurrent transformative strategy” (Creswell, 2003) of mixed-methods was used, i.e., the simultaneous (i.e., concurrent) collection of qualitative and quantitative data, which were integrated in the analysis phase.

In this study, the decision to use a mixed methods approach was made for the following reasons. First and foremost is that illumination of the intersecting roles of race, SES, violence, mental health problems, and substance abuse, and their experiences of stress and discrimination presented a complex research question. The literature suggests research of such complexity is best served by an approach that allows for looking at the same phenomena in multiple ways, rather than a single approach.

Secondly, mixed methods allowed the exploration of overlapping and different facets of vulnerable mothers’ experiences, in this case asking women about their experiences of race, SES, violence, mental health problems, and substance abuse, and their experiences of stress and discrimination. The addition of quantitative methods supplemented the qualitative interviews, in that it allowed for more specific descriptive information about the extent of women’s experiences with difficult circumstances. For example, the qualitative questions asked participants to describe their most significant stressors and difficulties and how these impacted their health, whereas the measures quantified their perceived stress levels over the past-month.

The addition of quantitative methods to supplement qualitative interview questions added scope, richness, and breadth to the study by allowing for more specific descriptive information about women's socioeconomic and perceived social status, their lifetime exposures to discrimination (and on what basis they feel they have been discriminated against), lifetime exposures to violence, the current severity of violence, and current level of depressive or PTSD symptomatology. Thus, the contribution of these factors in the participants' lives as described in qualitative interviews was more fully illuminated. Finally, the use of mixed-methods increased the rigor and credibility of this study.

Instruments and Measures

A mixed-methods interview was created for the study. It consisted of qualitative interview questions and quantitative measures.

Qualitative measures. Qualitative questions were semi-structured and open-ended (see Appendix E), focusing on experiences of difficulty and discrimination during pregnancy and early motherhood, with probes related to the major categories of interest, i.e. the influence of minority race/ethnicity, low socioeconomic status, violence and trauma history, mental health problems, and substance abuse. Questions and probes also explored what women identified as helpful, harmful, and needed, with respect to information, support, and services, and the impact of health providers and systems, social services, and other resources.

Quantitative Measures. Quantitative measures and six scales (see Appendix) comprised the quantitative portion of the interview. Table 1 (below) summarizes the

concepts and quantitative measures used in the study (See Appendix J for the actual measures).

Table 1. Quantitative Measures

Demographics	Age, marital status, children under the age of 18 in the home, and living situation (i.e. homeless, living alone, living with partner).
Race	Participants asked to self-identify race and Latina ethnic subgroup.
Socioeconomic status:	MacArthur Network on SES and Health Sociodemographic Questionnaire, including Scale of Subjective Social Status
Experiences of discrimination	1995 Detroit Area Study Discrimination Questionnaire (DAS-DQ)
Stress	Perceived Stress Scale (PSS) (10-item version)
Exposure to violence	My Exposure to Violence Instrument (EVI) Danger Assessment (DA)
Depressive symptomatology	The Center for Epidemiologic Studies of Depression Scale, Revised Version (CESD-R)
Posttraumatic stress disorder symptomatology	Posttraumatic Stress Disorder Checklist, Civilian Version (PCL-C)

Measurement of Socioeconomic Status. As noted in the literature review in Chapter Two, conceptualization and measurement problems related to socioeconomic status, or SES, present a challenge to understanding the relationship between socioeconomic position and health. Patrick and Bryan (2005) note that the failure to detect some socioeconomic or lifestyle stressor that influences maternal outcomes does not mean that the association does not exist, stating, “we may have a poverty in the means of measurement” (p. S69). Thus, thoughtful measurement of SES is crucial in health disparities research. To address this, the investigator followed the

recommendations of the MacArthur Network on SES and Health to include measures of subjective socioeconomic measures with more traditional objective measures such as income. Thus, the Scale of Subjective Social Status was employed in this study. This simple self-anchoring scale presented a ten-rung "social ladder," that asked participants to place an "X" on the rung on which they feel they stand. The ladder was accompanied by the following instructions:

“Think of this ladder as representing where people stand in society. At the top of the ladder are the people who are best off—those who have the most money, most education and the best jobs. At the bottom are the people who are worst off—who have the least money, least education and the worst jobs or no job. The higher up you are on this ladder, the closer you are to people at the very top and the lower you are, the closer you are to the bottom. Where would you put yourself on the ladder? Please place a large ‘X’ on the rung where you think you stand.”

Convergent validity has been demonstrated with the SES ladder, which correlates with other measures of SES (e.g., income, education, occupational status). Evidence for discriminant validity has also been demonstrated; Singh-Manoux, Adler, & Marmot found that adjustment for all the more conventionally employed measures of socioeconomic position did not completely explain the association between subjective status and health in the Whitehall II study of British civil servants, suggesting a particular and distinct relationship of subjective social status and health.

The rungs are scored from 0 (bottom) to 10 (top); higher scores indicate higher perceived social status. There are no published cut scores or norms. In a sample of healthy, middle-aged, middle class white women, the mean SES ladder score was 6.8 (*SD* 0.12) (Adler, Epel, Castellazzo, & Ickovics, 2000). Reitzel et al. (2007) administered the scale to 123 young (mean age 22 years), diverse, and largely low-income urban pregnant

women. Mean scale scores generally varied between 4.84 and 5.44, depending on race, income, education, and partner status.

Discrimination. The DAS (Detroit Area Study) Discrimination Questionnaire (DAS-DQ) is a 15-item scale that distinguishes major episodic experiences of discrimination from chronic, everyday experiences of unfair treatment. Williams (1998) notes that a major limitation of prior health research on discrimination has been in conceptualization and measurement, with much of the literature relying on single-item indicators of discrimination. The 1995 Detroit Area Study (DAS) measure distinguishes major episodic experiences of discrimination (Major Life Events) from chronic, ongoing, day-to-day experiences (Everyday Discrimination). Importantly, questions about discrimination are not asked with reference to race or ethnicity but in the more generic context of “unfair treatment”. For each measure of unfair treatment experienced, a follow-up question asks whether the experience had happened in the past 12 months. *This* scale also distinguishes past year experiences of discrimination from earlier lifetime episodes. Follow-up questions to endorsed items allows the respondent to indicate the basis for discrimination, selected from a list that includes ethnicity, gender, race, age, religion, physical appearance, sexual orientation, and income level/social class. Thus, unfair treatment attributed to race or ethnicity can be distinguished from discrimination the respondent attributes to other social factors. Because the scale is so designed, it was administered to all participants in this study.

The second type of discrimination assessed, everyday discrimination, is a measure of chronic, routine, and less overt experiences of unfair treatment. Nine items capture the frequency of the following experiences in day-to-day life: being treated with less courtesy

than others, less respect than others, receiving poorer service than others in restaurants or stores; people acting as if you are not smart, they are better than you, they are afraid of you, they think you are dishonest; being called names or insulted, and being threatened or harassed. The scale has demonstrated high reliability (Cronbach's alpha = .88; Williams, 1998). Evidence of good construct validity exists, including evidence of convergent validity with an association of the Everyday Mistreatment subscale (but not the Major Life Events subscale) to measures of depression, perceived stress, negative affect, and social strain in a sample of older African American adults (Taylor, Kamarck, & Shiffman, 2004).

Each Major Life Events subscale item that is endorsed is scored as 1; those that are not endorsed are scored as 0. Scores on this subscale are summed for a possible range of 0 to 6, with higher scores indicating more major discrimination events experienced. The nine items on the Everyday Discrimination subscale are scored as follows: 0 = Never, 1 = Less than once a year; 2 = A few times a year; 3 = A few times a month, 4 = At least once a week, and 5 = Almost everyday. Higher scores are associated with greater exposure to everyday discrimination. Cut scores and norms for the scale have not been published.

Stress. There are three general approaches to stress measurement (Cohen & The Psychosocial Working Group, 2000). These include an environmental model of stress—essentially a checklist of stressful events—an approach that assumes a normative amount of stress related to each event. Others, using a more psychological framework, focus less on discrete events and more upon how people actually perceive stress. A third approach uses biological measures to quantify the physiologic impact of stress. Perception or

appraisal of stress may be the link between the first approach and the third, i.e., the link between stressful events and their biologic impact (Corcoran & Fischer, 2000).

The Perceived Stress Scale or PSS is a widely used global measure of perceived stress over the past month. Ten items assess how unpredictable, uncontrollable, and overloaded respondents find their lives to be, for example, “In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?” Items have been shown to function similarly across different races, genders, and educational levels in a large sample of U.S. adults (Cole, 1999). The PSS has good internal consistency, with an alpha of .78, and good construct validity, with scores moderately correlating to other measures of appraised stress (Corcoran & Fischer, 2000).

Items are scored from 0 = never to 4 = very often. Scores are obtained by reversing scores on the four positive items and then summing across all 10 items (Williams, 1998). PSS-10 scores are obtained by reversing the scores on the four positive items, e.g., 0 = 4, 1 = 3, 2 = 2, etc. and then summing across all 10 items. Items 4, 5, 7, and 8 are the positively stated items. Norms for the PSS have been established based upon a national probability sample of US adults ($N = 2,388$), with an overall mean for females of 13.7 ($SD = 13.7$) (Cohen & Williamson, 1988).

Exposure to Violence. The My Exposure to Violence Instrument is a highly structured interviewer-administered tool designed to assess lifetime and past year exposure to 18 different violent events either witnessed or personally experienced. Frequency of exposure is measured on a 5-point scale (never, once, 2 or 3 times, 4 to 10 times, more than 10 times). Three subscales are defined: 1) Witnessing violent events, 2) Victimization, and 3) Total exposure (witnessing and victimization) obtaining scores for

both lifetime and past year exposure. Scales have demonstrated high internal consistency (r 's = 0.68 to 0.93), test-retest reliability (r 's = 0.75 to 0.94), and evidence of construct validity (Selner-O'Hagan, Kindlon, Raudenbush, & Earls, 1998).

The Danger Assessment is a clinical and research instrument designed to assist battered women in assessing their danger of being murdered (or seriously injured) by their intimate partner or ex-intimate partner. The DA was originally developed with consultation and content validity support from battered women, shelter workers, law enforcement officials, and other clinical experts on battering (Campbell, 1986, 2005). It has frequently been used as a proxy for severity of IPV. Internal consistency reliability has ranged from 0.60 to 0.86, with test-retest reliability of 0.89 to 0.94 (Campbell, 1994; Stuart & Campbell, 1989). All samples included a substantial portion of women of color from a variety of settings, without psychometric variation.

The first portion of the DA assesses severity and frequency of battering by presenting the woman with a calendar of the past year. The woman is asked to mark the approximate days during the past year when physically abusive incidents occurred, and to rank the severity of the incident on a 1 to 5 (1 = slap, pushing, no injuries and/or lasting pain through 5 = use of weapon, wounds from weapon) scale. The second part of the original DA is a 20-item yes/no dichotomous response format of risk factors associated with intimate partner homicide.

Items on the DA may be simply added (Yes = 1, No = 0), with a higher score indicating increased risk of re-assault. Alternatively, a weighted scoring algorithm that identifies four levels of danger has been developed. The levels of danger are defined based on the DA score as: 1) variable danger (score of 0-7); 2) increased danger (score of

9-13); 3) severe danger (score of 14-17); and 4) extreme danger (18 and above) (Campbell, Webster, & Glass, in press).

Depressive Symptomatology. The Center for Epidemiologic Studies Depression Scale (Revised) (CESD-R) is a revised version of the original, widely used CESD scale. The CESD-R has 20 items corresponding to DSM-IV depressive criteria and representing all major components of depressive symptomatology, including depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, loss of appetite, sleep disturbance, and psychomotor retardation (Eaton, Smith, Ybarra, Muntaner, & Tien, 2004). The scale is not intended to be diagnostic; however, both the original CESD and the revised version can distinguish between clinical groups and general community groups, and have been used across diverse populations. Each item is rated on 4-point Likert scales indicating the degree of past week occurrence. The scales range from 0 = "rarely or none of the time" to 4 = "most all of the time." Internal consistency estimates are excellent, ranging from .85 to .90 and split-half reliability from .77 to .92; test-retest from .51 to .67 (Eaton et al., 2004). The original CESD has demonstrated high concurrent and discriminant validity, and the revised version is highly correlated with the original (Corcoran & Fischer, 2000).

The CESD-R is scored by summing scores on all items. The possible range of scores are from 0 to 60, with higher scores indicating greater degrees of impairment from depressive symptoms, and scores of 16 or greater are suggestive for depressive illness.

Posttraumatic Stress Symptomatology

The Posttraumatic Stress Disorder Checklist Civilian Version, or PCL-C, is a widely-used, validated 17-item measure of PTSD symptoms experienced over the last

month, based on a five-point scale of (1 = not at all to 5 = extremely). The measure is not considered diagnostic for PTSD, as a structured clinical interview is the gold standard for PTSD diagnosis. However, items parallel DSM-IV diagnostic criteria for PTSD. The measure yields total scale scores, as well as scores for each of the three symptom clusters: Re-experiencing, Avoidance, and Arousal. Seventeen items ask the degree to which respondents have been bothered by past-month posttraumatic symptoms (e.g., “feeling very upset when something reminded you of a stressful experience from the past?”). Items are scored from 1-5 on a 5-point Likert scale, with responses ranging from 1 = “not at all” to 5 = “extremely”. Previous research has demonstrated excellent reliability at .94 for total scale and .82 to .94 for subscales. PCL cut scores have varied from study to study, but a cut score of 45 has demonstrated excellent sensitivity (0.82) and specificity (0.76) in a ROC analysis with a sample of 1,225 women in a Seattle HMO (Walker et al., 2003).

The PCL is scored by summing items. The range of possible scores on the Posttraumatic Stress Disorder (PTSD) PTSD measure used, Posttraumatic Check List-Civilian (PCL) range from 17-85, with increasing scores indicating higher levels of past-month PTSD symptomatology. The scoring algorithm used by Walker and colleagues is as follows: score < 30 = low; 31-44 moderate; 45 or greater = severe PTSD symptoms (Walker et al., 2003).

Sample and Setting

Inclusion Criteria. In this study, a purposive, convenience sample was recruited, with the priority of seeking the insider perspective from women most likely to be affected by the intersecting factors associated with infant and maternal deaths. These factors

included low SES, racial minority status and racism, violence and trauma, mental health problems, and/or substance abuse issues.

Participants in this study were adult women in the State of Oregon who were 1) age 18 years or older, 2) English-speaking, 3) had been pregnant in the previous three years and/or were currently pregnant, and 4) who had experienced many of the factors and challenges related to high risk for poor maternal-child outcomes just listed. Such participants thus represented the emic view of how these factors intersected together. Specifically, participants were sought with at least two factors associated with preterm birth/LBW, infant mortality, and maternal mortality, i.e.,

- Low income, defined as an annual income at or below 100% of the federal poverty guidelines
- Racial and ethnic minority status, and/or
- Had experienced issues of intimate partner violence, mental health problems, and/or substance abuse issues within the past year and/or during pregnancy.

Women did not need to have all the risk factors individually to participate.

Exclusion Criteria. Women who are unable to speak English fluently were not included in this study because of limited resources. The limited resources of this small dissertation project did not allow it; however, the investigator fully recognizes that communication barriers represent an additional risk factor for women navigating through social contexts such as health care systems and social service agencies. The importance of future collaboration with non-English speaking women is recognized and will be a part of ongoing program of research in the future.

Women younger than 18 years of age were also not included in this study, due to the unique developmental stage and resource needs of adolescence versus adulthood. It is important to develop and test developmentally appropriate informational resources with and for pregnant and mothering teens that are specific to their issues and needs.

Setting. Participants were recruited from community health and social service settings that serve low-income and vulnerable women in the Portland metropolitan area.

These included:

- 1) A primary care clinic serving low-income and primarily uninsured persons);
- 2) Healthy Start of Oregon, a voluntary home visiting program and case management child abuse prevention program for vulnerable families, which screened over 7,500 families and provided home visiting services to over 3,000 children in the state in fiscal year 2005-2006 (Green et al., 2007);
- 3) Women's, Infants, and Children's (WIC) clinics; and
- 4) A federally funded evaluation project evaluation of housing services for battered women and their children.

Women self-referred from fliers posted in the various settings, or were given fliers by program staff. The women called the telephone number on the flier, which rang in the investigator's office. Potential participants were screened for eligibility over the phone, and the investigator obtained informed consent and scheduled an individual meeting with the participant. Participants were advised that their study participation and

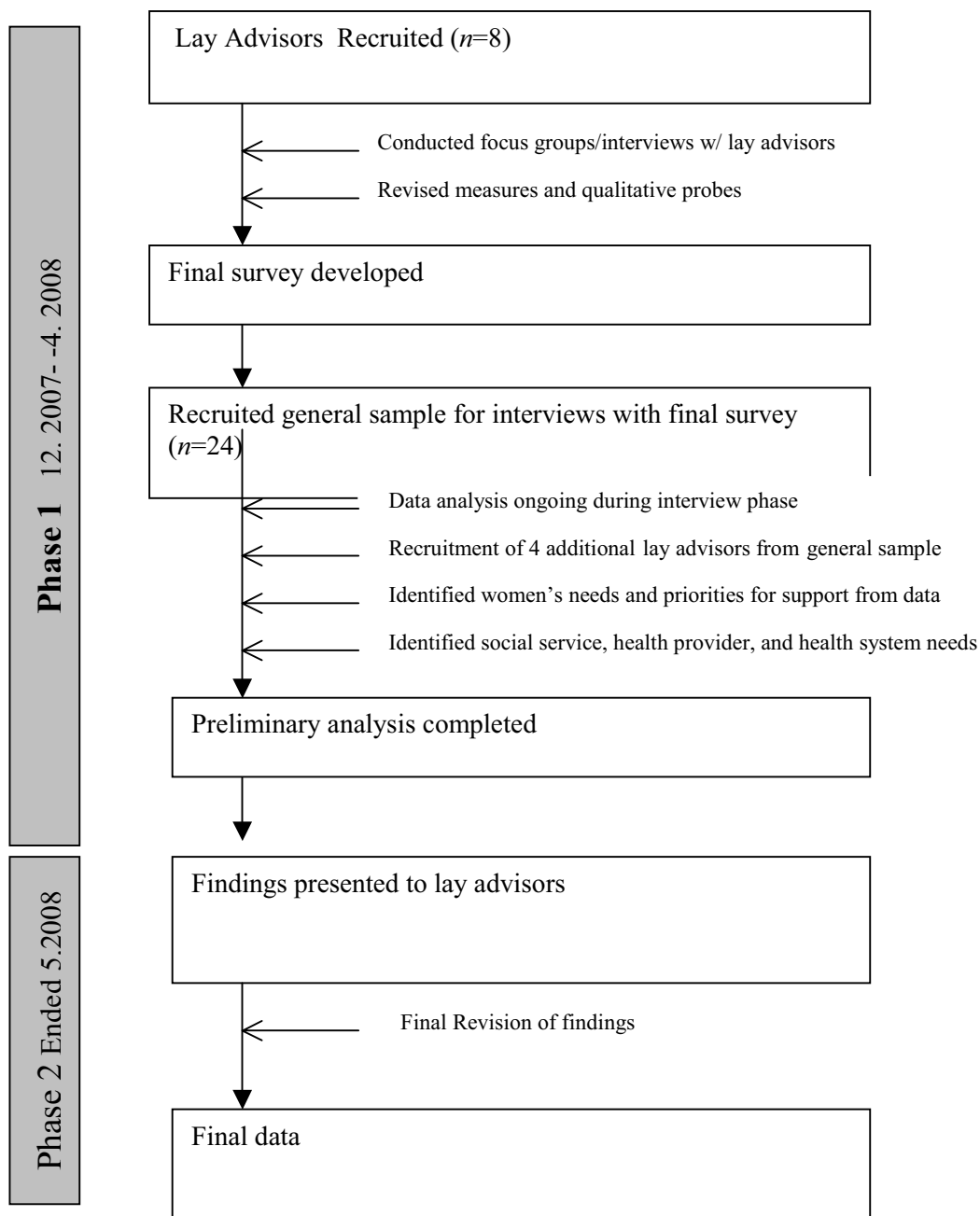
data were confidential, and that participation, or non-participation, would not affect the services they received at any of the sites.

All women who called the voicemail about the study and were successfully reached were eligible. Four women could not be reached after their initial phone message; a fifth was reached three days after her message, but she reported that she had moved to another city. Healthy Start caseworkers also left voicemails regarding three women who wanted to participate, but did not speak English (one Vietnamese-speaking, two Spanish-speaking) and thus were ineligible.

Procedures

This project was conducted in two phases are, as illustrated in Figure 5. In Phase 1, the investigator refined the mixed-methods interview questions with the expert input of eight lay advisors (diverse, low-income women with many of the risk factors for preterm birth, low birthweight, and infant and maternal mortality). Following development of the final interview questions, women were recruited for interviews, and the preliminary analysis was completed. In Phase 2, lay advisors were presented with findings for input and feedback, and final additions and revisions were completed.

Figure 5. Timeline for Study.



Phase 1 addressed the first and second specific aims. According to the first aim, the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income women was described, using an intersectional framework to analyze

interwoven risk factors related to preterm birth/low birth weight, infant mortality, and maternal mortality, particularly women's challenges related to race, class, trauma, violence, mental health problems, and/or substance use, including experiences of stress and discrimination. The second aim was to describe what pregnant women and mothers with young children up to three years old identify as their informational needs and priorities for support to improve pregnancy outcomes. The outcome of Phase 1 was the recruitment of eight lay advisors from the community, collaborative creation and refinement of the survey to be used (including quantitative instruments and probes for qualitative interviews), recruitment of Phase 1 participants, completion of data collection with 24 participants, and preliminary analysis of data.

Phase 1 began with the creation of the previously described mixed-methods interview, including quantitative instruments and qualitative questions and probes, based upon literature review and in consultation with study sponsors. The survey was initially developed based on literature review, and in consultation with study sponsors. The interview questions were collaboratively revised with the first group of eight participants recruited (lay advisors) and the study sponsors, using participatory research methods as described in the following section.

Lay advisors. In this study, women most likely to be affected by the intersecting factors associated with infant and maternal deaths—low SES, racial minority status and racism, violence and trauma, mental health problems, and/or substance abuse issues—played a direct and collaborative role in this research project about them, based upon participatory research principles. Following creation of the draft survey, in Phase 1, eight lay advisors from the community were recruited to evaluate the design of the study, and

refine and improve the approach and wording of the questions. Lay advisors provided a well-rounded group, in which a diversity of experiences with racial and minority status, low socioeconomic status, and violence, mental illness and substance abuse history were represented.

Potential lay advisors responded to fliers posted in the previously described community settings by calling the study telephone number. They, were screened for eligibility, and completed an informed consent process was obtained as described in the Human Subjects section in this chapter. Interviews with lay advisors were scheduled individually and conducted in any safe and private setting of the woman's choosing (e.g., her home, a coffee shop). The investigator began the interview by again obtaining informed consent. This study did not include a signed consent form but rather an information sheet provided to participants to take home after ascertaining that it was safe for them to do so.

Lay advisors were first asked to complete the quantitative survey questions. Then the survey (quantitative measures and qualitative questions) was reviewed with the lay advisors. Lay advisors were asked for input regarding the content, completeness, appropriateness, language and readability regarding questions and response options, and length of the survey. Most lay advisors also chose to share their personal stories during these interviews. Interviews with lay advisors averaged 1 ½ to 2 hours, and were audiotaped and transcribed. The investigator asked permission to re-contact each lay advisors for additional interviews as needed, to ask for clarification and/or review and to complete qualitative interviews. All lay advisors agreed to allow the investigator to

contact them again as needed. All eight completed qualitative interviews and are included in the final sample of 24.

The survey was revised based upon the feedback obtained from lay advisors and in consultation with study sponsors. This participatory research approach is a methodology consistent with recommendations for survey adaptation for health disparities research among minorities and underserved populations. The investigator worked closely with the advisors to revise the interview/instrument, discussing concerns/opinions openly, providing alternatives, and taking decisions back to advisors for review in an iterative process of developing the most appropriate instrument/interview. Lay advisors were compensated for each meeting, with a \$30 cash stipend, and bus fare and child care as needed, in accordance with the principles of CBPR that honor the expertise and time of participants (Salmon, 2007).

Lay advisors generally expressed the opinion that the proposed survey was easy to understand, appropriate, not offensive, and mostly complete. However, in some cases women felt the timeline dictated in measures (e.g., past-week depression symptoms) missed the seriousness of their previous symptoms, or their symptoms in pregnancy. These women appreciated the opportunity to elaborate on their answers further in the qualitative portion of the interview. In response to their feedback, follow-up questions were added to several measures to ask if, on average, their stress, depression, and posttraumatic symptoms would have been different during their most recent pregnancy (i.e., more, less, or about the same than currently). Language was added to the survey to introduce the measures or provide transition between measures per women's feedback. Finally, in the qualitative portion of the interview, in response to the lay advisors' '

feedback and suggestions, additional probes were added for stress related to housing, employment, documentation of citizenship, parenting, and step-parenting.

General Sample. Following refinement of the survey, the investigator began recruitment and data collection with the general sample. Potential participants responded to fliers posted in previously described community settings by calling the study telephone number, were screened for eligibility, and informed consent process was obtained as described in the Human Subjects section in this chapter.

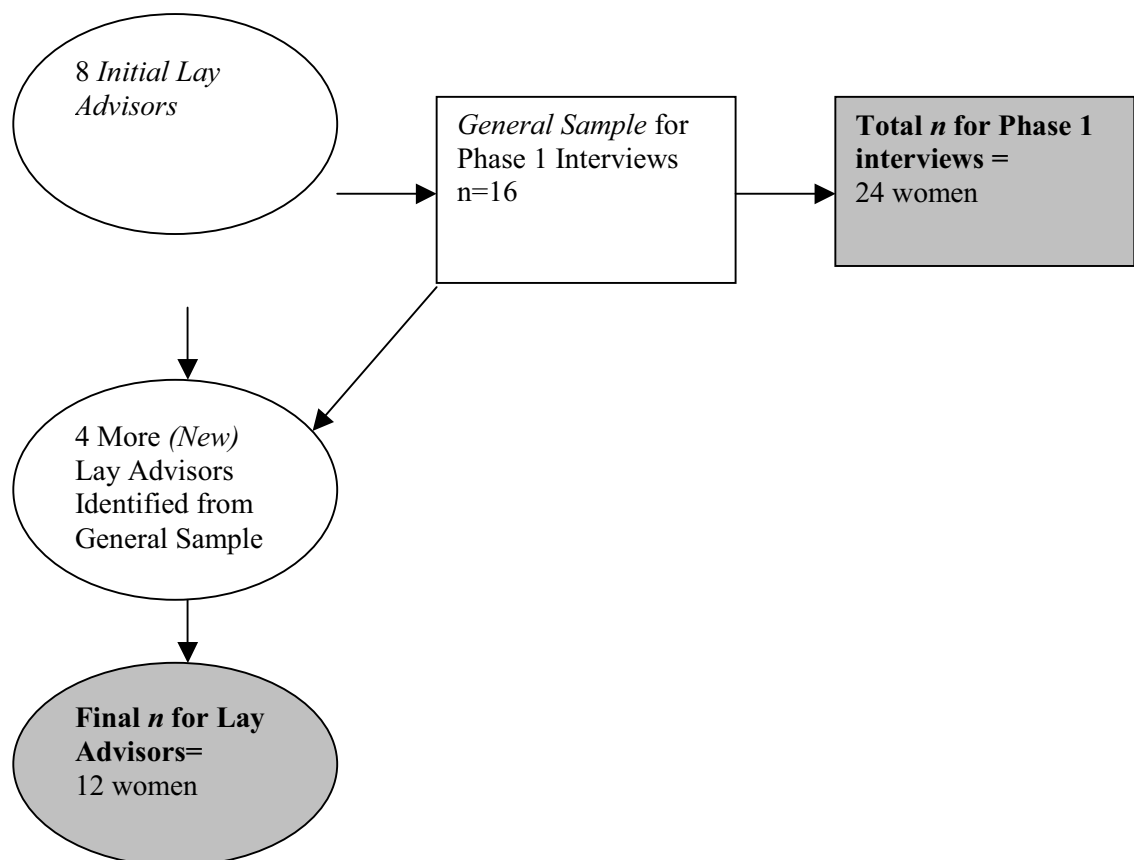
Potential participants called the telephone number on the flier, which rang in the investigator's office. Potential participants were screened for eligibility over the phone, and the investigator obtained informed consent and scheduled an individual meeting with the woman. The investigator also arranged to meet again with lay advisors individually to administer the qualitative questions if they had not addressed them in the previous meeting and were willing to participate again.

Interviews were conducted in any safe and private setting of the woman's choosing (e.g., her home, a coffee shop). The interviews began by repeating the informed consent process, and providing participants with an information sheet about the study. When informed consent was obtained, the interview began with the investigator administering the quantitative measures, followed by the qualitative interview.

The qualitative interviews were audiotaped. The investigator transcribed the majority of interviews; an IRB-approved transcriptionist transcribed five others. Any potentially identifying information disclosed by women during interviews was deleted from the transcripts. The investigator asked permission to re-contact each participant for additional interviews, to ask for clarification and/or review and to seek additional lay

advisors. From the general sample participants, four more lay advisors were identified for the second phase of the study, for a total of twelve lay advisors for Phase 2, to account for possible attrition of lay advisors. All participants were compensated for their time with a \$30 cash stipend, and bus fare and child care as needed. Twenty-four participants were interviewed (See Figure 6). Sample size was dictated by considerations of data saturation, i.e., the point at which redundancy (saturation) was reached in the data.

Figure 6. Sampling and Number of Participants.



Per women's preferences, all interviews were individually conducted individually with the exception of two lay advisors who were sisters who lived together, and preferred

to be interviewed together as well. Interviews were conducted at participants' convenience and in any safe and private setting of their choosing. The majority of interviews were in women's homes. Three were conducted in coffee shops and one in an employment training facility. All participants completed the quantitative measures ($N = 24$). One lay advisor did not wish to be interviewed on tape, and the recording from another interview was corrupted, resulting in 22 audiotaped interviews. Each participant was interviewed at least once; four follow-up interviews were conducted as needed to follow up on themes in the qualitative interviews. Data analysis procedures are described later in this chapter.

At the completion of Phase 1, the investigator planned to use the data to create a specific outcome: a draft version of a culturally competent health promotion information resource for women, to be collaboratively refined with lay advisors. However, as will be described in subsequent chapters, the findings that emerged dictated a different direction. Another goal for the end of Phase 1 was to describe social service, health provider, and health system needs to support pregnant women and mothers with young children to reduce poor pregnancy outcomes.

In Phase 2, lay advisors were contacted and asked to review the findings of the study and provide feedback. Phase 2 addressed the third specific aim, which was to iteratively and collaboratively, with the lay advisors in the group: a) develop the content of a culturally competent health promotion information resource for women and to b) identify social service, health provider, and health system needs to support pregnant women and mother with young children to improve pregnancy outcomes.

The outcome of Phase 2 was to have been be the collaborative refinement of the content of a culturally competent health promotion information resource for women, as well as to collaboratively identify social service, health provider, and health system needs to support pregnant women and mother with young children to reduce poor pregnancy outcomes. However, as will be described in the next chapter, findings from Phase 1 did not support the development of information resource.

Mothers in the study did not feel that information resources were needed or helpful, and described feelings of loneliness and social isolation and a desire to connect with other mothers to give and receive support. Thus, instead of developed an unwanted information resource, this theme, and how it might inform future intervention, was explored in-depth with participants. Therefore, the lay advisors were re-interviewed regarding the findings.

The analysis in Phase 1 addressed the following questions:

- 1) What do women in this study identify as their informational needs and priorities for support to improve pregnancy outcomes?
- 2) What do women in this study identify as social service, health provider, and health system needs to support pregnant women and mother with young children to improve pregnancy outcomes?

Findings were drafted in Phase 1, based upon the analysis of all Phase 1 interviews. Once created, findings were refined in an iterative process, utilizing the feedback and advice of lay advisors and study sponsors. Specifically, six lay advisors were contacted and asked to meet with the investigator to review the findings for content, accuracy, and completeness, appropriateness, language and readability. The remaining

lay advisors were unavailable for interviews (i.e., out of the country, in labor, declined, or unable to be contacted). These follow-up interviews were conducted individually and in any safe and private setting of the woman's choosing (e.g., her home, a coffee shop). One follow-up interview was conducted by telephone per the woman's preference.

In these interviews, the investigator shared the six themes that had emerged within the analysis. These six themes were that 1) stress has a negative impact on mothers' health; 2) stressors—poverty, unfair treatment due to race, ethnicity, or other factors, violence and trauma, mental health issues, and addiction—intersect (are tangled up together) in complicated ways; 3) childhood poverty and stress impacted mothers' adult health and level of stress; 4) most mothers felt isolated and alone, and this increases their stress tremendously; 5) mothers felt that they could generally find information and resources for themselves, but connecting with other mothers with similar lives, difficulties, and interests is needed reduce the impact of isolation and stress; and 6) health care providers can increase or decrease mothers' stress by their actions or treatment.

Lay advisors were asked if the themes made sense, if they resonated with their own experiences, if they had concerns or objections to the themes, or if they felt that additional information was needed. Lay advisors also heard a description of a group prenatal care model, CenteringPregnancy, which is intended to foster social connections among a cohort of expectant mothers. Lay advisors were asked what they thought of such a model, including benefits and drawbacks, and if they would be receptive to this type of care. Lay advisors did not have access to the identities of women in the study, to raw data, or to data that could potentially have revealed the identities of other women in

the study. Lay advisors were compensated for each meeting, with a \$30 cash stipend, bus fare, and childcare as needed.

The investigator took notes in the Phase 2 interviews with lay advisors, and audiotaped the interviews for later reference for the final analyses. The investigator sought permission to re-contact each participant for additional interviews, to ask for clarification and/or review, but no subsequent interviews were necessary. Lay advisors generally agreed with the themes and agreed that they were accurate, complete, and resonant with their own experiences. One lay advisor provided the single exception, in that she disagreed with the theme of “health care providers can increase or decrease mothers’ stress by their actions or treatment.” Asked to elaborate, she replied that she saw health care providers as detached technical people who could not help her with her stress, as they do not care about her as a person, and that it is only their job to care for her pregnancy. However, this view was not endorsed by any other lay advisor or interviewee. In addition, this lay advisor also provided a positive example of a caring lactation nurse who showed empathy towards her and described how that made her feel good and kept her connected to the clinic. Thus, this theme was retained. Lay advisors were especially enthusiastic about the concept of group prenatal care, as will be discussed in the subsequent chapter.

Procedures for Data Analysis

Qualitative Data

A qualitative descriptive approach was specifically chosen to provide the most accurate and participant-centered description of the data. Sandelowski (2000) noted, “All inquiry entails description, and all description entails interpretation.” However, in

contrast to more abstract approaches (such as phenomenological, grounded theory, ethnographic, or narrative description) that center the interpretations and conceptualizations of the researcher, qualitative description centers the perspective and voice of the researched by “sticking” relatively closely to the data. The “facts of the case” are presented in everyday language. In this approach, language is approached as a vehicle of communication, not an interpretive structure that must be deconstructed. The twin goals of the qualitative descriptive approach are descriptive validity (an accurate account of events) and interpretive validity (an accurate account of the meaning participants attribute to those events).

To analyze the qualitative data, first each interview was transcribed. The investigator transcribed the majority of interviews; an IRB-approved transcriptionist transcribed five interviews. The investigator then listened to the audiofiles to verify the transcripts’ accuracy. Transcripts were read in their entirety and then imported into Nvivo 7, a software package used to handle non-numerical and unstructured data (QSR International, 2002).

Transcripts were coded line-by-line. Codes were collapsed into categories as patterns and themes emerged from the data. At the beginning of the study, the semi-structured interview questions were open-ended and primarily related to the experience of pregnancy and early motherhood within the context of stress and discrimination related to race, ethnicity, class, trauma and violence, mental health problems, and addiction (questions are presented in Appendix E). Understanding and describing the intersectionality of the phenomena of interest—how they overlap, intersect, and act synergistically—was a priority, consistent with the intersectionality framework.

The key questions addressed the study aims primarily by the use of the qualitative data to answer the following questions:

1. What is the experience of pregnancy and early motherhood, among a sample of diverse, primarily low-income women, particularly women's challenges related to race, class, trauma, violence, mental health problems, and/or substance use, including experiences of stress and discrimination?
2. How do these factors intersect and overlap in women's experience?
3. What do women in this study identify as their informational needs and priorities for support to improve pregnancy outcomes?
4. What do women in this study identify as social service, health provider, and health system needs to support pregnant women and mother with young children to improve pregnancy outcomes?

Transcription and analysis was conducted continuously and iteratively conducted with interviews during data collection and guided further and more focused interviews as data collection progressed. The investigator followed up in subsequent interviews with additional focused questions to more fully develop the emergent themes and explore the patterns in the data. For example, as the theme emerged that pregnancy and motherhood was often a lonely time for women, and that childhood difficulties and trauma and addiction histories exacerbated their disconnection from others and their sense of loneliness, the investigator explored this theme in subsequent interviews.

As is appropriate with qualitative data, the sampling process was flexible and evolving until data saturation, i.e., redundancy in emerging themes, was attained. Specifically, in consultation with study sponsors, the investigator concluded that

saturation was reached at the point when little new information was being produced in interviews, and when it was possible to answer the following questions affirmatively (Law et al., 1998):

- Was adequate background data collected about mothers' experiences, processes, and settings to have ready recall, and to understand and portray the full range of contexts that informed mothers' experiences?
- Were detailed descriptions of mothers' views and actions gained?
- Were the data rich enough to reveal what lies beneath the surface?
- Were the data sufficient to reveal changes in mothers' experiences and stressors over time?
- Were multiple views of the mothers' range of actions represented?
- Was there adequate data for development of analytic categories?

Quantitative Data

Analysis of the quantitative data was performed via SPSS (Statistical Package for the Social Sciences, v. 14.0) and, given the sample size, consisted primarily of descriptive data. To verify data, the computer database was compared with all hard copies of the surveys. Instruments were scored and descriptive statistics (frequencies, means, standard deviations, median, modes) appropriate to the level of measurement were calculated.

Priority questions addressed in the analysis of the quantitative measures were:

- 1) In this sample, what characterized women's socioeconomic and perceived social status?

- 2) How significant and persistent were women's past-year and lifetime exposures to discrimination? On what basis did they feel they had been discriminated against?
- 3) How significant and persistent were their lifetime exposures to violence?
- 4) For women in current or past-year abusive relationships, what was the severity of violence and risk of lethality from this relationship?
- 5) What were women's current level of perceived stress, and depressive and PTSD symptomatology?

Integration of Qualitative and Quantitative Data

As previously noted, in this study, the qualitative method (qualitative descriptive) predominated and the quantitative measures were used for primarily descriptive purposes, a mixed-methods design known as a nested approach (Creswell, 2003). These findings were used to expand and complement the description of the women's experiences as it was addressed in the qualitative analysis. Challenges may arise in integrating qualitative and quantitative study findings, particularly when there are discrepancies between the two types of data. While such discrepancies did not arise in this study, a particular strength of participatory research lies in the expertise that lay advisors bring to the study. In the case of discrepancies between quantitative and qualitative data, the lay advisors would have been called upon to help interpret these discrepancies and put them into context.

Ensuring Rigor

To ensure rigor, Lincoln & Guba's parallel perspective was employed (Lincoln & Guba, 1985). This perspective provides criteria and suggested techniques to ensure rigor

in qualitative research. The following techniques were used specifically in this study: prolonged engagement, persistent observation, triangulation, member checks, and an audit trail.

Prolonged engagement: According to Lincoln and Guba, researchers must take time to understand the context and culture of the research, to build trust and rapport with participants, and to test for misinformation or distortions in the findings. Such evidence of prolonged engagement lends credibility to research findings. Lay advisors, themselves vulnerable mothers, were engaged throughout the study, providing expert input in the design phase and in the interpretation of the findings, and ensuring that the findings were credible.

Persistent observation. “Thick description” demonstrates persistent observation, as well as allowing the reader to evaluate the transferability of findings to other contexts. The mixed-methods procedures employed in this study were crucial to provide the depth within the data needed to demonstrate that the investigator identified relevant characteristics in the data, and focused upon them in detail. For example, using measures of past-month perceived stress and both objective and subjective measures of socioeconomic status (SES), as well as qualitatively exploring women’s perspective on stress related to SES, allowed for a thick description of stress related to SES in this study. In addition, the use of specific criteria for assessing data saturation, as previously described, ensured rigor by promoting and demonstrating evidence of persistent observation.

Triangulation of data sources, methods, and/or investigators: “Overlap methods” of gathering data represent a form of contextual validation, in which the imperfections or

limitations of one approach is balanced by the strengths of another. Lincoln & Guba emphasize this as an extremely important approach in establishing rigor in qualitative research, comparing it to a fisherman using multiple nets, each of which has holes, but the intact portion of one net will cover the holes in another. Looking at the same phenomenon through multiple lenses ensured credibility, dependability, and neutrality in this study. For example, mothers described feeling “stressed out,” and these feelings and their sources were explored in qualitative interviews. In addition, the quantitative measures revealed that many mothers had high levels of perceived stress, but also had high levels of depressive and PTSD symptomatology which mothers interpreted as feeling stressed. This triangulation of data collection allowed for further exploration of the contribution of undiagnosed or untreated mental health issues to women’s stress.

Member checks and peer debriefing. Ensuring that findings and interpretations are credible to the original constructors of the multiple realities, as well as to one’s peers, is the most crucial technique to demonstrate credibility and the confirmability of results (Lincoln & Guba, 1985; Whittemore, 2001). This was conducted both informally and formally, and continuously, throughout the research process, with participants in interviews (with further and more focused data collection based upon emerging categories and themes), verification, summarization and error correction with lay advisors and with study sponsors, and by ensuring data saturation.

Audit trail. Transparency and accountability was maintained by retaining an audit trail of raw records to systematize, organize, and cross-reference data. Records retained included raw data (de-identified transcripts), data reconstruction and synthesis products,

process notes, and instrument development information, and frequent communication with study sponsors was maintained.

Protection of Human Subjects

The Institutional Review Board (IRB) at Oregon Health & Sciences University approved the study in July of 2007. This study did not include a signed consent form but rather an information sheet provided to participants. The use of an information sheet, approved by the Institutional Review Board (IRB), is protective of participant confidentiality when identifying information is not included in the data collected, and the signed contact form would potentially link participants to the study, thus decreasing their confidentiality. Contact information was collected from participants for the purposes of follow up interviews. This information was not keyed to the pseudonym. No persons other than the investigator had access to the consent forms, or pseudonym key. Contact information was destroyed following completion of Phase 2.

Potential participants were advised that their decision to take part in the study or not to take part in the study would not affect the services they received at community programs, and that their participation and their responses to study questions would remain confidential. No physical procedures were carried out as a part of this study, and there was minimal risk to the fetus for currently pregnant women. Interviews were conducted in safe and private settings of participants' choosing as previously described.

Participants were encouraged not to use names in interviews. Potentially personally identifying information was deleted when transcribing, and audio recordings were destroyed following transcription. Recordings, transcripts, and reports of findings included participant pseudonyms, but no identifying information. All study data and

materials (i.e., surveys, audiotapes, transcripts, contact information, and pseudonym keys) were kept in locked cabinets in the investigator's locked office at the OHSU School of Nursing.

Summary

This mixed-methods, participatory research study was conducted in two phases. The purpose of this study was to examine structural and social determinants and associated factors of pregnancy-related disparities among a group of vulnerable adult mothers, and to describe how such factors intersect in their experience. Such factors included the challenges related to class, minority status, trauma, violence, mental health problems, and/or substance use, and experiences of stress and discrimination. Six themes emerged from the findings and included: 1) stress has a negative impact on mothers' health; 2) stressors—poverty, unfair treatment due to race, ethnicity, or other factors, violence and trauma, mental health issues, and addiction— intersect (are tangled up together) in complicated ways; 3) childhood poverty and stress impacted mothers' adult health and level of stress; 4) most mothers felt isolated and alone, and this increases their stress tremendously; 5) mothers felt that they could generally find information and resources for themselves, but connecting with other mothers with similar lives, difficulties, and interests is needed reduce the impact of isolation and stress; and 6) health care providers can increase or decrease mothers' stress by their actions or treatment. These themes will be discussed in detail in the following chapter.

CHAPTER FOUR

Results

Six themes emerged from the data. These themes illustrated the pervasiveness of stress and the intersectional and complex relationships of stressors in vulnerable mothers' lives, the effects stress had upon their health, and the role that health and social service providers, particularly health care providers, played in exacerbating or ameliorating stress. Mothers also described the limited usefulness of an information resource to address their needs, and wished instead to connect with other mothers to address the intense loneliness and social isolation most experienced. This chapter will describe the women demographically, and discuss the themes in detail. Quantitative descriptive data supplements the demographic description and the themes throughout.

Demographic Characteristics

Twenty-four women participated in the study. Most mothers had at least one child; five were currently pregnant (two with a first baby). Most were partnered, young, low income, and white (see Table 2). Approximately 1 in 3 (29.2%) identified as racial or ethnic minorities; one identified as a sexual minority. Three Latinas were immigrants and had resided in the US between 10-18 years (mean 14.6 years).

Table 2. Demographics of mothers in the sample ($N = 24$).

	Mean	(<i>SD</i>)	Range
Age	25.71	(4.97)	18-35
Household size	4.25	(1.5)	2-7
Children in household	1.79	(.83)	0-3
		%	<i>N</i>
Relationship status			
Single/live alone/children	29.2		7
Live with partner	70.8		17
Race ¹			
White	83.3		20
Black	4.2		1
Native American	4.2		1
Other/Did not identify	8.4		2
Ethnicity			
Latino	20.8		5
Current living situation			
Own apt/house, pay rent	33.3		8
With extended family ²	29.2		7
Subsidized housing	20.8		5
Own home w/ mortgage	8.3		2
Transitional housing	4.2		1
Homeless	4.2		1

¹ Does not sum to $N = 24$; one participant identified as biracial (black/white).

² E.g., living in parents' or partner's parents' home.

Overview of Findings: Naomi Falls Through The Cracks

Naomi's story was a paradigm case of multiple, intersecting stressors and difficulties. Naomi, 19 years old and eight months pregnant, and a methamphetamine addict very new to recovery, was one of the most isolated and vulnerable of the women in the study, and she had many stressors. Naomi's story illustrated perfectly the first theme

that emerged from the data—i.e., that the various stressors in vulnerable mothers' lives intersect in complex ways. Naomi did everything she could to make ends meet, and was resourceful in finding donated goods and other items (e.g., a stroller). Her PTSD had been previously diagnosed. She received regular prenatal care, had a DHS caseworker, and had accessed domestic violence services in the past. However, she felt she could not access help for the most severe difficulties in her life—her addiction, her mental health issues, and intimate partner violence.

Naomi and her partner experienced severe financial stress and housing instability. They were about to be evicted because of rent owed at the time of her interview, with nowhere to go. Naomi had multiple barriers to work; she was still in high school, had never held a job before, felt she was unlikely to find a job that paid enough to cover childcare for her toddler, and was about to give birth. Her partner was the financial support for the family, however, his immigration status added to their difficulties. She noted, “My boyfriend can't get a job because he's not legal. So that keeps us being poor. If they would just let him work, because when he works, he makes about \$20 an hour. He's a welder. But they fired him because he has no social security number. And he's embarrassed now. So I have to deal with that now too.” When asked, if she had a magic wand, what would be something she'd wish for to make her life less stressful, she replied, “for my boyfriend to have a Social Security number.”

Naomi was struggling to remain clean and sober, despite the fact that her partner still used drugs. Like most of the women in this sample, she lacked health insurance. She noted, “I'm trying to get back into the drug and alcohol treatment. And the dual diagnosis... But I don't, I don't have medical right now.”

Naomi had grown up with great disadvantage and difficulty. Like Talise, Naomi's own mother was an addict, and she had grown up in foster care after being both abused and witnessing severe violence. During her interview, Naomi was interrupted by a phone call from her father, begging her to come bail him out of jail following his arrest for domestic violence. Naomi met her own partner at age fifteen (he was 37 at the time), and she ran away from foster care to be with him. About foster care, she said, "It wasn't fun... When you're a foster girl, the first thing you do is, you leave and find a boyfriend, pretty much. That's what all my friends did. They just left, and found a boyfriend. They left, and got high. Just found guys, I guess. Because they take care of you."

Naomi's partner was extremely violent towards her; her Danger Assessment score was 18, indicating a severe level of danger and risk of lethality. She had never disclosed the substantial violence in her current relationship to anyone due to embarrassment and shame, and the real possibility of losing her children. She had lost her toddler to foster care because of her methamphetamine addiction; he had been taken into Oregon DHS custody from the hospital at birth. Her DHS case had been recently closed, and her baby was returned to the family when her partner (the child's father, and her abuser) was awarded custody. She feared DHS would take her children if they found any reason to re-open a case, including a finding on IPV. She stated, "I'm real afraid – I'm scared that they're going to call them again. When the baby is born. Even if I am clean, I'm scared. Because they could still take him... At DHS, we're a nice happy family... that's why we keep our son. That's why we got him back."

Six themes emerged from the findings. The first specific aim of this study was to describe the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income women, using an intersectional framework to analyze risk factors related to poor pregnancy outcomes, such as class, trauma history, violence exposure, mental health issues, illegal substance use, and stress and discrimination associated with race/ethnicity and other factors. Four themes emerged that are relevant to this first specific aim. First, the data revealed that mothers were able to clearly articulate the role that stress plays in their health. Second, the various stressors in vulnerable, low income mothers' lives—low socioeconomic status, unfair treatment due to race, ethnicity, or other factors, violence and trauma, mental health issues, and addiction— intersected in complex ways. Third, socioeconomic status (SES) and family difficulties over the lifespan—i.e., childhood SES and stress—continued to affect mothers' current health and level of stress. Finally, the data revealed that most mothers felt isolated and alone, and this compounded their stress.

This sense of isolation and loneliness that emerged in the findings also informed how the second specific aim was addressed. The second specific aim of this study was to describe what women who were currently pregnant and/or have young children (up to 3 years old) identify as their informational needs and priorities for support to reduce poor pregnancy outcomes, and to develop the content of a culturally competent health promotion information resource for pregnant women and mothers with young children. However, findings strongly revealed that women could generally find information and resources for themselves, but most identified connecting with other mothers with similar lives, difficulties, and interests as important to reduce the impact of isolation and stress.

Thus, developing an informational resource was not relevant to these women and efforts to identify its content were not pursued. Instead, women wanted to connect with other mothers with similar experiences and issues, to share experiences, advice, and support. Finally, the third specific aim of this study was to identify social service, health provider, and health system needs to support pregnant women and mother with young children to reduce poor pregnancy outcomes. The data in this study clearly revealed a fifth theme in which health care providers in particular played a clear and important role in mitigating or exacerbating mothers' difficulties. Women provided insightful examples of the type of care and interaction with health providers and systems that were desirable and helpful, and those that were not. These themes, including supporting exemplars, will be explored in-depth in the sections to follow.

Theme: Stress Affects Health

Mothers in this study were able to clearly articulate the role that stress plays in their health. In general, the mothers in this sample endorsed high levels of perceived stress over the previous month, with a mean Perceived Stress Scale (PSS) score of 26.1 (*SD* 7.5), approximately twice published population-based norms for women (Cohen & Williamson, 1988). Even young mothers were able to clearly articulate very clearly the impact of stress upon their own health. Dominga, 19 years old, thought that stress was important to health, stating,

It affects what you do. I mean, to me, it affects what I do, and it just affects my emotions. And then when I can't get any sleep, and then have a poor appetite, and... the 'don't like myself sometimes'---that's a very important one.

Michelle, 19 years old, said:

It's really hard, I think that you, I think that your body gets worn down. And you don't even know it but then you get tired all the time. And you don't know why, and you think, well, 'I just slept eight hours, I ought to be great.' But you're just worn down.

Michelle noted that people do not talk about stress, thinking that they should be stoic. Talise (33 years old) was in agreement:

Because, um, I know I am prone to, um, be really judgmental on how much stress I can tolerate. And I should be like superwoman. And I know if I think that, then I'm probably not the only one that thinks that.

Yet many women do worry about their own ability to cope with stress.

It's hard for me to put a finger on what I can control, and what I can't control. Because... because I guess maybe it seems like I can't control anything. I can't get my stress under control, a lot of times, I can't get my frustration under control, a lot of times. Um. <Sighs> so I guess, I think that my stress should be something I should be able to control. So I guess my question is that I can't. I, I, have good days, and then I have better days. And I have bad days, and I have really bad days. It's really frustrating to me (Casey, 31 years old).

From observing other women's susceptibility to stress and to physical illness, Talise recognized the mind-body connection intuitively:

Because I do recognize that women earlier in recovery, that haven't done as much work on themselves... They're more susceptible to stressors. And their triggers are greater. And if they're not doing that constant work to change their thought pattern, then, I notice that, you know---I have a friend right now, who has more than three years of recovery, but is so not active in her own program. She's sick...all the time. She's got bronchitis or pneumonia every month or two. And she's acting out in some really crazy behaviors. And now wonders why she's depressed and sick, and tired... I notice that being sick in early recovery, is—it's not only early recovery, but when you're stressed, it does manifest itself physically.

I have an aunt that is overwhelmed by stress. Always. And I used to think she was like, um, a hypochondriac. Until, um, she actually does have symptoms of a lot of things. And I don't know if it's like, psychodynamic, but basically, she starts getting stressed, and then the next thing you know, she's sick.

In pregnancy, women often worry about stress and its effects on their health, or the health of their unborn child. Talise said, “Knowing what I know about being pregnant, I know that your baby is, is learning. From the moment they come out, they recognize voices and stuff like that.” Lisette, 19 years old and five months pregnant, noted, “I try not to be stressed out, just because I know it's like, really bad for the baby, like it could be carried onto it.”

Jackie, 29 years old, was a bystander in a shopping mall shooting when she was 20 weeks pregnant, and her first concern afterwards was the effect of the trauma on her baby:

I burst into tears, I felt so horrible cause I had just like sprinted... and I don't think you're supposed to run when you're pregnant. He kind of did a somersault or something, I was “Oh good, you're OK. I felt so bad that happened to you... You do worry about that. About everything that you feel and um, experience—about how it affects the baby.

Ophelia (18 years old) was hospitalized for preterm labor, and was terribly afraid. She worried about how her fear and distress was affecting her fetus, saying, “I was supposed to go with everything, not to let it stress me. But I was so scared. And I would have to stop, and calm myself down, and not get all stressed out.”

Mothers in this study often described stress in terms of its impact upon others—or others' stress as impacting them. Women noted that their level of stress affected the entire family, and that their partners' stress level affected their level of stress in turn. Mothers particularly worried about the impact that their stress has upon their children.

Casey, the mother of a six-month-old infant, noted:

I break down and cry probably every other day. You know, I feel so bad. Like with the other stress too, I'm afraid I'm affecting her. From being just, you know, *so* frustrated, and angry, and angry at myself, and then

melting down right there, and crying while I'm holding her... I don't want that to go into her psyche.

Women frequently reported that stress disturbed their relationship with their bodies, and with food. Several commented on how hard it was to have a positive relationship with their own bodies. Talise commented, "just being a woman. I know that, um, there's so much pressure to be the right type of female." Dominga noted, "I think that a lot of women don't like themselves, not just me. And it's, even though they're beautiful, and this and that, they still have problems with their body, and with themselves." Kathleen, 24 years old, realized that her body image had been inaccurate from an early age. She said, "in my whole life, like I was called fat. And then I looked back at pictures, and I'm like, oh my God! I was like, disgustingly thin! Like, what was I thinking?"

Body image issues. Body image issues were exacerbated by the physical changes of pregnancy. Casey struggled to lose weight and described trying to exercise while her baby napped (or feeling guilty when she failed to), despite having only a few hours of sleep most nights. When asked what was stressful during pregnancy, she replied, "I hated being big as a house." Kathleen reported feeling stress about the 60 pounds she gained in pregnancy related to her body image issues. Ophelia remarked, "It was really hard for me... well, like physically how I changed, it was really hard for me. I loved being pregnant, but that it was affecting how I looked, and how it made me feel about things physically. Yeah, and before I got pregnant I had lost weight, and was really at a weight where I liked myself, and I felt good about it. And I got pregnant and all the weight came back and my body was changing." Her partner tried to reassure her after the baby was

born: “He’ll be there and he says, no, you look pretty, you are so beautiful to me. And it’s like, you can tell me that over and over, but I don’t feel that way.”

Disordered eating. One-third of the women ($n = 8$) reported histories of eating disorders and/or self-mutilation, and traced exacerbations directly to increased stress. Una (31 years old) felt that the serious hypertension she developed during her pregnancy could be directly traced to bulimia, which in turn was exacerbated by increased stress related to fighting with her husband while simultaneously losing her coping mechanism of drugs and alcohol while in treatment:

From years back I had, I have an eating disorder. And when he came like just the stress, like everything like kind of kicked up. I was not drinking anymore and, or anything while I was in there, of course, but my bulimia came back. And so that, I think that that is a really big part of why I got so sick, like just the physical stress of that in my body. That behavior coupled with my depression and everything.

Iris, 29 years old, directly linked her eating with both her childhood deprivation and her current stress and mental health symptoms. She also traced her struggles with morbid obesity (and its attendant health problems) with her extensive trauma history and its sequelae, including PTSD, sleep deprivation, and the inability to feel safe leaving her apartment. She said,

I have to resist the urge just to just eat, eat, *eat*, to constantly eat. And to feed my children tons of food, you know. With me, you know, I feed my emotions, so I am—anxiety, stress, every kind of stressor, any emotional, I mean lately it’s the depression.

And you just, I just, I eat...and then, I have—I just got diagnosed with arthritis. Um, my lower back has compression, um; I have a bulge in my main nerve. Um, there’s, just lately, so many diagnoses that I have been coming up...my weight, my, my life style, my health has gone, has just plummeted...You know, the stress, the inability to sleep. At this point I can’t even do housework for 15 minutes without severe pain. (And with) the agoraphobia, you know, not being able get out there and walk or do any kind of exercise.

Self-mutilation. Two women also mentioned self-mutilation as a consequence of stress and difficulty. Parker, 20 years old, showed her extremely scarred forearms and said that her cutting began as a teenager battling depression. For Gina, 29 years old, it began during her extremely violent marriage as a way to try to control the violence. Gina also described putting her hand through a window for similar reasons, noting, “And I had to get lots of stitches. I got a lot of attention from him for that. He was really worried.”

Gina, who noted that she suffered from low self esteem and was “really hard on myself,” talked about how cutting herself stopped the violence, but only temporarily.

And I guess I wanted him to come home and be concerned about me, instead of hitting me. So I thought maybe that if I cut myself that he wouldn't hurt me, and that he would... take on that—you know—caring... And then it worked for a while... Then I stopped when it wasn't working anymore.

As previously noted, Gina had been required by Oregon DHS to undergo Dialectical Behavioral Therapy to regain custody of her children. While she had to go to court to fight for DHS to pay for this expensive treatment, she said it had helped her immensely in terms of dealing with her PTSD symptoms and processing her stress in ways that were less harmful to her health.

Theme: Stressors Intersect in Complex Ways

The various stressors in vulnerable, low income mothers' lives—low socioeconomic status, housing, unfair treatment due to race, ethnicity, or other factors, violence and trauma, depression and PTSD, and addiction-- intersect in complex ways. Some women had more stressors to manage than others; however, the intersectionality of

multiple stressors was evident in every woman's story. As Dominga stated, "When it comes to stress, you can't separate out things—it's all bottled up together, in one thing. It's not in separate things."

Socioeconomic status. Among this primarily low-income sample of women, financial strain was perhaps the first and most commonly cited stressor—and nearly every mother reported it was her most significant one. Although 40% of these mothers ($n = 10$) had at least some college education or a certification (e.g., medical assisting), half reported annual income under \$16,000 (including cash welfare benefits and food stamps), and well over half (62.5%) fell below 2007 federal poverty guidelines. On the subjective measure of socioeconomic status, the socioeconomic ladder, possible scores range from 0-10, with higher scores reflecting higher perceived socioeconomic status. Mothers in this study placed themselves in relatively low positions on the SES ladders, with a mean score of 3.75 ($SD 1.94$) on the SES ladder (See Table 3).

Financial strain was felt on a daily basis by most of these mothers. Women reported difficulty paying their bills, making rent, maintaining vehicles, and having enough to eat. Most reported that they take primary responsibility for the family budget and the task of sending out the bills, and spend a great deal of time worrying about making ends meet.

There's just stuff that I worry about a lot. Like, go through the bills and look at them a lot, make sure we have the money for everything, and constantly checking it. (Ophelia, age 18).

The bills are stacking up the electric bill, the water bill. The gas bill. I send them out, they're all in my name -- I'm the person that finds help if we can't pay them. (Naomi, age 19).

Naomi expressed a feeling of being worn down over time by money problems that never go away, describing it as a grind and adding:

I keep saying, it's going to get better. We'll move and we won't have to worry about the money and we won't have to worry about this and that. I'll graduate, and... I have hope, but it never seems to get better. It seems like it happens every month. I guess we have the same problem every month.

Table 3. Socioeconomic Status of Women Participants

	Mean	(SD)	Range
Education completed (years)	12.88	(2.11)	10-20
<u>SES Ladders</u>			
Community Standing	5.50	(2.15)	1-9
Socioeconomic Ladder	3.75	(1.94)	1-8
		%	N
Gross annual income			
<\$5K	16.7		4
\$5K-11,999	12.5		3
\$12K-15,999	20.8		5
\$16K-24,999	8.3		4
\$25K-34,999	20.8		5
\$35K-49,999	8.3		2
\$75K-99,999	4.2		1
Don't know income	8.3		2
Below FPG ¹	62.5		15

¹. Federal Poverty Guidelines for 2007 (United States Department of Health & Human Services, 2008). Calculation of sample poverty rates based on reported family size and estimate includes income from benefits (e.g., TANF, food stamps).

SES and the family. Women's socioeconomic status was felt in the context of their family relationships. Women's partners often felt as much, or more stress, about money

than the women themselves, and many mothers noted this placed great strain on their relationship, particularly when she was not able to contribute financially.

Benefits were often minimal or absent for women who were partnered. Sadie's former partner did not live with her but she had initially put his name on the lease due to her poor rental history and legal issues. Unfortunately, while this enabled her to get into stable housing, it simultaneously cut her out of many benefits because she appeared to live with him. Casey was extremely financially stressed, but was also unable to qualify for benefits or even health insurance through Oregon DHS because she resided with her partner, and his income was too high even the majority of his income was absorbed by rent and child support payments. She was tempted to lie about her relationship to get the help she needed:

We can't -- we can't get *anything* ... I've applied, I've applied, and have been, I guess, legally correct would be the right way to do it...but I'm really getting to the point of -- we struggle every month... to the point where, I really think I should go in and say 'I'm a single mom, no, nobody is supporting me, I'm going to lose my housing.'

However, as a recovering addict, Casey was bothered by dishonesty, and felt she also risked losing the support of her recovery community if she lied. She felt powerless and trapped between her values and sobriety and her financial situation, and continued to struggle each month.

Caring for children added not only financial burdens, but also a sense of precariousness and far greater consequences of not having enough. As Iris said, "I can care less about myself as far as what I have... I want my children to have what they need." Michelle noted while holding her 10-day-old infant: "It is just being able to take

care of him. Just being able to make sure that he is taken care of, in every aspect. That's the most stressful.”

Working, not working, and wanting to work. Employment was a significant factor in women's socioeconomic status. Only two of these mothers were currently employed outside the home (three others were students). These stay-at-home mothers survived on a partner's paycheck or the minimal benefits (TANF, food stamps, child's SSI, or TA-DVS) they received. Many employed creative strategies to make ends meet (self-employment from home, financial aid through school, living with family, panhandling, and in one case, unspecified illegal activities).

Childcare problems. Childcare was financially out of reach for many mothers, and some had other barriers, e.g., a breastfed baby that would not take bottles. Wendy, 23 years old, and Casey reported that their young daughters refused to be left with or even held by other people. In addition, most women valued being stay-at-home mothers, and disliked leaving their children, especially when they are very small. Ophelia reported she was constantly worried about money, but was tightly bonded to her six-week-old baby. She was troubled by the thought of leaving her, stating,

It would just be very difficult, because I'm so close with her. It would just be very hard to separate, and to leave her with someone else. Even with family. It's hard for me just to leave her for an hour.

For some women, childhood traumas further added to the reluctance to trust their children with others. For example, Kathleen noted that she had never left her toddler with anyone, due to her own negative experiences of being left with abusive adults. Iris shared that she had a very difficult childhood that produced a great reluctance to trust anyone, and what she considered her greatest stress: “my own anxieties and insecurities and

trying to keep my children safe.” The thought of leaving her children in childcare was distressing to her, as it triggered memories of her own trauma history:

Since I was 2 years old, I was abused, so I worry about everyone that my children come in contact with, mainly men. It’s so difficult for me to trust anybody if they’re not in my hands, I don’t know that they’re safe, I don’t know that they are not being abused in some way.

Internal conflicts about work. However, reluctance to leave their children with others often collided with a strong need and desire to work or attend school, particularly in the context of such significant financial distress. Many participants saw work and education as a way to improve their own difficult situations, and were not stay-at-home mothers entirely by choice. Despite Iris’ issues with childcare, she felt her life would be better if she could work. Casey longed to return to work, and at times struggled with resentment towards her new life as a mother, noting, “You know, the hardest thing has been to watch my significant other get this new job, and it seems like his life has moved forward and mine has not. Mine just stopped.”

Several mothers remarked that becoming dependent upon their partners for support was also a new and uncomfortable position. Kathleen described how her boyfriend supported them both financially after she was fired one week after disclosing her pregnancy to her supervisor.

I had mixed feelings. Because it felt like I wasn't giving -- I've never been taken care of by somebody else, besides my parents. I'm a very independent person. It killed me almost—it killed me. And like, I wouldn't take money from him.

She emphasized that she was happy to be pregnant but the life change was “a huge shocker—because I went from an average life, and working, and going out with friends and socializing, to nothing... the loneliness, and all that, kind of killed me.”

Kathleen subsequently became so depressed she found it difficult to eat and lost “a ton of weight” until her physician remarked upon it at a prenatal visit. She realized her eating issues might be affecting her unborn baby. She said, “As soon as he said that, I thought, oh my God. I have a baby in me. You know, back on track.”

Family conflicts about work. Along with the discomfort women felt with being financially dependent, if their partners were also dissatisfied with the arrangement, or with their own jobs, family conflict was increased. Wendy felt that if her husband could only find work he liked and could stick with, their lives would improve tremendously. Rachel (34 years old), knew that her husband hated his job and resented that she stayed home with their three very young children. It is not surprising that finances and his work were frequent flash points.

He’s just, angry, tired, depressed. Drinks a lot of beer, smokes a lot of pot. Hard to get along with... You know, there’s some days where he’s like, ‘I’m going to do this, I’m going to open up a tile shop,’ etcetera, and there’s days where he says, ‘you know, why should I bother, everything I touch turns to shit, and I can’t do anything, I can’t go to school, how can I go to school and work full time, and I have to work, because you’re not.’

Rachel wanted to contribute financially and to decrease the amount of stress in the household. However, with three children under four years old, Rachel knew that no job she could get would cover the cost of childcare. She worked from home selling body-care products but found that conflicts with her spouse escalated if she had work events that took place in the evening and required him to watch the children. Rachel tried to manage the household tension by having the house clean and dinner waiting when her husband arrived home from work, yet this was not always effective, and they continued to argue about her lack of employment.

Multiple barriers to work. Like Rachel, many women wanted to work, but faced multiple, and often overlapping, barriers to employment. In addition to childcare issues, another barrier was a dearth of good jobs at good wages (for them and for their partners). Michelle and her partner struggled even when both worked, and despite living with his grandmother. She said, “Both of us are young and we don't have a whole lot of work experience or high education. So what we get is not that great of pay.” She worked full time up to the day before her scheduled Caesarean, first in a supermarket collecting grocery carts and working the bottle return, and then as a home caregiver. She found these jobs stressful, as the supermarket job involved heavy lifting, and care-giving involved six days a week caring for a difficult and moody disabled woman who was unpredictably “snappy,” shoplifted when she took her to the store, and chain-smoked in the house. Michelle did not have paid time off. Although her baby was only ten days old and she was still recovering from the delivery, she said:

I'm worried about finding another job. Another job that gives me the income that I had before, because now I need it more than ever... Always in the back of my mind, okay, got to get going. Got to make a call.

However, now that their baby was born, childcare (which she could not afford) added another layer of complication.

Lisette's options for work were limited due to homelessness and her advancing pregnancy. Lisette, who had lived in a tent for a month earlier in her pregnancy, said,

It's just been hard getting a job, because like I never know where I'm going to be. (And) if they want to hire me for like the next month and a half, I could work, but I'd be like, trained, and then I'd have to leave.

With little family support, she turned to panhandling for cash in the median of a busy street, which kept her income above the poverty level, but shamed her. She described what it felt like to step out onto the curb with a sign asking for money.

At first I did not want to go out there. But just like, I have to... And I think that people give me money but don't normally give money to people panhandling, because... I think a lot of people don't even want to give me money. But then they see that I'm pregnant, and like, they're like, 'here'. And they don't want to, but they feel like they have to. Which is bad, but... it's just kind of a way to make money fast.

Casey's baby would not take a bottle and was difficult to leave with anyone; further, she could not have afforded childcare and was ineligible for a childcare subsidy from Oregon DHS. An ex-addict, her past work history and criminal record made it difficult for her to navigate job interviews. She described the difficulties and frustration she had faced in job interviews based upon her past history, concluding, "You know, I just want go to work and do my job."

Iris was intelligent, articulate, and educated. She had previously worked as a medical assistant but her mental health issues (which followed a brutal gang rape) kept her confined to her home. Iris said,

And every day I fight with that because I want to be out there making a living and having a better life but, because of my trauma and everything that's keeping me, keeping me to be a hermit. I can't make myself get out there but yet I want to.

Like Iris, Gina was a currently unemployed medical assistant. She had taken great pride in her work, and longed to find a good job so that she could move herself and her children from transitional housing. Gina had experienced severe intimate partner violence at the hands of her incarcerated spouse and her work history had been poor because of the abuser interfering with her ability to work. She knew she looked bad on paper, and that

potential employers viewed her dimly before they ever got to know her. Gina described what she called her “interview paralysis”:

Where like, I get in, and I don't know, I'm totally— <pausing> I'm like totally retarded... I don't know what to say. It's horrible! I just, you know. And they're going to ask me about my work history. And how am I going to explain that?

She had recently taken an unpaid internship in a physician's office, hoping to prove that she could be a good employee and gain a good reference, but only had four months before she was due to deliver her third child.

Unfair treatment. On the DAS-DQ (Discrimination Questionnaire), respondents were asked about lifetime discrimination they have experienced in housing or employment, discouragement from a teacher or advisor, and harassment by police. Then, they were asked about incidents of day-to-day unfair treatment (such as being treated less respectfully than others in public). They were also asked to what they attributed incidents of unfair treatment. Women reported unfair treatment based upon various social bases. Pregnancy or being a mother, social class, and for some women, race, ethnicity, physical appearance, or addiction history were sources of unfair treatment.

Mothers in this study discussed unfair treatment most frequently in the context of talking about working and employment practices. On the DAS-DQ over half reported they had been unfairly fired or not promoted, and nearly half had been unfairly not hired for a job (see Table 4).

Only one racial or ethnic minority woman reported employment discrimination related to her minority status. Women most commonly reported that they believed they had been unfairly fired or not promoted because they were pregnant, or because they were mothers. Related to these experiences, some felt they had to be especially careful

about when and how to reveal their pregnancies to supervisors and co-workers. Michelle only revealed her pregnancy at work when it was no longer possible to hide it. Iris and Kathleen had both been fired when their employers learned of their pregnancies. Iris was devastated when she was fired. She said,

After that, um, I went downhill medically, um, just staying at home, you know. Feeling like I can't get out there any more, nobody's gonna hire me... I was putting 120% into that job wanting to make the biggest impact, and be the best possible.

Kathleen worked in a nursing home job that she loved. She revealed her pregnancy early, and was astonished at being fired almost immediately thereafter:

I came into work one day, and I've been having morning sickness really bad, I was a month and a half pregnant, maybe two months. And I got called into his office, the boss... And I had told him the week before that I was pregnant. And he congratulated me, and that's all that was said. And he was like, well, it's not working out... And that's all he would give me... (and) I just wasn't in my right mind, I don't know. I just didn't want to deal with it. I just wanted to forget about it. I was so sad... I didn't want to eat, because I felt kind of depressed.

Kathleen wanted to work and tried unsuccessfully to secure another job, but as she put it, she was “sick, and sad.” She added, “Who wants to hire a pregnant woman? I mean, really.” Other women (such as Lisette, who turned to panhandling in pregnancy) believed that potential employers would not hire them if they knew they were pregnant. Likewise, women reported that being a mother of young children can also be a liability in prospective employers' eyes. Iris felt singled out for mistreatment in a job interview when a potential employer grilled her about her childcare arrangements:

Yeah, they asked me, ‘what do you have as far as backups? Do you have a backup to your backup?’ Like, I have one person to watch my kids. I don't trust a lot of people. How am I going to have a backup to my

backup? Come on...*who* has three people waiting on the sidelines to watch their kids, if they were to need them?

Table 4. Experiences of employment discrimination as reported on DAS-DQ.

	%	<i>N</i>
Ever unfairly fired or not promoted	58.3	14
If yes, reasons why unfairly fired/not promoted ¹		
Being pregnant or having children	35.7	5
Gender	21.4	3
Criminal or addiction history	14.3	2
Don't know why	14.3	2
Physical appearance/size	14.3	2
Ethnicity or race	7.1	1
Ever not hired for a job for unfair reasons	41.6	10
If yes, reasons why unfairly not hired		
Criminal or addiction history	40.0	4
Don't know	20.0	2
Physical appearance (weight, broken teeth)	20.0	2
Age (too young)	10.0	1
Being pregnant or having children	10.0	1

1. Percentages are among those endorsing these items positively. Percentages may not sum to 100% due to rounding, and because participants could endorse >1 reason for unfair treatment.

Unfair treatment due to race. In general, women in the sample who were racial or ethnic minorities reported unfair treatment due to race most commonly in the context of being unfairly searched, stopped, or harassed by the police. Dominga had experienced some episodes of discrimination that she attributed to race and which were upsetting to her. She reported that a teacher had discouraged her from continuing her education (she was the lone participant who reported such discouragement). She also noted that the police stopped her and her friends frequently. She felt that this was primarily because the police were unfairly singling out her friends (young, male, Latino), and stereotyping them

as “gang bangers.” In one instance, a police officer put a gun to her friends’ head. She said, “I wasn’t there when that happened, but it bothered me.”

Talise, who was Native American, thought the police had harassed her unfairly in the past. She attributed this to her status as a minority woman, and to the fact that she was known to the police as an addict. However, she expressed that their attention was not completely unjustified and added that it did not upset her much, particularly as it was in the past. Beatriz reported that, although she was sometimes treated poorly because she was a Latina, she was most frequently dismissed or discriminated against when she was dressed “in sweatpants and a T-shirt,” struggling to manage three children in public. She concluded she gave the impression that she was a “single welfare mom.”

In terms of housing discrimination, one woman felt that racial discrimination had prevented her from being able to move into a neighborhood. Two Latinas felt that discrimination based on ethnicity had led to conflicts with neighbors. Minority status was not endorsed by any mother as a reason for day-to-day mistreatment (e.g., treated with less courtesy or respect than others, people act as if you are dishonest or not smart) (see Table 5). Interestingly, Dominga, who had reported some major acts of discrimination based on her ethnicity on the DAS-DQ, also reported some experiences of day-to-day discrimination. However, she attributed these not to her Latina identity but to mistreatment based on her size, her age, and perceptions of her as low income.

Internalizing Unfair Treatment. Unfair treatment attributed to any social basis was an insidious stressor, both in terms of its direct effects, and how easy it was for women to internalize. Talise described the impact of being treated unfairly eloquently:

I’m an emotional person. I’m a woman, I’m emotional! I’m an emotional creature! So I take things personally. And just that, just the thought of, um,

being overwhelmed with stress, and then to think that, um, someone is judging me...Makes the stress even more intense... you don't have to be an addict to feel like you can't disclose anything to anybody. But um, we spend so much time judging ourselves, and being insecure about the things that we think are wrong about our bodies, about how we think, about comparison to everything else. That it's really hard to open up, and take that first step and initiate conversation. Because you're so afraid of what that person is thinking about you.

Like Gina, Iris responded to being judged by potential employers with a kind of "interview paralysis" that exacerbated her difficulties:

You get more stressed out, because you, you assume that everywhere you go, at every interview you go to, at any job you go to, they're going to have the same ideals, they're gonna say the same things or if they don't say them they're gonna be thinking them. So you're more stressed out, you're thinking you know how am I going to lie, what can I say that will make it OK? How can I get this job and keep this job without those stressors?

Unfair treatment based on socioeconomic status "got under the skin" as well.

Although social benefits (e.g., TANF, food stamps) were meager to the degree that they failed to raise these mothers above federal poverty guidelines, most were reluctant to agree that their benefits should be increased. Further, some expressed the opinion that other women would take advantage of "the system" if they had the chance, or if benefits were more generous. Mothers were often sensitive to the perceptions of others that they are poor, on welfare, or taking advantage of "the system."

Michelle, like many mothers in this study, found using her WIC vouchers particularly difficult because of poor treatment by cashiers and people in line at the grocery store. She attributed this treatment to perceptions that she was poor and "on welfare", and believed it was exacerbated by her young appearance.

The only time I felt affected by it, that I felt bad about it, was like, when I would use my WIC. What I'd have to go use my WIC at stores is that the cashiers would just be, they'd be rude. It wasn't like I was on welfare and

a crackhead—I was pregnant and getting food. You know. Making a healthy baby. And so, that was really the only time it ever got me. I'd walk out of the store without getting anything, just because they were so rude. It was just not good. I would walk out of the store crying. And then he'd <partner> get mad because here I was crying.

Michelle provided an example of how such unfair treatment reinforced her low socioeconomic status. Although extremely worried about finances, Michelle said she would never apply for food stamps or TANF because she could not face more of the kind of treatment she experienced at the grocery store when using her WIC vouchers. Other mothers, however, noted that using food stamps (with the Oregon Trail card) at the grocery store felt considerably more discreet and less embarrassing than redeeming WIC vouchers.

Naomi, newly clean from methamphetamine in her current pregnancy, visited a clinic that uses an electronic medical record, with a monitor in each exam room. Each visit was a reminder of her identity in the providers' eyes, first and foremost, as an addict:

The first thing that pops up in the hospital, like when I go to the doctor's appointment, because I did methamphetamines. Like this little box that pops up on the computer screen, and then they close it up.

Naomi described this as “triggering,” adding, “It's like I am doing fine, and I forget about it, and then that makes me think about it.” She felt a sense of hopelessness about escaping the stigma of her addiction and felt that being continuously labeled set her up for failure. She was convinced that no matter what she did, DHS would become involved in her life again when she delivered her second baby, saying, “Because, um, like I'll never change. If I go into the hospital thinking that they are going to call DHS on me

automatically, then it is out of my control.” This made it difficult for her to feel like she was accomplishing much by staying clean.

Sadie, 27 years old, was much further in her recovery than Naomi but she too recognized that internalized unfair treatment based on her addiction history had served as a barrier to getting and staying clean. She said, in fact, that her internalization of such treatment was even more significant of a barrier to staying clean than the actual treatment itself:

I made it a bigger factor than anyone else did. Because who would want to rent, or who would want to hire, or who would want to teach a drug addict? Because that’s how I was in my eyes. That a lot unfair treatment came from me, in that sense, I was putting that barrier up myself. treating myself unfairly... if I have it in my head that, um, that addict thinking, that, ‘I’m an addict, that’s all I’m going to be’, ‘nobody wants to teach an addict, because there’s no hope’, nobody wants to give them a home because there’s risk, nobody wants to hire them because there’s liability.

Sadie learned to identify this internalized thinking and to address it so that it would not reinforce her desire to use drugs, what she described as the train of thought that went, “Why should I get clean? I’m an addict.”

Acceptance: Overcoming Internalized Unfair Treatment. Women in recovery from addiction had the most complex and intersecting set of difficulties to deal with. They had to figure out how to remain clean and sober, deal with financial difficulties, process extensive trauma histories, manage severe mental health symptoms, and mother their children through their own difficulties. In addition, they often had to navigate barriers to housing and employment based upon their past mistakes. Sadie’s description was typical: “I got out of treatment and moved into a transitional house, which I was applying for housing...and all these different places, a lot of them didn’t, um, accept me because I was an addict.”

The women varied in how they perceived barriers in employment and housing related to their addiction and criminal history. All saw them as representing unfair treatment and endorsed them as such on the DAS-DQ discrimination questionnaire. Yet Sadie and Talise, in particular, discussed how they worked to view such things with what Sadie called acceptance. She said:

I know what I've done, and I know what I'm labeled as...But if I wasn't a methamphetamine addict that got clean, I wouldn't be where I am today. I wouldn't be in the line of study that I am in, I would be in, you know, a totally different life. I would be in a different life. I believe that the path of addiction is where I was supposed to go. And you know, I'm on the straight path again. And because of that addiction, I'm where I am today... Everything happens for a reason.

Housing and Homelessness

Questions about stress related to housing were not part of the original qualitative questions (see Appendix E). However, lay advisors recommended adding questions about housing, and this was an important difficulty for many of mothers. In many cases, women's financial struggles and barriers to employment tended to keep them in unstable housing and/or living situations they did not want to be in. Most of the women resided in their own housing (i.e., a house or apartment where they paid rent or part of the rent). However, many of the women were, or had been, marginally housed (e.g., lived with family, lived in a vehicle or travel trailer) and/or homeless at some point in the past—either as adults, or when they were themselves children. This past instability influenced their thinking and decision-making a great deal. Beatriz, 35 years old, had lived in an abandoned house with her children while eight months pregnant. She decided to give the baby up, and was given deposit and rent money by the adoption agency, and so was able to move into an apartment just before the baby was born. This financial support

disappeared when her incarcerated and abusive former husband refused to allow the adoption to go through. Beatriz had become a volunteer activist for homeless families since she moved into subsidized housing. She noted the change in her children since they had regained housing stability, and added, simply, “I never want to be in that position again with my children, and I will do what it takes to make sure I never have to be.”

Lisette was currently homeless and five months pregnant. She found that pregnancy led to her crave stability and made living in tents or cars less bearable. She commented:

I like having my stuff. I don't know, I just like having my own place. Especially since I was pregnant, and I felt, like, nesting. I just wanted to relax, and kind of be pregnant and relax.

Lisette had left her parents' home with her partner, when her parents began bitterly fighting. She wanted to leave the streets and return home to give birth, but this required her to mediate conflict between her controlling and jealous partner and her parents, and figure out “how to keep them apart...And I want them all together.”

Marginally housed. For the approximately one-third of mothers in the sample who resided in cramped accommodations with their parents and/or other extended family members (e.g., aunt, grandfather, younger siblings, partner's family), there were sometimes benefits to these arrangements that went beyond the financial. Michelle got a great deal of advice and support from her partners' grandmother, with whom the young couple lived: “His grandma is just excellent. She'll surprise me one day and just give me a kiss and tell me how good of a mom I'm being. You know. How proud of me she is, you know.” Wendy, also a new mother, said,

I kind of like living with my mom and being there for her... And I kind of like to have my baby here for her to see. Cause I know she really makes

her happy...It's her first grandchild. And I, I love to live with my parents, because I mean I love my mom so much, and I like to spend time with my little brother, and all the animals that I love.

Yet both of these young mothers stated that if they could afford to move out of these family living arrangements, they would. They craved privacy and space. Wendy lived with her mother, stepfather, 12-year-old brother, grandfather, husband, and infant in a very small house, and Wendy's mother and her husband did not care for each other. Wendy recognized that her mother was extremely stressed at times and tried to protect her, saying, "I want to try and help as much as possible and uh, I try to let her, like I try to talk with just her and me." She felt partially responsible for her mother's stress: "I kind of feel like I kind of put her in a spot, but she tells that, she's fine with me being here...And she doesn't want me to be homeless."

Vivian and her jealous and controlling husband could not afford to move from her parents' house. This was exacerbated when she was fired from her most recent job at a daycare center (in retaliation, she believed, for using the childcare benefit for her own infant). She was very unhappy with her living arrangement, in part because she wanted her own space, and in part because her father was also verbally abusive to her—therefore she had no refuge in her personal life from mistreatment. Describing her relationship with her father, Vivian sighed and said quietly, "I can never do anything right."

Women who were currently housed in their own apartments still had difficulties related to housing. The financial burdens were tremendous, and even women who were above federal poverty guidelines still typically saw a majority of their income going to housing. Many mothers expressed a desire to move to concerns about their current living situation, such as Ophelia who described her apartment's carpet as too dirty to put a baby down on.

Kathleen refused to leave her apartment at night because of shootings and stabbings in the area.

Addiction, criminal histories, and housing. Addiction histories and criminal histories were layered on top of financial strain and intimately intertwined with housing stability for women in recovery. Each of the five mothers who were recovering addicts also had criminal histories, which presented barriers to housing stability. Naomi and her partner, both with substance abuse issues, had moved into an overpriced and cramped rental home on a busy street following an eviction, as it was the only place they could get. However, they were faced with moving again, as they were unable to make the rent.

Casey noted,

I have a couple of felonies and people will say yes, if you've gotten a felony in the last seven years we won't take you. Without looking, you know, possibly looking more into it and being more open minded. Because you know a lot of people make mistakes.

Sadie, also a recovering addict, had faced similar barriers, and had worked hard to obtain her current housing, a subsidized HAP apartment. She could see the landlords' point of view:

I'd be like---and I know you aren't supposed to do that, it's against the law---but I'd be like, 'we don't have any openings.' Because...there's a high rate of relapse. And with relapse comes violence, comes um, I mean, cockroaches, comes filth, comes, I mean everything.

Interpersonal violence and housing. In addition to concerns about community violence, interpersonal violence and its sequelae (trauma-related mental health issues, financial and employment barriers, and others) impacted women's housing. Current violence was layered on top of financial strain and a history of addiction and criminal problems for Sadie, whose Danger Assessment score was 7, suggesting increased risk of

repeat violence. She expressed concerns about her safety as she ended her relationship with her current partner—a man who was struggling to stay clean and sober and was depressed, controlling, jealous, suicidal, and was stalking her. She believed he was capable of killing her, and she recognized that her level of risk was elevated by the breakup. However, because her housing stability had been so hard-won in the face of her addiction and criminal history past, she felt she had a great deal to lose if she tried to relocate. She said, “And besides that, where would I go? It took me a long time to get where I’m at.” She also noted that she was “tired of running” from her problems, and that getting clean meant staying put and dealing with one’s problems in a healthy way. However, she added that if she had the financial means, “I’d already be gone.”

Gina became homeless as a result of severe abuse from her husband, a violent and unpredictable methamphetamine addict who “kicked my ass everyday”. She left him and moved into a domestic violence shelter, and was currently residing in a transitional housing facility with her two sons (age 4 and 2), who had just been returned to her after two years in state custody (having been removed as a consequence of the ongoing violence). All three resided in a 14 by 8 foot room stuffed with a bed, a crib, and dressers and stacked to the ceiling with boxes. The facility had a communally shared kitchen, bathroom, laundry, showers, and TV room.

Gina felt unsafe in the facility and kept her children confined to the room as much as possible. She described homeless men “in and out,” two recent overdose deaths, and violent fights between residents. Of the fighting, she said, “I was scared to come home. It was just like being in a domestic violence situation because I never knew what I was going to walk into when I got off that elevator.” Another resident had recently suffered a

psychotic episode. For weeks, this resident carried a pair of scissors with her everywhere. She was finally removed after punching another resident in the face, who was holding her baby while they were in the elevator together.

PTSD and housing. These incidents triggered Gina's severe PTSD. Her Posttraumatic Stress Checklist (PCL) score was 64, the second highest in the sample. She longed to find permanent and stable housing. She said,

I'm on all the waiting lists, I network with people all of the time. You know, it's like, there's just nothing out there! And where am I going to go to? Another shelter? It's going to be the same situation as it is here.

Living on \$528 a month in TANF (of which \$350 went for rent) she could barely cover her cell phone bill, let alone save deposit money for an apartment of her own. Gina felt she was caught in a cycle she could not break, adding,

And also... I have evictions from him spending all of our rent money on dope, and him blowing the money out of me, when I'm holding the money trying to pay rent. So now I have two apartments that were in my name that are evictions... (And) I filed bankruptcy in 2006. And now I am slowly starting to get more debt building up. With medical bills, and old phone bills, and my bank account is overdrawn.

Iris lived in a ground-floor apartment in a low-income part of town. She had called the police when her upstairs neighbor was beating his wife (who later returned to tearfully thank Iris for calling). This neighbor had subsequently targeted Iris for harassment (i.e., screaming into her windows, name-calling, banging on her door). Iris had an extensive trauma history and, with a PCL score of 74, the highest level of PTSD symptoms of any woman in the study. Overhearing noise and conflicts around the apartment complex had been extremely triggering for Iris. She described her panic in the middle of the night:

I can hear people outside...across the way they have arguments all the time and it inevitably comes outside and they just yell at each other back and forth, back and forth saying all kinds of terrible things. And I hear them get into scuffles and it really-- I can't sleep at all. It makes want me want to bring everybody in here and put them on the couch and, you know, to where I feel more secure-- like I know something's not going to come through my window.

Similarly, listening to the violence in the apartment above was extremely triggering for Iris as well. However, the direct, personal, and ongoing retaliation from her neighbor was far worse. She reported,

I would have dreams and thoughts that he might come in the window, or shoot in the window— or you know, he'll find the easiest way to get in. I had a dream of him coming down off the balcony upstairs and shooting me. And uh, it made, he made my life—that was already difficult— very, a lot more difficult.

Iris longed to live someplace safe, and quiet with her children, where her PTSD would not be constantly triggered: “I want to be secluded, you know, and I can't do that. I have to be surrounded by all these people, and all these different lives are happening around me.” However, she subsisted on less than \$5,000 a year, and like many of the mothers in the sample, she had no real options for relocation.

Violence. Violent exposures were high in the sample, including both violence witnessed and that directly experienced by women (Table 6). Women in particular reported substantial exposures to past and current intimate partner violence, attacks or threats with a weapon, sexual assault, molestation or rape.

Table 5. Lifetime exposures to violence as reported on the MyETV measure.

Witnessing Violence	%	<i>N</i>
Seen someone hit, slapped, punched, beaten up	70.8	17
Seen someone chased	45.8	11
Seen someone seriously threatened (e.g., w/ weapon)	45.8	11
Seen someone attacked with a weapon	33.3	1
Seen someone get shot AT	16.7	4
Seen someone killed as result of violence	8.3	2
Seen someone get shot	4.2	1
Violent Victimization		
Been hit, slapped, punched, beaten up	75.0	18
Chased, not caught, thought you could really get hurt	66.7	16
Been seriously threatened (e.g., w/ weapon)	58.3	14
Been sexually assaulted, molested, or raped	54.5	13
Been attacked with a weapon ¹	37.5	9
Been shot AT	12.5	3
Been shot	4.2	1

¹. Women reported being attacked with: gun, knife, bottle, coffee table, tricycle.

Current intimate partner violence. Four mothers reported current or past-year intimate partner violence (IPV). Three identified emotional abuse and controlling behavior from their current partner. A fourth woman, currently pregnant in the third trimester, disclosed current physical abuse, which included increasing past-year violence (including during pregnancy) and choking. Two had accessed formal resources for the violence. Three other mothers did not disclose IPV, but had Danger Assessment (DA) scores between 9 and 11. Possible DA scores using the weighted scoring algorithm range from zero to 38, with increasing scores indicating higher risk of repeat violence and lethality. The mean DA scores (for the entire sample) using the weighted algorithm were 4.45 (*SD* 5.18), with a range of zero to 18.

Una had previously experienced violence in her current relationship, and was planning to leave her partner two years earlier, until she discovered she was pregnant. However, she had experienced severe IPV in previous relationships and was reluctant to call the violence in her current relationship “abuse” since she fought back. She said, “I mean, he’s just, he’s very um, loud... we have fought in the past, I mean we have fought we’ve both been.... Um, the last fight, like physical fight, I was actually the aggressor.”

At eight months pregnant, Naomi had a DA score of 18. Items she endorsed on the DA included: physical violence increasing over the past year, partner unemployed, abuses drugs and alcohol, beaten during pregnancy, strangulation, had left her over the past year (but since returned), controlling behavior, and partner owns a gun. Naomi knew that her boyfriend had other women, and felt he did not love her. However, she felt that having him there for the children was a priority. She observed, “He’s like a real good dad, he’s just not a good boyfriend.” Additionally, because of her previous CSD involvement

and addiction, he was the custodial parent—therefore leaving him would have meant leaving her son.

Past intimate partner violence. In qualitative interviews, ten (41.5%) reported being a violent relationship previously. In several cases, this violence was severe. Rachel served her first husband with a restraining order and believed he was on his way to kill her when he was arrested; he hung himself in his jail cell. Una reported that a past partner tried to run her over with a car. Gina and Alta both experienced violence at the hands of their first partners, in adolescence. Alta (29 years old) reported that the violence was extreme and she endured a forced abortion that still haunted her years later.

Sadie described the extreme isolation and violence in her previous marriage, which she never disclosed to health care providers at the time:

Super isolated. Met him, was abused every single day. Got married, got pregnant, called my mom up two months pregnant, said I want to go home. He said, you're not going home... And I didn't have, I didn't have anybody.

Other violent exposures: Sexual assault, molestation, and rape. Over half the mothers reported lifetime experiences of sexual assault, molestation, and/or rape on the MyETV exposure to violence. Of note, among women who endorsed this item, five reported more than ten incidents. Several mothers commented, “It’s more than I could count.” Wendy and Rachel were both raped in adolescence, having never previously had intercourse. None of the participants reported that their intimate partners had forced them to have sex in the past year on the Danger Assessment.

Iris, who had the highest number and severity of PTSD symptoms in the sample, reported a lifetime of abuse and violence, including severe physical and sexual abuse in childhood, IPV, and most recently a gang rape, which resulted in a pregnancy and the

birth of her youngest child. Iris talked about the impact of sexual abuse she endured as a child:

Changing a diaper is a problem for me, in the way that every time my child is naked in front of me, it sends me back to when I was little. I would never-- I was scared from the time I knew how to dress myself. I would never go anywhere near naked, because of feeling like I had to protect myself.

Iris described pregnancy as the worst and most stressful time for her. She felt completely alone, and grappled with mixed emotions throughout—trying to connect with her unborn baby through a thick veil of traumatic memories and PTSD symptoms.

The first time I felt <child> kick, I, I remember being so happy and so connected and you know feel so good that I have a life inside of me... And the first time I felt her kick it just brought back, all these thoughts of you know, you know what is she gonna look like, is she gonna, you know, um, how am I going to deal with this object--you know, of basically of the whole time it was just a constant... a reminder of what happened. And if I was going to ever be able to connect with her... Um, I mean during the pregnancy I didn't sleep hardly at all...just stress. My mind going crazy.

Witnessing violence. Of note, just under 1 in 3 (29.2%) mothers mentioned in qualitative interviews that they had witnessed IPV as children. Dominga felt that both witnessing and experiencing violence had lasting effects and was important to health. She said, “That stuff doesn’t go away either. Even though you pretend it does. You pretend to forget about it, or you try to forget about it, but it still hurts you. And it’s not going to go anywhere.”

Naomi had grown up in foster care because of witnessing IPV and her mother’s drug addiction. She tried to protect her son, and her partner’s son, from witnessing the severe violence in her relationship, knowing how much this disturbed her as a child:

I don't let them see us fight. When we fight, they don't see it. Like his son too. His son, when we would fight, he used to want to watch it. But I won't let him, I'll go in a room. I'll close the door.

Depression and PTSD

Symptoms of depression and posttraumatic stress disorder were highly prevalent in the sample, as demonstrated below in Table 7:

Table 6. Center for Epidemiologic Studies Depression Scale-Revised (CESD-R) and Posttraumatic Check List (PCL) scale scores.

CESD-R total scale score mean ¹	21.1 (<i>SD</i> 14.7), range 1-60
Distribution of total CESD-R scale scores:	
15 or less (below cut score)	45.8%
17-30	20.0%
30-60	16.7%
PCL total scale score mean ²	46.3 (<i>SD</i> 15.6), range 20-74
Distribution of total PCL scale scores:	
<30 (low PTSD symptoms)	16.7%
31-44 (moderate)	25.0%
45 or greater (severe)	58.3%

¹ Possible scores range from 0-60, with increasing scores indicating higher levels of past-week depressive symptoms. A cut score of 16 is typically used to indicate significant impairment related to depressive symptoms (Eaton et al., 2004).

² Possible scores range from 17-85, with increasing scores indicating higher levels of past-month PTSD symptomatology. PCL cut scores have varied from study to study, but a cut score of 45 has demonstrated excellent sensitivity (0.82) and specificity (0.76) in a ROC analysis with a sample of 1,225 women in a Seattle HMO. The scoring algorithm used was: score <30 =Low; 31-44 Moderate; 45 or greater=Severe PTSD symptoms (Walker et al., 2003).

Depression. Eleven women (45.8%) noted that they had been diagnosed with major depressive disorder at some point in their lives; eight had been diagnosed with posttraumatic stress disorder (or had it suggested as a possible diagnosis by a counselor or other mental health professional). One mother disclosed a diagnosis of anxiety disorder in addition to depression and PTSD, and another disclosed that she suffered from agoraphobia in addition to depression and PTSD. Many of the women (including those

without current high levels of depressive symptoms), noted that they have had them in the past, in some cases to severe degrees. Beatriz, who was currently on antidepressants, insisted on answering the questions for the CESD-R depression measure twice---once for how she felt now that she was medicated (score of 21—still above the cut score for depressive illness), and once to reflect the level of severe distress she felt in pregnancy, prior to being medicated for her depression (score of 46). She had not wanted to take antidepressants in pregnancy due to questions about the safety of such drugs in pregnancy. The majority of women reported that their depressive symptoms were about the same, or worse, during their most recent pregnancy (see Table 8).

Table 7. Depressive symptoms in previous pregnancy, compared to current symptoms.¹

	%	<i>N</i>
Less than current symptoms	12.5	3
About the same as current symptoms	12.5	3
More than current symptoms	33.3	8

¹ *n* = 14; Question was added to final version of survey based upon feedback from lay advisors (*n* = 8). Question omitted for two currently pregnant participants.

Like many women, Rachel noted that she has contended with depression off and on for most of her life, and as a teenager, she masked her depression with drugs and alcohol. Parker also noted, “I was really depressed as a teenager. And I’d tried to kill myself a few times.” Her suicide attempts included one attempt in which she swallowed 160 Nyquil cold pills with a bottle of wine. Fifteen percent reported lifetime prevalence of suicidal threats or attempts. Two women reported at least some past-week suicidal thoughts at the time of the interview. Iris, who had both significant and depressive

symptoms, reported daily suicidal thoughts. Her suicidality became most severe at night, as she tried unsuccessfully to fall asleep.

Both Rachel and Parker experienced postpartum depression after the birth of their first child. Rachel described her experiences as a nightmare:

I would wake up in the middle of the night and see her blood all over the walls. It was really scary; I was thinking about drowning her, about killing her. It was all I could do to get off the couch.

To seek care, she had to navigate not only a lack of health insurance, but her husband's resistance to her taking medications as well:

And he didn't want me to start them, but I was like, I need something. And so it was helpful. His response after I got off them was that it deadens all your emotions. Well, ok, but sometimes that can be a good thing.

Parker navigated even more significant problems in getting help for postpartum depression. She liked and trusted the family practice resident that cared for her during her first pregnancy and when she found herself feeling depressed after her delivery, she talked to her provider and was referred for help. However, a nurse reported her to Children's Protective Services. When she got the phone call from DHS, she felt like she had to do whatever they said:

They just said that because I reported being depressed, like, and that can make me unsafe... it seemed like a really bad thing to do on someone who seeks help, to like... They said I was voluntarily working with them, but I knew if told them I didn't want to work with them it would raise suspicions...And it makes it really hard for me to like--- like if that happened again, it's going to be really hard for me, I think, to seek help again. Because that was probably one of the most terrifying things to ever happen to me. I know that really--that increased my stress level even more than it was before. It just basically made everything worse.

PTSD. Iris, with a significant lifetime trauma history that included child abuse, IPV, and rape, had a very high PCL score of 74. She longed to give her

children “what I consider a wonderful childhood, you know, without the problems and stresses that I had when I was little... (But) I have to teach myself how to be a parent because I had nothing to learn from.” However, following her rape, Iris became so debilitated with agoraphobia that she was no longer able to leave her apartment even to take out the garbage. She would send her eleven-year-old daughter out with a whistle around her neck while she stood guard at the doorway. Iris also had a very high level of depressive symptoms, with a total CESD-R score of 60, the highest possible score. She experienced suicidal ideation frequently. Like Iris, most of the 19 women with PCL scores suggesting moderate or higher levels of PTSD symptoms also had CESD-R scores exceeding the cut score for significant symptoms.

PTSD and Motherhood. Women with high levels of PTSD symptoms were triggered by many environmental stressors, including talking about traumatic events or experiencing random reminders of them (e.g., sounds, smells, visual cues), being in public, loud noises or the sounds of conflict, or having a partner lean over them or move too quickly. Talise (PCL score 64) reported that just talking about what triggered her PTSD symptoms triggered her: “Just thinking about it right now, my hands are like sweaty.” Talise talked about the extra layer that being a mother added to PTSD symptoms:

When I was pregnant...People came up to me all the time, and tried to touch my belly. And I’ve slapped hands, and I’ve pushed people back, and I’ve held people at arm’s length. Yeah. And just talking about it now, thinking about it, I’m like, *<Puts hand on her chest and breathes deep, like she is feeling panicky>*.

Jackie described needing to have space to move and get away from people when she was pregnant with her first child. She wondered if her feelings were normal, or if they related to the trauma of an extremely violent event during her pregnancy.

I started to feel very vulnerable, even to the point where like I'd be in the grocery store and people would be crowding me and it would be really bother me. I'd feel like I'd lost my personal space.

Jackie realized during the interview that the feeling had not gone away in the nine months since she had given birth. Hefting her 20-pound son, she added,

You know, it's funny. We've used this wonderful stroller we bought 3 times because I don't feel the stroller's safe. I feel this incredible need to protect him... So I, I wear him everywhere.

Talise also felt the need to keep her children physically close after her pregnancy ended:

And, um, but now that I have my baby, um, I noticed that people, people walk up and you don't know them, and they want to, like, see your baby, because she's beautiful. And they want to talk about my baby, and it's really alarming for me. And it's something that I have to work through a lot. Because, um...I want to react automatically...when somebody that I don't know is coming towards me, my first impression, my first reaction is to get my kids out of the way, and be ready to fend for myself.

Talise and her husband had recently sold their car because they needed money to pay bills. However, she was frequently triggered on public transportation because she felt like she needed to protect her children:

I have to be really on alert. And sometimes it's just instinctual. I don't even have to be like, looking around to make sure that my surroundings are OK. I don't even notice that I'm doing it. I think it's just having to be aware of my surroundings, because something violent could happen any moment, any second. And now I have kids, and so I have to protect them. And um, it's like, uh, something happens to me physically, without a conscious thought, when, when I'm in a place or a situation. And if we're in public, then I automatically am like, OK, what's going on? Is somebody got a gun? And do I have to be aware, where are my kids? And then the thoughts start rolling.

Many women with high levels of PTSD wanted to keep their children physically close, such as Jackie, who disliked having her baby in a stroller because he felt too far away from her body. Having children physically close, however, could also present triggers for mothers at times. Una said,

Sometimes with <son> like he'll just like pop up in my face, all of a sudden, to like to give me a hug. And I like, it's like, have to shove him back a little bit. And like 'OK buddy, you can't do that. You know, you just got to give me a little bit of space'... Um and even sometimes, like he, he loves to rub. He's always loved to like rub and rub. And sometimes I'm like "You can't touch me, you've got, you have to give me, like, a foot distance, buddy.

Children could trigger mothers' PTSD in other ways as well. Talise had an eleven-year-old son who was very outgoing and social, meaning that where she wanted to be "private and reserved" to manage her symptoms, there were often social interactions that triggered her further. Sadie, with a PCL score of 59, had experienced severe violence at the hands of her daughter's father. She noted,

It's hard for me because there's times when she looks just like her dad. And I get in that... just a simple look from her, and I'll get in that "fight or flight". It's---yeah—it's really hard for me to pull myself out of it, and look at her, and be like, she's my daughter, she's not her dad. And I actually, I actually have to---I put a lock on the inside of my door upstairs, so I can remove myself, and lock my door. You know, she's kicking at it, and throwing her things at it, and I can remove myself, and take that moment. I actually say it out loud. 'This is not <ex-husband>, this is <daughter>. I'm not in a place where I'm in any danger, she's...four.' I have to seriously talk it out loud. And when she looks like her dad, I get in that, oh my god. I'm going to be hit; I'm going to be...whatever.

Diagnosis and systems responses to PTSD. Of the fourteen mothers whose PCL scale scores were 45 or greater, suggesting severe PTSD symptoms, six had never been screened for or diagnosed with the disorder. Even for women who had been diagnosed and treated, they often lived with their symptoms (and their sequelae) for years prior to

diagnosis. Some of these women noted that they just considered their symptoms to be synonymous with stress or to be part of who they were—how they thought, or possibly that they were “just crazy” or damaged.

Talise had a lifelong relationship with drugs, alcohol, and trauma, but only in her late twenties did she realize that much of her reactions to stress were due to PTSD:

I didn't really label this stuff, like in my addiction, it wasn't PTSD. It was just how I thought. And then I got recovery, and um, got labeled with PTSD. And started realizing, like, the whole, the logical part of that.

Una also had a long history of substance abuse and substantial trauma. She talked about her sense of relief when she realized she had PTSD:

I'm aware that I have done some serious damage to myself with the drugs that I have.... I see a therapist, um, currently, and I went to her and I'm like 'I think I'm going out of my fucking mind. I'm at work, I think I'm seeing stuff. You know, I'm vacuuming, and so there's like this white noise in the hallway. And I was getting startled really bad. Like I'd turn around and think that there was somebody standing at the end of the hall. And...she's like—'You know, that really sounds like that has some PTSD stuff.' and I'm like 'Oh my god, I didn't even think about it like that. I just thought I was going crazy.

PCL scores were extremely high among the eight women who had Child Protective Services (CPS) involvement, with a mean 58.6 (*SD* 7.15), and a range of 48-70 suggesting severe PTSD symptoms among this group. Three years previous to this diagnosis, Una arrived at the courthouse, pregnant and high on drugs, to sign away her custody rights for her three oldest children. She said, “Getting loaded was the only way I could get through that day.” Una (who was currently clean and sober, employed, enrolled in college, and raising her two youngest children) said quietly,

There was no way, the mental health evaluation that I had, said I would never be able to raise children, I would never be able to hold a job. You know, I mean, it was just this very damaging report.

She added that later,

I was shown it by another mental health person...he wouldn't even let me out the door with it, he, I had to sit there and read it with him so that he could be there... And he was like 'I don't want you to put a lot of weight in this because they missed one key diagnosis that you have.' My PTSD diagnosis-- they didn't, that wasn't in there at all.

Gina's children were taken into DHS custody because of her "failure to protect" them from witnessing ongoing IPV. Gina also had severe PTSD. Unlike Una, Gina's PTSD was recognized and treated while she was involved with DHS. However, this was a liability, in that DHS mandated that Gina must receive treatment for her PTSD before she could get her children back. Specifically,

They were requiring me to do DBT-- Dialectic Behavioral Therapy-- A cognitive-based therapy; it teaches you to use your emotional and um, rational mind at, in balance. And that was \$850 a month... And I was living in transitional housing, I was working fulltime for \$9 an hour. It was a requirement for me to get my children back, however, they wanted me to pay for it.

Gina went to court over this requirement, and DHS was ordered to pay for the treatment: "Thank god I know how to speak, and I know how to advocate for myself. Because if I didn't, I probably wouldn't have my kids back."

Women with Addiction Issues

The five women who identified as recovering addicts often had the most significant intersecting stressors and difficulties. These mothers had been clean and sober between six months and four years. Methamphetamine was the most common drug of choice for these women, although many had polydrug addictions (e.g., cocaine, heroin, alcohol). Three of the women (Sadie, Talise, and Una) were friends who met in treatment; Sadie and Talise lived in the same clean and sober HAP housing facility, and all three attend the same school. Naomi and Casey were recruited from other sites, and

were both newer to recovery, and more isolated. In addition to these five women who identified as recovering addicts, other women in the sample had used drugs in the past, but their substance use was not a strong theme in their stories.

Addiction, violence and trauma exposure. In comparison to women who did not identify as being in recovery, all five women in recovery had higher levels of lifetime trauma exposure, as detailed below in Table 9. As the table demonstrates, the women in recovery tended to endorse more categories of having witnessed and experienced violence, and at higher frequencies. Four of five noted they had past abusive relationships; two were enduring current IPV. All five also had notably higher levels of PTSD and depressive symptoms (but not perceived stress) than the women who did not identify as addicts (see Table 10).

Table 8. Lifetime exposure to violence for women in recovery, compared to women not in recovery.

	In recovery (<i>n</i> = 5)	Not in recovery (<i>n</i> = 19)
Witnessing violence:		
Number of categories endorsed: Mean (<i>SD</i>)	5.0 (3.3)	3.0 (2.3)
Number of occurrences/category, on average	4 to 10 times	2 to 3 times
Violent victimizations:		
Number of categories endorsed: Mean (<i>SD</i>)	4.6 (1.8)	2.26 (2.0)
Number of occurrences/category, on average	4 to 10 times	2 to 3 times

Table 9. PTSD/depression symptoms and perceived stress for women in recovery, compared to women not in recovery.

	In recovery (n = 5)	Not in recovery (n = 19)
PTSD symptoms:		
Total PCL score: Mean (SD)	58.0 (3.3)	43.2 (16.1)
Range	54-63	20-74
Depression symptoms:		
CESD-R total score: Mean (SD)	28.6 (9.9)	19.1 (15.2)
Range	20-42	1-60
Perceived stress:		
PSS total score: Mean (SD)	28.7 (6.3)	25.4 (7.7)
Range	22-37	12-37

Addiction and mental health: “Meth takes my reality away.” Mothers in this study reported that drug and alcohol use can be an effective, if costly, way to temporarily deal with mental distress and symptoms. Iris reported that she no longer smoked marijuana as she feared she would get out of control and didn’t want to expose her children to drugs. However, she noted that it had helped her immensely in the past when she was uninsured and could not see a healthcare provider, observing: “I was so depressed and everything and my brother just said, ‘here, try this.’ So I was smoking like, like a person would cigarettes, every day... it had no effect on me as far as being high. I was, you know, calm and relaxed... It helped me manage the depression and everything else.”

Una described her most recent relapse into methamphetamine use, prior to her last pregnancy, as stemming from severe untreated depression. She said,

My depression by that time... cause I, we were using, um, my drug of choice is meth. And his is marijuana and alcohol. And we, I, had just been

smoking pot and drinking with him and like it wasn't, working. Like I... I was still very depressed; it wasn't, like, making me feel better.

When asked if using methamphetamine relieved her depressive symptoms, she replied:

I mean, it did-- meth for me like, totally, like switches my personality. I'm, I'm literally a totally different person. And like the things that most people think about on a day-to-day basis don't like really exist in my head anymore when meth is present. It's just really um, I don't know. Meth, like, takes my reality away. And um, during that, like my depression had gotten really bad, during that time um, was the first time that I'd actually really considered committing suicide. Um, and I did pick up and shoot meth again.

Una had learned that managing her depressive and PTSD symptoms was key to her sobriety, stating, "I know that I need to be on my medication, I mean, I, I've been in recovery before, I've been through relapses, and I know that my mental health is a key piece to me staying sober."

If substance abuse helps women manage distressing symptoms and memories, then becoming clean may mean being flooded with them. Talise described sleep disturbances and dreams when she first became clean, noting that the more often she was triggered during her waking hours, the worse her nights became. She said, "I would be punching and screaming, and I would have this dream of an actual event in my life that I was reliving, I would have it three or four times a week."

Casey had a PCL score of 57 but had never been officially diagnosed with PTSD or treated for it. However, a counselor had suggested to her in the past that her symptoms were consistent with PTSD. Sleep deprivation was very triggering. Casey described the process of getting clean as one of being flooded with suppressed emotions and fear:

You know the worst experience I had was I got locked in the basement with four guys with guns, and I was robbed at gunpoint. I had a gun stuck

to my neck for the drugs I had on me...And that situation will come out, like up in the middle of the night... (And) at about 45 to 60 days clean, I started having using dreams. And people who had, you know, I had maybe not been, you know, done things to, or had things done to me, would pop up in those dreams. And I would chase them all over the place, trying to apologize for my actions. Or they would be there trying to pressure me into doing drugs, and I was trying to get away from them. And I would wake up in a sweat, going, God, do I do it? And then I would realize, there's no way, I'm sleeping, there's no way I got loaded, you know.

Casey's symptoms often prevented her from being able to sleep, and that coupled with the demands of a new baby meant she was often extremely sleep-deprived, which in turn exacerbated her symptoms. Casey noted, "...When I get sleep deprivation, that's really a hard thing for someone who's used meth, you suffer. So, kind of a sick feeling."

Casey shared her symptoms with her midwife, who was sympathetic but failed to recognize the severity of her distress or offer a referral for further evaluation:

I did tell her, you know, I do sometimes suffer when, if I think too much about my past, it... it makes me stressful. She asked me what I do about it. And I, I write about it, I, a lot of times I try to, I have to repeatedly tell myself, that's in the past, there's nothing that can be done about it now, you survived it, let it go. It's over with. She mostly just kind of listened, and she just asked me what I could do, you know, she suggested that I walk, or you know, she just kind of ask what I do to relieve that.

Motherhood as a reason to get clean. Sadie (age 27 years) shared a saying in the recovery community; "You can't get clean for your children," meaning that a mother had to get clean for herself or she would ultimately relapse. She said that she herself had seen many mothers successfully clean up to "get their kids back" but then fall back into addiction because they had not dealt with their underlying issues. However, a number of women in the study—both those in recovery and those who did not identify as addicts—identified their children as a reason to avoid drugs. Sadie identified being a mother as a key factor in her own sobriety. She had experienced both severe intimate partner violence

and addiction in her first pregnancy, which she did not disclose to anyone. During her second pregnancy, however, she entered treatment. She explained:

I'll admit it, I got clean for my children. But I got, I stayed clean –I got clean for my children, but I stayed clean for myself....I went to treatment. I was four-and-a-half months pregnant. And I went to visit my daughter. I had once a week visits with my daughter. <Pausing>. And. And, um. She didn't want anything to do with me. She clung onto the, um, the driver, the transporter, and wouldn't look at me. Wouldn't pay any attention to me. And I just ended the visit five minutes in. And I was like, I...I can't do this. I went and talked to my caseworker, and I said, it's the, this will be the second time for treatment. Because I walked out of the first one. I'm like, you need to get me into treatment. I want to go, now. And uh, a week, a week and a half later, and they're like, "You have a bed! Her being scared of me--It made me realize what I was actually doing to her...That was my bottom...I think I had to hit my bottom, and mine was the day that my daughter didn't even want to look at me. Screaming when I touched her.

Talise entered treatment at age 29 years and had four years sobriety at the time of her interview. She estimated conservatively that she had abused drugs and alcohol for twenty-two of her thirty-three years. She first recalled getting drunk at age seven, but thought that was most likely not the first occasion, only the first she remembered. She said, "I mean, the first time I ever did IV drugs, I was thirteen. And I just partied--A lot. And just went, and went, and went." Talise was born with physical disabilities attributed to her own mother's drug addiction. She described how she stopped using drugs entirely during her first pregnancy:

The longest I was ever sober was the 8 ½ months I knew I was pregnant. And then right after I had my son, I just, within the next couple of days, I was high again...Cause I had so much, there was a lot of stressful factors in my life at the time. I mean, I lived in LA, I had no family down there, and I was using at the time. My son's dad was using, we lived in a really violent environment. Um, but... The moment, the moment I found out I was pregnant, I was in the bathroom. And he was like, passed out. And I just remember the most clarifying thought I'd had up to that day. And I was just like, 'I'm going to have a baby. What am I doing here? I have to go home to Oregon. Don't want to raise my baby here.' Like all these

feelings just came up at the same time. And it was just too much stress. I stopped using drugs. I smoked my last cigarette in the bathroom at that moment, as I was thinking of all the stuff I had to do. And then I was done.

Once her son was born, however, Talise returned to using again within days.

Because, I think it was, I was the same person. Even though I was a mom, even though I had a son, mentally I was the same person I was when I stopped using. And um, I mean, I just didn't make any progress or feel any better about myself. There was nothing really different. I was still in the same F-d up relationship, I had the same stressors, and now I had even more stressors.

Dealing With Affected Children. In addition to being flooded with distressing symptoms and memories, getting clean may mean the stress and worry of dealing with children have been substantially impacted by instability, time spent in foster care, and/or witnessing or experiencing violence over the course of their mothers' addictions. Sadie, Talise, and Una were all attending college to become drug and alcohol counselors. Sadie lamented,

You learn about how drug addicts affect their children. And then you get all this... all this shame, and blame, and guilt that comes back on you... It's like, like with my daughter, um, she's, like, her mental processes... she's got stability problems, she's got attachment disorders. She's got anxiety, and... And when I think of the word "stress", I actually, at this point, think of the word, <daughter's name>... Yeah. Stress, my daughter. Stress, my daughter.

Sadie navigated a team of doctors and counselors seeking help for her child.

Although she was dealing with a controlling, jealous, stalking and suicidal ex-partner who she believed was capable of killing her, she was unwilling to leave and sacrifice the stability she was working hard to create. Her finances and criminal history presented additional barriers to relocation.

Talise was mother to a two-year-old daughter, and an eleven-year-old son. She entered treatment and got clean when her son was eight years old.

I hate to label him, but he's totally a product of my addiction. Uh...He has, um, he's got some really, really fantastic, fabulous manipulation skills. And I would really love it if he used his powers for good. But stress affects him so... um... whether it's a good stress or a bad stress, it just, it like rocks his foundation. He's the type of kid that needs validation right now. He needs to know where we're going, what our plans are, where we're eating, and he needs to know it now because he needs that security. To like, be in control of his world. Somewhere still in his mind, something's going to change. And he's going to be hurt at any minute. And he's so on guard about being in control of everything. That it's-- the moment he's in my presence, he's right there on me. Which, like, I get no homework done when he's there--he needs constant attention. When I'm cooking, he's constantly there. And he's like, 'Mom, what are you doing? Can I help? Can I help? Can I help?'

Talise said, "I didn't know how to be a mom, I had to learn how to be a mom all over again." She reported that she was still learning to manage her own guilt and tendency to overcompensate with her son for the past, which she felt like had set him—and her—up for further difficulties. She noted, "so now I've got three different people fighting for my attention, when I'm trying to like, not only be recovering, but work on myself, go to school, do my homework, plus spread myself so thin at being a mom, and take care of all this stuff."

As can be seen throughout this theme, the various stressors in vulnerable, low income mothers' lives—low socioeconomic status, housing, unfair treatment due to race, ethnicity, or other factors, violence and trauma, depression and PTSD, and addiction--intersect in complex ways. It is difficult to adequately describe one stressor without acknowledgment and attention to how other stressors and difficulties overlap and intersect, in many cases compounding the effects of each. The intersectional lens that allows the examination of multiple stressors as they occur together in mothers' lives is crucial to understand how these stressors interact.

Theme: SES Over The Life Course Is Important

Socioeconomic status (SES) and family difficulties over the lifespan—i.e., childhood SES and stress—continues to affect mothers' current health and level of stress. Mothers in the sample were articulate about the childhood stress they had experienced. For many, their stressful exposures in childhood were substantial and recalling them was still painful. Women described growing up in extremely tumultuous households, with family conflict and violence, housing instability, isolation, deprivation, and parents who were addicted, mentally ill, and /or suicidal parents, and were, in some cases, abusive and/or incapable of parenting. Kathleen reported that she could not actually remember many of the details from the time period when her father became addicted to methamphetamine, having blocked them out. Naomi reported being unable to remember most of her own childhood for the same reason. Many took on their parents' stress and assumed an adult role in childhood. Jackie described the first time her partner (now husband) witnessed her advocating for her mother when her stepfather became violent.

And he, he was watching me on the phone with my aunt, and on the phone with the crisis line and he was "How do you know how to do this?" I'm like "I've been doing this since I was 12. I know who to call, I know how to handle, I know how to deal, and how to manage the stress." You know, and not the stress necessarily— but the situation... because that's always been a part of my life.

One way that childhood stress impacted women was to disrupt social bonds, even into adulthood. Frequent moves and family chaos sometimes made it logistically difficult to connect to friends or a community and some women, like Wendy and Jackie, reported having few or no friends in childhood. Childhood stress also disrupted family support as an adult, with many women being estranged from their own parents. Jackie's mother

lived in the same town but, due to her chaotic childhood, Jackie found it difficult to maintain any kind of relationship with her:

I don't see her. I just, I don't. I don't call her I don't talk to her, I don't. At some point we apparently stopped being important to her, enough, to protect, and to be willing to walk away from a bad situation.

Conversely, Kathleen wanted to stay connected with her mother but her mother had left her violent and addicted father and moved across the state. Kathleen lamented, "And when I was pregnant, I was really depressed, because you think your mom would be there. But she had no choice."

"Growing Up Poor...That Has Definitely Affected My Mindset."

As previously noted, among this primarily low-income sample of women, financial strain was perhaps the first and most commonly cited stressor. Nearly every mother reported it was her most significant stressor. Some women reported that their socioeconomic status as a child was also an influence on their adult thinking.

At 19 years of age, Lisette was just transitioning into adulthood but her parents' money problems had turned their lives into such chaos that she ran away from home and became homeless. She attributed her decision to panhandle to the fact that she had found herself pregnant, and the fact that she would do anything not to end up in the financial situation her parents were in. She said,

I'm not really afraid, just like embarrassed, I guess. Just that I have to do that. To be doing that on the corner... I mean, I'd rather not do it, but I make a lot of money doing it. I mean, it's what I have to do, what I feel like I have to do right now.

If she only could solve the money problems, she felt, she would no longer have the kind of stress she had currently.

If somebody gave me like \$2 million dollars. <laughs> I think that could solve all my problems pretty much. Like if I have money to give to my parents, they'd be doing a lot better right now, and we'd be doing better and I wouldn't have to be doing this.

Jackie took a different track out of childhood poverty. She was a graduate student, and she had by far the highest income and education among this group of mothers.

However, she added that she had lost her financial aid and their family income was about to drop to one-quarter of its present level. She described this change in SES as feeling particularly stressful, as she had always feared returning to the extreme chaos and poverty of her childhood:

Growing up poor, I've always been paranoid of becoming poor... that has definitely affected my mindset. We grew up very poor so that—that has definitely affected my mindset. I went to college because even at eight I knew I didn't want to be my parents.

Conflict Between Higher Values And Money Stress

Some mothers felt that growing up poor placed money in a different perspective for them, and that they learned not to value material wealth the way that some people did. Talise, raised by her grandparents, grew up poor but for her material wealth was not a strong value or priority.

But with me, um, as long as my kids are fed—I've always had this philosophy. You know, my grandma taught me, as long as you have what you need, everything else is just a bonus. And money—money can't buy you love. And so honestly, down deep inside, I do believe that... Money doesn't mean as much to me as it does a lot of other people.

Her values, however, made it all the more frustrating to her that money was still her primary stressor:

It's pretty much what makes the world go round. You know, and bill companies want their payment. <Laughing> And, and the kids need stuff, like all day, every day. So, as much as I don't believe, like, um.... Money should be the root of all, everything, it really does. Having it, or not

having it, changes the whole dynamic of our family... Not having the money has so much major consequences. We either go without something, or, I'm irritated all the time. Yeah, actually it really does make me sad if I think about it.

To protect her sobriety, Sadie intentionally avoided dwelling upon things over which she had little control, including not having enough money. As she put it, "I don't sit on *that* pot!" Sadie focused her energy on other things that were more important to her: "My values---integrity, honesty, trust, and love."

Like her friend Talise, she grew up with little material wealth. She said, "My mom was a single mom, working really hard... My Christmases, most of our Christmases, there were a lot of gifts, but they were Goodwill gifts. Which was fine with me. A lot of my clothes were from Goodwill... It wasn't what was important." From her perspective, while money was tight, her children had more new clothes and toys than she'd had growing up. Further, she added that it was easier to focus on how things were improving: "Knowing that I'm going to school so I can get a job and earn some money, and then also knowing the fact that, when I was using, my daughter didn't have nothing. No toys, nothing. Because it all went to drugs." Sadie concluded, "So financially, I don't really get stressed out other than that. My kids have to earn their toys. And they have a lot. I'm not stressed out by finances."

Yet, going to school meant that she was ineligible for some benefits, such as TANF and childcare, and her only real income was financial aid from school, which stops over the summer term. Like Talise, the reality of not being able to make ends meet meant that Sadie did have to stress about money, even when she wanted to let that go.

I get food stamps and medical. I don't receive TANF, which really irritates me. Because of the financial aid. So I don't receive TANF, and I don't receive childcare. Which is really messed up. That's, that's the stressor

right now in my life too... I was talking to my mom about it last night. During the summer I make a thousand dollars less in financial aid. Right. It's devastating when it comes time to pay my bills... I'm screwed. I don't know what I'm supposed to do. So. I am worried about finances in that part, and stressed in that part. But I just have kind of given that up.

Childhood SES And Being Dependent

As previously noted, in talking about being unable to work, several mothers remarked that becoming dependent upon their partners for support was also a new and uncomfortable position to find themselves in. For Wendy, not being able to work due to the demands of a new baby was difficult. Her childhood SES played a role in how she saw her circumstances:

My mom... She was a single mom, so. Uh, she had to be on welfare. That was probably hard for her... And there aren't very many pictures of me when I was younger because she never had money for pictures and other toys and, you know, great stuff... (if my baby would go to someone else now) I thought about maybe working part time. Just to, have a little, cause my mom also raised me to be pretty independent. And taught me how to work for a life, work for a living and, cause she knows how women, sometimes struggle with that.

Childhood SES And Food Issues

Jackie and her husband had never been poor since they met, yet she still found herself worrying about money and about having food in the house. She attributed this to her childhood SES:

You know, I have problems with food and things, because we didn't have enough when I was growing up. And I, I have a lot of little issues that I probably should get help with at some point... I have issues with having enough food. It's not that I ever remember being hungry—we just, we weren't allowed to eat without permission. Um, because there just wasn't—now I know there just wasn't enough food. You couldn't take stuff because that might be all we were having for dinner.

Iris, 29 years of age, was morbidly obese and in poor health. She traced her food issues in part to childhood socioeconomic status. Unlike Jackie, Iris did remember going

hungry. She said, “When you have, when you are little and you have no food, you’re automatically trained to eat like crazy when you do have food.”

Childhood SES, Housing, And Looking For Adult Stability In Housing

Pregnancy and motherhood crystallized for many that housing is important. Women’s housing experiences, both past and present, influenced their thinking about the need for housing—women did not want their children to experience the housing instability that they themselves had endured as children. Several women reported childhood homelessness, and several reported moving frequently as children. Rachel noted that she had attended fourteen schools prior to dropping out of high school. Similarly, Jackie reported, “we were never homeless which was good, um, but we moved 13 times in 12 years.”

Memories of childhood housing instability were particularly potent and women wanted to provide more stability for their own children. To this end, women often reported that rent was the first bill they paid. Jackie longed for her own home so that her son would have a place to play and he would never have to move. This was, she said, in reaction to how much she had moved as a child. Having her own home was one way that she could find safety and stability and separate herself from her own parents’ frequent moves and dysfunction.

Parker emphasized the desire to always provide her daughter with a home. She was homeless for a time while pregnant, and this bothered her especially in the light of her own childhood. She said,

And my mom and I were homeless quite a few times when I was younger. So I just, I don’t want her to have to experience that. Even though she wouldn’t really know what was going on, it’s just like... it’s something

that I, you know, promised myself would never happen when I had children. It's a really big thing. Well, I guess just stability in general. <Q. You really want stability. It doesn't sound like you didn't have that growing up--is that accurate?> No, not a whole lot, and I really think that is most important.

Mothers in the sample were articulate about the childhood stress and difficulty they had experienced, as well as the effect such stress and difficulty had upon their current circumstance. This theme illustrates that socioeconomic status (SES) and family difficulties over the life course—i.e., childhood SES and stress—continues to affect mothers' adult health and level of stress.

Theme: Social Service and Healthcare Providers are Important

Social service and health care providers play a clear and important role in mitigating or exacerbating women's difficulties. Women had often navigated through multiple social service systems in addition to the health care setting. Many mentioned their experiences with social service systems such as Oregon DHS. In general, the mothers who were eligible described the services provided by DHS (e.g., TANF, food stamps, child care) as helpful, if at times inadequate to their needs. Similarly, Healthy Start and WIC services were described as useful and appreciated. The one issue that mothers had with WIC was that grocery store cashiers sometimes resented the tedious process redeeming the vouchers required: "because it just takes so long. Sitting in line, signing a ledger, people are like, 'ugh.' It always just takes forever" (Rachel). Women often felt treated badly in the process and attributed this treatment to the perception that they were poor, "welfare mothers", and/or lazy. This was particularly acute for young mothers, who felt that such treatment was exacerbated by their young appearance.

Child Protective Services

The Child Protective Services (CPS) division of DHS also was frequently mentioned in interviews, with nine mothers having CPS involvement at some point. Of those, five had their children taken into protective custody, and one lost custody of three of her children permanently. Two were women of color and three were in recovery from addiction.

The perceived power that CPS wielded over mothers was frightening to them. Women feared involvement with the agency and when their cases were closed, they feared re-involvement. Thus, they carefully considered the public face they would present to CPS, and to health care providers who might report them to the agency. Gina, who had survived an extremely violent relationship, was impoverished, and living in a stressful environment in transitional housing. She described CPS as “overburdened and underfunded,” and described her involvement with them as the most stressful experience of all in her life. Gina’s involvement with CPS was the result of intimate partner violence; she had concealed her current pregnancy from her caseworker until her case was closed, fearing that any suggestion of ongoing contact with her abusive husband would be enough to re-open the case. Parker, eight months pregnant, had been previously involved with CPS after seeking treatment for postpartum depression. She considered how she would manage any reoccurrence of depression on her own, without health care treatment.

Women were aware of how little power they had in the CPS system, making advocating for one’s self a delicate proposition. Parker said, “I really just wanted to be

like; you have *no* right, and leave me alone. But I knew if I did that, it would make things worse.” Similarly, Gina offered:

You can’t ever—*ever*—show your worker that you are angry. Because they turn it into you’re, ‘you can’t control yourself’, or, you know. My dad was there to support me... He wrote letters when people weren’t doing their jobs. Sometimes that also proved to be a little bit of, uh, um... I don’t know how to say it, but...it’s like, you know---you can’t piss DHS off.

Naomi felt that CPS involvement was somewhat arbitrary: “There’s so many people out there who are worse than me. And they have their kids right up with them.” Yet these mothers, who expressed care and concern for their children over and over in the interviews, also thought that CPS involvement could be helpful and even life changing.

Gina said,

I mean, in all honesty, I would never take back everything that’s happened in the last two years... I’m glad that I went through it because it could be worse now. I’d probably still be getting my ass kicked, I might be on drugs. My kids would be growing up in that situation. If DHS hadn’t gotten involved, I probably never would have been uprooted from that situation.

Sadie, who had been addicted at the time she became involved with CPS, reported that she thought that the agency had been unfair at the time and she had been furious with them. However, she took a longer view since her case was closed. She said the timing of CPS involvement had been critical; earlier in her life, she would not have been ready to get clean and CPS would not have been helpful to her. What made her involvement with CPS work, she said, was the way that her caseworker treated her:

She would listen. She would listen. And then, even though things weren’t, um, she couldn’t do it, or whatever... She explained it to me. She wouldn’t just say no. Most of the time with my caseworker, I wouldn’t get what I wanted. But she’d still listen to me. And explain why I’m not getting what I want—Instead of just saying no. It’s the treating like a person.

Healthcare Providers

Experiences prior to becoming a mother. For many women, pregnancy was their first consistent exposure to health care providers. Some had previous negative experiences that increased their discomfort in the medical setting. Jackie noted that as a child growing up poor and uninsured, she rarely if ever visited a primary care provider or a dentist. Further, her few childhood visits she recalled as “very traumatic events, because by then I needed to go, and we weren’t used to seeing doctors, and so you know as a child that’s very scary.”

Parker’s first impression of health care providers began with negative experiences as a teenager, following suicide attempts: “I went in a couple times when I’d overdosed, and they were mean to me. Like, really, really mean. And treated me like crap...” On another occasion, a doctor performed a perfunctory exam on her so that she could be released to police custody:

I fell out of the window once, I was like, trying to run away. I ended up falling out of a 3rd story window, and I hit my head on the cement. And so they took me to the hospital, and there were police waiting. They had escorted me there, or something, because I was on probation. And the doctor just came in and looked at me and said, “She’s fine” and let them take me to baby jail, is what I call it. <Laughs> And I ended up having a concussion.

Experiences since becoming a mother. Nearly all of the women talked about their experiences with their health care providers during pregnancy and postpartum, with both positive and negative things to say. Negative experiences with health care providers reported by women could be separated into three categories: 1) poor communication, 2) poor treatment, and 3) poor use of time.

Poor communication could be best characterized as a dismissal of women's concerns and a failure to share information about the treatment plan. Jackie felt profoundly disempowered in the medical setting, and found it difficult, accordingly, to trust her providers. She said, "I really don't personally like the medical field. I mean, obviously I had a home birth—I have some issues with modern medicine." It particularly bothered her that some providers do not communicate their plan of care well. This lack of communication increased her anxiety tremendously, and even led her to avoid medical care for herself or her child unless she deemed it absolutely necessary.

Kathleen wanted her providers to talk to her. She said, "And they were just kind of like, 'Here's a packet of information, for what's going on this month.'" Michelle expressed a similar statement, commenting:

There was a lot of things that I would ask, but I would just get vague answers with the doctors and stuff. He was—he was extremely vague, and I didn't really care for him much. And it was definitely tough. Especially, you know, OK, here I am getting close, and he's just not giving me any answers. There just wasn't any give.

Numerous women told stories of their frustration at not being listened to or believed. Gina had developed severe pre-eclampsia in her two previous pregnancies, and delivered both times between 30 and 32 weeks. Nonetheless, she felt like she had to fight to be seen in the high-risk clinic in her current pregnancy:

I'm supposed to be in the high-risk clinic, because of my previous pregnancy history. And so I went to the appointment, um, they did the urine dip, everything was good. My blood pressure's good. She sees me for about five minutes. And whatever. She's not concerned. And so, it was like, OK—but so then, she says to make an appointment with the front desk, for like a month later. And this is right about where my preeclampsia started kicking in, in the last pregnancy. So, I get to the front desk and they're telling me I'm not on the high-risk clinic roster. And I'm like, what the fuck are you talking about? ...I didn't bite the lady's head off or anything, but I was just like, you need to look, or talk to the doctor, or do

whatever you have to do. Because I am high risk, I don't care what the nurse put in the notes about last appointment. You know. I'm not going to go, you know, just see any old doctor, you know.

Parker related the story of her first labor, noting that she spent almost a week trying to convince health care providers that her water had broken:

But they didn't believe me, they said I was just peeing myself. And I was like, first of all, I would know if I was just peeing myself. And second of all, pee isn't pink. And like, they didn't believe me for almost a week. So she, both of us had fevers when she was born.

In labor, Parker also had an epidural she did not want:

And the doctor came in, and like, basically forced it on me. I finally did it because she wouldn't shut up about it, for like a half an hour. And I finally did it, because she was like, oh, it's your first one, and you'll be too tired to push... It was a bad experience all around.

Many women were similarly eager to share their frustration with their labor and delivery experiences, in which not being listened to or having their wishes respected was a common thread.

Poor use of time was a common complaint. Women disliked long waits in the waiting room. Kathleen explained how she felt afraid to leave to go to the restroom and miss the clinic staff calling for her. She said,

At first, it at first started out okay. I only had to wait five to 20 minutes in the waiting room. And I'm pregnant, I want to go eat or pee or something. Don't make me wait that long. Okay, and then it was a half an hour.

She added,

And then they'd forget about me in the room. And I know they have a lot of patients to see and stuff. But it was like, they'd forget about me. I'd have to go out of the room, they checked me in -- I'd have to go out of the room and be like, are you going to see me? And they'd forgotten me. It'd be like an hour... I got that a lot.

The long wait in the waiting room was often far longer than the actual time women got to spend with their providers. Women often resented what Gina, 31, called the “in-and-out” nature of prenatal visits and Parker described as “zipping in, zipping out.” Kathleen’s impression of these visits after her long waits was, “And then they go in there, and they just kind of look at me, and, okay, you're done.”

Michelle commented, “I mean, I would go to the doctor, and I would be like okay, that was a whole lot of help. I mean, measure my belly, one more time. All right, thanks.” Lisette, five months pregnant and homeless, had only had two prenatal visits. She described them as pointless, adding, “I didn't really like the doctor too much. I mean, I only saw him for like 20 seconds.” She found these visits so unimpressive she stopped going altogether:

I just don't feel the need to go till like later, I guess. Because the last time I went to the doctor all they did was -- because I have all my tests done -- and they just like take my weight and measure my belly. And it's like I don't feel like sitting in the waiting room, like that long.

Worse than short and meaningless visits were those that entailed poor treatment—a lack of connection, empathy or sensitivity, or, worse, outright maltreatment by a health care provider. Women wanted very much to connect on some level with their providers, and this was important to them. Iris, who had formerly worked as a medical assistant, felt that women wanted to be acknowledged and have a sense they are viewed as people: “That they’re just not another patient. You need to know who... who they are... and where they’ve come from... You’re there to care for them and to make them feel better.” Casey agreed: “I want somebody who is really attentive, and to have that extra time.” As Parker put it, “To stop and be like, ‘how are you?’ That’s nice. Because even if you are perfectly fine, it’s nice that they acknowledge you.” Una expressed the sentiment of

many mothers when she said, “I mean, cause you get to know a person. (And) it’s just them knowing, you know, who we are, and it, it reduces a lot of stress.”

When mothers did connect with a provider, they wanted to see that provider again; many women in the sample mentioned continuity of care as highly desirable. Jackie put it eloquently: “I want to see the same person from the day I find out I’m pregnant, until he comes out 6 weeks postpartum-- the whole thing.”

In pregnancy, however, many of the women did not experience this continuity of care. Changing providers increased women’s stress substantially. Kathleen shared that she rarely saw the same provider twice for her prenatal care: “They kept switching me. And I didn’t like that.” Michelle was switched once, but still found this transition very difficult:

Um, I had two people, two doctors. And I saw one at the beginning, the beginning of my pregnancy, so we got used to her -- and then I ended up at the end of my pregnancy, only seeing the other doctor, that I didn’t know very well. And it was, it was definitely hard. Because here I gotten used to the one, and I liked her.

Some women did not feel the sense of connection with their providers that they wanted. Describing her prenatal provider, Michelle’s comment was, “There was just no real connection there.” Further, many of the most vulnerable women in the sample felt like their providers were insensitive, and did not convey a sense of respect or of caring about them as a person. Casey, a recovering addict, commented, “That stressed me a lot.” Kathleen described her providers as “rude, and elaborated: “They just didn’t seem to really care. You can’t really talk about something with someone if they’re a stranger, and they haven’t really made you feel welcome.”

Some women experienced treatment that was insensitive, inappropriate, or even degrading. Iris saw providers who failed to appropriately acknowledge her well-documented trauma history when she gave birth to a daughter as a result of a brutal gang rape. Having to retell her story was triggering, and humiliating for her. She said,

It kind of bothers me when I have a new nurse or something and um, they don't read her history or know anything about her origin and then they come in and ask me "Who she looks like? "You, but she also looks like her father." You know. "Who's her father? "Where's her father?" You know, it, it really bothers me where somebody's coming in, asking questions like that, you know, because I, I think that, I think that if you're gonna go and care for someone you should know where they come from. I thought that's what records were for, you know... Talking about it is really hard.

Equally difficult for Iris was when a provider knew about her story, and came across as pitying. She wanted to have her trauma acknowledged, but did not want to be treated like a victim. She said, "I don't want people to, everybody around me to be feeling sorry for me." She added, "You know if they just thought, she's a mother, that's it, you know, she has a child and you know, she needs help, that's all that they need to know. That's all they need to do."

Parker, eight months pregnant, found the health care clinic largely unwelcoming. She reported that providers often assumed that her baby was unplanned because of her age. "And then again, just being young, like--they all, all the doctors there assumed that she was unplanned, which wasn't really true. Like, you know--Well, it wasn't the most drawn-out plan, <laughing> but we wanted her." Her providers also assumed that she was an addict because she had been homeless during part of her pregnancy.

At one point they wanted to drug test her just because at one point I had been homeless. And I'm obviously not on drugs, but like they want this baby—I was super offended. And so they decided not to, but, that was really hard for me. Because I was kind of afraid that if I said no, they

would suspect that it was just because I was doing drugs. But it wasn't, it just because it was wrong.

Parker also had difficulty scheduling prenatal visits because she had moved from another town and did not have friends or family in the area. She could not afford to pay for childcare and had received the implicit message that her toddler was not welcome in the clinic, where a medical assistant would have to hold the baby while she was examined. She noted, "Like, if he's working, I can't have the appointment, because I don't have the babysitter, and if I have to take her, I can't hold her."

As previously noted, Naomi was newly clean from methamphetamine in her current pregnancy and visited a clinic that uses an electronic medical record, with a monitor in each exam room. At each prenatal visit, she began the visit being reminded that the provider was thinking of her first, and foremost, as an addict:

I feel like they could-- I don't know, like the first thing that pops up in the hospital, like when I go to the doctor's appointment, is because I did methamphetamines. Like this little box that pops up on the computer screen, and then they close it up... I just pretend to not see it.

Despite this, Naomi perceived that the physicians in her clinic treated her fairly. However, she felt strongly that the nurses did not. She tried to advocate for herself by sharing this observation with the physician, but this did not resolve the situation. "And she said that sometimes the nurses aren't even nice to her—but the doctor is all that matters."

Judgmental behavior from providers was particularly difficult for women to take. Casey commented, "it's, you know, of all the people who you wouldn't think would be judgmental; it's the medical profession." Naomi's first baby was taken from the hospital

by Child Welfare due to her methamphetamine addiction. She described the nursing staff in the hospital as cold and uncaring:

They were mean. I had to tell them not to hurt me. Because they said, 'You don't feel it', and I'm like, 'I do feel it. Don't hurt me.' They knew I was high, but still... It was horrible, they made me push him out before I was ready, it was like, they wanted him out. They wanted everything done, done. I didn't enjoy it at all. They didn't care. They knew my son was going to be taken away, and they didn't care at all. At least—if I knew someone was going to have their son taken away, I'd make the few days they had with them the best I could.

In her current pregnancy, she was working hard to stay clean, fearing that CPS would re-open her case. She commented: "I mean, I wanted to tell them because I didn't want to hide it. I told them at the very beginning. And I've been clean since I was pregnant. And I wanted them to know that. Because I just got DHS out of my life."

Despite this accomplishment, she felt like her providers probably judged her for her previous use and for having a second baby at nineteen. The constant reminder at each visit (with the electronic medical record and the screen "popup") that providers saw her as an addict first and foremost made Naomi feel as though no matter what she did, providers would be quick to call DHS. This frustrated her. She added, "If I go into the hospital thinking that they are going to call DHS on me automatically, then it is out of my control."

That little seed that people drop into your soul." Some experiences with healthcare providers were positive. Ophelia had positive things to say about her prenatal providers, saying, "they were always pretty nice to me." Jackie interviewed five midwives before she found one she liked but felt strongly affiliated with that provider. She described the connection she had with her nurse-midwife:

I was so sad at my 6 week appointment, because you know; you kind of lose your mid-wife at that point... (she said) you can call me if you have any issues, or you know if you just... cause I'm like 'How do you get pregnant again to see you?' "You know you can call, you know it's OK."

Jackie wondered if she could find this connection with other women, adding, "But really, I mean she's got a life too, and you know, it would be nice to have an ongoing group."

Kathleen, fed up with the treatment she received during pregnancy from her physician, said,

Finally, I took it in my own hands, and I went and I got -- I must have been seven months pregnant, and I got, I went and got a private doctor. And he was awesome. And when I have another baby, I'm going to go back to him. He's awesome.

Asked what made him "awesome," she replied that she felt that he acknowledged her, and saw her as a person: "Yeah, like, 'what are you going to name the baby?'— things like that. Because it was a special milestone in my life, and I felt like, what kind of care am I getting?"

Feeling accepted and acknowledged by the provider, and that the provider was empathic were common threads for women who reported positive experiences. Una saw her physician for care when she was using drugs and returned to the same provider after she became clean and sober, accompanied by her partner. She drove many miles to be able to continue seeing this provider because of the way that she treated her.

And so she like, knew both of us, and knew we were clean. It was kind of funky when we went in there. Because she was like 'Wow, you guys should have, you know, this much time clean by now.' You know and like 'Well, no, we don't.' we said 'But we're clean now.' She said, 'So that's what matters.' You know—'That's what counts.' She's just a really nice lady.

In her most recent pregnancy with her two-year-old son, Sadie entered and successfully completed drug treatment, and now has over two years of sobriety. Sadie's connection with her physician was key to getting through her pregnancy, which included complications such as a gallbladder surgery. The word she used to describe their relationship was also one of "empathy":

She was, she knew my history—She knew my history, she knew my history with his dad, um, she was just very supportive. I mean, whatever decision I wanted... And when I got pregnant with my son I was still using. But she was my doctor through that, and then when I got clean, she was still my doctor. And from the moment I met her, to even now, she, um, you know. She respects me.

Sadie endured tremendous physical violence and isolation from her husband in her first pregnancy, and was addicted to methamphetamine. She visited the hospital "two or three times with my daughter because my, her dad beat me, my husband at the time. Beat me and sent me to the hospital, with preterm labor." She added, "And we'd make up this story, where I fell down the stairs and it just started happening. But there'd be physical bruises on me. And they'd see him drunk." She described her repeated visits to the hospital as a "cry for help": "It was—it was almost like I wanted, I stayed in the relationship, and I wanted to go into the hospital. Not because I had something to hide, but because I wanted some help." Sadie never disclosed the violence to anyone during that pregnancy, however, although she said, "I think people did try to talk to me. Like nurses." Only the last visit, however, did she encounter a nurse who did not screen her for violence with her partner present and who she believed authentically cared:

And she was the only nurse that actually took my husband out of the room and said, 'I need to talk to her.' All the other ones talked to me in front of him. And uh, I, swore up and down he didn't hit me. Swore up and down.

However, the caring that the nurse conveyed made an impression on her. She believed this nurse helped her to feel comfortable connecting with her health care provider later when she was ready to face the addiction and the violence. Sadie said,

I believe that the nurse that talked to me had a lot of empathy. And some of the other nurses didn't. And I didn't listen to the ones that didn't...It's that little seed, you know, that people drop in, into your soul. And it just keeps on building, and it grows a tree eventually.

This theme illustrates that fair, empathetic, and empowering treatment by social service providers, particularly child welfare, was important to mothers who navigated these systems, and all mothers had a great deal of contact with health care providers during and after their pregnancies. The acknowledgment and empathy they received in the health care setting (or lack thereof) was particularly important to them. This treatment could increase or decrease women's stress in the short term, but could also plant the seed for help seeking in the future.

Theme: Loneliness And Isolation As Stressors

Almost universally, mothers in these interviews disclosed that they felt isolated and lonely. The isolation and loneliness were not only source of stress, but they exacerbated other stressors.

Motherhood is lonely

Pregnancy was a time in their lives when many things changed, and their emotions were raw and, at times, overwhelming. Talise noted, "Pregnancy really is traumatic." Ophelia, a new mother, commented, "Yeah, you're surrounded by so much people but you're still all alone. I definitely feel like that." Michelle, 19 years of age and also a new mother, talked about feeling alone with her emotions in pregnancy:

Um, my emotions were so wide open, and nobody could really get a grasp on that because they weren't facing them. And um, I didn't have that support group of other pregnant women to talk to. To talk with. And nobody wants to talk about – they'll ask about how the baby is doing, but they don't want to have that big long discussion about everything you're feeling. And so you have things on your mind, and nobody to really talk to about it.

Parker summed up many mothers' opinion when she stated, "It's just an isolating experience having a child." Jackie noted her panic with a new baby when she realized how little she could get done, and that she could barely get off the couch. Mothers were left with the feeling that their previous lives had come to a screeching halt. Casey noted:

You know, I didn't know it was going to require putting my life on such a big hold. And that it was going to be so damn demanding. You know, and then I feel like a big jerk because it's, that's selfish.

Further, becoming a mother recast women's relationships, as they viewed themselves, their partners, their parents, and their social networks differently. When their values and/or lifestyles changed, and their friends' did not, they inevitably ended up losing friends. Asked about her greatest stressor in pregnancy, Kathleen responded: "Well, the loss of friends. That would be a big one... I got pregnant, and all of my friends just kind of left." Kathleen's friends were still smoking, using, and "partying" and, because she did not want to join them, "they treated me like I had some kind of disease".

Sometimes family or "surrogate mothers" served as strong support for the women. More typically, however, women could not rely on their families for support because of their own issues or family chaos (e.g., drug addiction, violence and conflict, mental health issues, and others). For those women who reported that their families were supportive, this support was often conditional or incomplete. For example, Gina's father

helped her with childcare, and advocated for her on a systems level by writing letters to DHS on her behalf, yet was highly critical of her to such an extent that she was still concealing her second-trimester pregnancy from him.

Trauma, Marginalization, And Loneliness

Mothers participating in the study may have had additional risk factors for feeling lonely and isolated. Talise reported she had always felt lonely, noting:

I think my whole life has been like that, looking in from the outside. At one point or another. I mean, um, being Native American puts me on the outside of the box a little bit, um, being an addict put me on the outside of the box a little bit, and, um, I don't know, I mean, I was always lonely.

Mothers' isolation may be exacerbated by past or present trauma. Naomi contended with a very violent relationship. As with many abused women, Naomi was extremely isolated and said she did not have friends. Iris' trauma-related PTSD and agoraphobia prevented her from leaving the house, except in the company of her aunt. However, she longed to connect with other women who had been through similar pain. When asked what would help her most with the stress in her life, she replied,

Knowing that somebody else is going through it. Knowing that somebody else is there with you, and knows how you're feeling and has, you know sharing experiences, and sharing how one person dealt with it versus somebody else...Just having other women that are in my shoes, or have been in my shoes, just being with other women too. You know-- I felt like I was so alone, just so alone. Like there's no one else out there like this, you know nobody has experienced what I've experienced this bad. I know there's other women out there, there has to be.

Like other women in the study who were in recovery, Casey had experienced violent and traumatic incidents when she was using. In sobriety, she struggled to trust people again.

Nobody's really your friend out there. Everybody will screw you over. And the farther into my addiction I got, the farther into the world of addiction, and down and went to rock bottom... the more you get hurt by people... I used to love people. And watching people. And you know, just

being around them. And I don't feel that way anymore...I can't stand humankind, you know, not anymore. And that's not fair, because not everybody is that way. But... the experience of it is, and maybe I was just naïve, but really, the majority of people, whether they're addicts or not, are that mean. And that manipulative. And shitty... And it just... it jaded me, I think. And I'm angry at that. My little naïve, happy world has been shattered. I feel like I lost a huge piece of me that was peaceful. And happy, perpetually happy.

Women Who Were Not Lonely

A handful of women in the sample were striking in that they did not report feeling isolated or alone. Specifically, the three recovering addicts who were friends—Sadie, Talise, and Una— had an excellent support system and network of friends. Talise said, “And um, it’s like making a new group of family.” Una described their friendship thus: “We really do have a really strong community.”

Talise reported,

The biggest thing that’s helped me... is the support that I have from my female friends. They’re my support sisters...we have each other’s phone numbers, and we can call each other at anytime of the day or night with problems. And we’re just there to work through stuff with each other. Or just throw something at them, and just say, “I don’t need no feedback, I just need to be able to say something to somebody”. And they’re like, “OK.” You know my kids call them, like aunties, and, um, we go to dinner with each other, and have picnics and barbecues and play sports with each other... I think the biggest thing is that, um, no matter who we are, our stories are similar. And there’s this unconditional, just unconditional, either love, or respect, or empathy. That no matter what happens, you know that they’re, they’ve been through what you’ve been through. They can tell you something that you’ve either gone through, but you can look at it in a different perspective, and they’re not going to hurt you. It’s that--they don’t want anything from you, except that same thing you want from them.

Una agreed, noting that their friendship had progressed to the point of being like family, where they could even hurt each other’s feelings and still remain close. She believed that her friendships with Sadie and Talise helped her immensely with her stress.

However, she also wished for a larger circle of mothers to talk with. She described a program for pregnant women and new mothers (since discontinued) which she participated in as the ideal.

The one thing that really saved me is I was in an outpatient program up at OHSU. They um, sent a cab for me, 3 times a week for me and my twin babies. Up to the hospital and back... We'd have lunch, we'd have you know some topic on, you know alcohol or drugs. It was, it was classified an outpatient alcohol and drug program. But it had all these other things involved with it. And so like I had this connection with these women with, that were some were pregnant, some brand new moms, but I really think that, that was a saving grace for me...in the time that I was— I was all alone, scared, um, I, and pretty much abandoned. But having the bigger group of, of women... I kind of miss that. There was this big, big group of us. That we all had like the same baby issues around the same time... It was, uh, yeah, it was, it was very supportive. I miss it, I miss that. I would have kept going. I mean, if they wouldn't have ended it.

This theme illustrates the loneliness and social isolation reported by mothers, which they attributed to the normal isolation that mothers experience, but also the traumatic and frightening experiences they had experienced in their lives that made it difficult to trust or connect with others. The loneliness and isolation were not only a source of stress in and of themselves, but they tremendously exacerbated other stressors. Their desire to address this loneliness and isolation and their difficulties in doing so informed the subsequent theme, mothers' need for connection with others.

Theme: The Need For Connection With Others

Mothers in this study felt that they can generally find information and resources to help them deal with their stressors, but most lack the connection with other mothers that they desire. Asked about what kind of information or resources would be helpful for pregnant women or new mothers, women politely entertained the question, and answered thoughtfully. Yet this question did not resonate with the vast majority of women. Almost

universally, women responded that they felt that they had the information that they needed, or knew where to find it. Dominga stated:

Well, I mean, there's resources everywhere. You don't have to just ask one person, you can look it up on the Internet, you can call, yeah, you can ask somebody. There's a lot of resources for everybody now. More for women.

Consistent with their reports of being lonely and isolated, nearly all of the mothers responded that what they really wanted more than anything was to talk to other mothers, and to share information and support together. Michelle said,

In the information books they kind of talk about, you know, don't stress, and you're going to cry. It's supposed to help, but it really doesn't. Because it's just words. The being able to talk to somebody else, who is going through it...

Asked if connecting with other mothers during pregnancy would have helped ease her stress and sense of loneliness, Michelle responded, "Definitely. It would have been excellent. I would have loved that. (Talking with) people who knew where I was coming from...going through the same things that I was. But I didn't have that."

Talise said,

If you hand me information, all the pamphlets in the world are not going to mean anything. They're going to give me knowledge, and I am going to put that information back someplace and remember it. But if I don't have that connection with somebody... or, feel like I can have somebody to talk to, or, go to with my problems, you're still going to be left with that... that, that hole. That empty spot.

Women wanted to hear from other mothers in similar circumstances, to understand, as Iris put it, "how someone else is getting through this".

However, many women also expressed a sense of altruism and very much wanted to support other mothers as well. Three of the mothers in this sample were attending a college program to become certified drug and alcohol counselors, and made meaning of

their addiction as something that led them to their current path that would enable them to help others. Talise said, “that’s what I was born to do. I was sent here to have an addiction, and to learn from that. And to go to school, and then help other people with that.” Beatriz had survived violence and homelessness to become a housing activist. She described how being able to support other women helped her make meaning of her circumstance: “Because then it is that something good has come out of what I have been through, if I can help someone else get through it.”

Connection With Other Women: “Having Someone Safe To Talk To.”

As the interviews and analysis progressed and the theme of mothers wanting to connect with other mothers emerged, the topic of group prenatal care was raised among later interviews with the mothers in the current study. This topic was also discussed with the six lay advisors who participated in Phase 2 interviews. Women were provided with a description of an existing group prenatal care program (CenteringPregnancy) and asked for their input about such an approach, including whether they themselves found it appealing.

This concept of group care was generally endorsed with surprising enthusiasm by the mothers. Beatriz alone expressed some uncertainty, related to her concern that everyone would not be able to talk, stating emphatically, “I need to be heard.” She agreed that facilitation was important to the success of such care. Parker thought that it would be much easier to connect with other women in a prenatal care setting, where you had “some reason to be there” and could talk when you felt safe. Vivian shared that a friend of hers had attended a CenteringPregnancy group and that she had wished that she could have done the same. Even Wendy, who disclosed that she had not had any real

friends as a child, and was perhaps the most reserved and guarded interviewee in the study until the very end of her interview, felt that she would have enjoyed this type of care. She stated:

I'm kind of shy about, like that, with new people. I'm pretty shy. [but] I think I'd try it out. To see, you know, if I'd make any friends or... see if it made me—eased a lot of my stress, or just made me a little bit happier you know. Yeah, I'd probably go for it if it was there. Especially with the doctor there too, I mean.

Talise loved the idea of group prenatal care, in which women met with other women: “I really like that idea. I like that concept of, of sharing your experience with other people going through the same thing you're going through.” She noted that thinking of this idea, her first reaction was, “Wow, I really wish I'd had that. That unity, that sharing experience with people”—until she reflected on her community of “sisters in recovery” who provided what she called “a bubble” that protected her from stress. Thinking about the benefits of group care, Talise realized, “That's what I'm doing today, anyways! You know.”

Talking helped Talise normalize difficult feelings, and to heal:

I'm long-winded, and I like to talk about things. I spent so many years in my addiction, not expressing feelings, and not talking about anything that was relevant to anything on this planet...that um, I just talk so much about everything! <Laughing> There is a saying in recovery—“Don't go into your head alone, it's a very dangerous place”. And I really honestly believe that. It always comes down to, um, having somebody safe to talk to.

Logistics Of Connection: “A Face To Face Kind Of Thing.”

Nearly all the women in the study stated that connecting with other women would be best conducted face-to-face. Rachel actively sought out and utilized such groups (e.g.,

Mothers of Preschoolers) and found them a critical source of support. Asked how she'd like to connect with other women, Michelle said,

Definitely a face-to-face kind of thing. Maybe even an Internet thing, but kind of, just to have a group kind of thing going. And just be able to dish out stuff. Just to talk to each other. Would have been great to do that. You know, the—they show that stuff online. 'Talk to other moms', and stuff. But it's really impersonal... and I'm not much of a phone person... I'd rather be able to see the way they look.

Iris thought that meeting women online would be good: "I mean, I would do it over on-line too, I wouldn't mind having a chat room with a bunch of women --that would be fine too." However, even though she rarely left her house, she felt that meeting other mothers face-to-face would be even better, and said she would manage to do so:

I do manage go to my psychiatrist over at Cascadia over here, so I could go a short distance to get to a group, um but it would have to be during the hours that I have my friend, or my aunt with me. I would need some protector with me. But I think face to face is the most effective. Seeing emotion, and you know, you can really hear the emotion, versus typing it.

Talise thought that to connect marginalized women in formal groups, finding key community members and promoting word-of-mouth to spread the message is the most effective way to make women feel safe... and emphasized the importance of food.

"I mean, with recovery, you don't see, like, um, NA and twelve-step meetings on a big billboard, and stuff like that... You have one person telling another person that it works. And they tell another person that it works. And they tell another person that it works... That's the best way. Because even if you see a really nice advertisement, people are going to be skeptical. Because that's really how it is in the Native American community too. Where, um, you could be set up with these really extravagant whatever... and they're like, they still find some reason not to do it. Not to be involved. They'll pick it apart and find something. And like, "Oh, it's put on by so-and-so". But if you get that one person that is the voice for a lot of people—Then, they'll tell somebody, and they'll tell somebody. And then like, they'll tell a couple more people. But... if you offer food... Offer food! Food is good!" <Laughing>.

Barriers: “Kindergarten, Here I Come.”

In addition to the expected logistical barriers to connecting with other women in person, women often worried about how other people might see or accept them. Some women who knew of mother’s groups that interested them and wanted to attend, but found themselves making excuses not to go.

Kathleen had found an online group for mothers, and reported that it was most convenient for her to log on late at night, after her toddler went to bed. She also noted that she was more comfortable connecting in this fashion than she might be in a physical group, making her the exception among the interviewees. Further, she’d resisted going to local meetings of women from the online group, although part of her wanted to go:

I’m coming to realize that I don’t have my old friends, and it’s hard to make new friends. It’s hard to open up to people. It’s just hard for me to do. It feels like I’m starting all over again. Like, ‘kindergarten, here I come.’

Similarly, Jackie had planned many times to attend a group for mothers, but never managed to go. She worried about how she would be received in a group.

It’s just the barrier of having to go somewhere, having to get into the car and not knowing whether or not it’s truly going to be beneficial and fun. And the anxiety of having to go and make new friends, cause it’s just not that fun. I just don’t feel I’m all that social and all that fun, so that’s, that’s kind of a barrier as well.

Talise noted that she had to learn social skills from scratch when she became clean: “I mean, I had to change everything. I didn’t know how to have a conversation with anybody... I didn’t know how to talk without being confrontational.” She drew upon the lessons she learned from her grandmother, saying “she really taught me how to not judge people.” She also had learned from her saddest, most difficult days as an addict:

A lot of it is what I've seen in my life, and how other people treated each other. Or how people treated me. And, I just...I didn't think I had a lot of compassion. But I realized that I have a lot more than I gave myself credit for. And I just treat people like.... Like, on my lowest day in my addiction, and how I didn't like myself, and I felt lonely and sad. I try to treat people the way I would want to be treated on that day. And I know that sounds all deep and everything, but when I think about it, it's, that's the way I want to treat people. With like, empathy, and compassion.

Summary

A convenience sample of twenty-four diverse, primarily low-income mothers was interviewed for this mixed-methods, participatory research study, using interview questions collaboratively with a group of lay advisors. Mothers in this study were recruited from community and health care settings in metropolitan Portland serving low income and vulnerable women. Women in the study were English speaking, over 18 years of age, and currently pregnant and/or had given birth within the previous three years. They were mostly white and partnered, and on average were 25 years of age with two children.

Most contended with multiple intersecting risk factors known to associated with preterm birth/low birth weight, infant mortality, and maternal mortality. These included low socioeconomic status, housing issues, racial or ethnic minority status, violence and trauma exposures, depression or PTSD symptoms, and/or addiction histories. Incidents of unfair treatment were commonly reported, and overall stress levels, lifetime violence exposures, and

depressive and/or PTSD symptoms were extremely high. Nearly every mother in the study reported that her greatest stressors were financial stress, and feelings of isolation and loneliness. Nearly every mother also noted that she was able to find information and resources for herself, but connections with other mothers to alleviate her sense of isolation and loneliness had eluded her. Discussion of these findings, including clinical and research implications, follow in the next chapter.

CHAPTER FIVE

Discussion

The purpose of this mixed-methods participatory research study was to describe the experience of pregnancy and early motherhood among a sample of diverse, primarily low-income mothers. The study focused on social and structural determinants of health known to be associated with preterm birth/low birth weight, infant mortality, and maternal mortality. Specifically, mothers' challenges related to socioeconomic status, minority status, trauma, violence, depression, PTSD, and/or substance use were examined, using an intersectional framework to understand how these factors overlapped and intersected. The study questions and findings were refined collaboratively with a group of mothers from the target population who served as lay advisors. A priority was describing experiences of stress and discrimination associated with these determinants, and how these categories of risk overlapped and intersected. Finally, the study aimed to describe mothers' priorities for support and information to ameliorate the impact of stressors. The findings add to the body of knowledge needed to generate effective interventions to ultimately reduce poor maternal-child outcomes in the United States.

The intersectional framework was crucial to address the first aim of the study which was to examine mothers' challenges and difficulties. Mothers who participated in this study represented multiple risk categories for poor pregnancy outcomes, including poverty, minority status, depression and/or posttraumatic stress disorder, addiction, and violence. These categories are presented and discussed in turn. Intersectionality theory assumes that inequalities based on gender, SES, minority status, and other factors are produced simultaneously "such that, in any given situation, the unique contribution of

one factor might be difficult to measure” (Mullings & Schulz, 2006). As expected, these categories of risk overlapped and interacted synergistically to produce difficulty and risk for mothers, thus lending support for the utility of the intersectional lens used in this study.

Intersectionality makes for a complicated analysis and presentation. Yet the analysis from this perspective served to have laid bare “the full complexity and specificity” of stress and difficulty in the participating mothers’ lives (Association for Women's Rights in Development, 2004). Examining one or two categories of risk alone would have decontextualized these findings considerably. For example, many mothers were in undesirable housing and financial difficulties posed the greatest barrier to moving. However, reducing the situation to this level obscures the role that a lifetime history of severe violence and abuse and their mental health sequelae played in keeping mothers immobilized. It also overlooks the role that unfair treatment, specifically related to status as a mother, served as an additional barrier to employment that was key to changing the situation. Poverty was often a continuation of extreme childhood poverty, and was reproduced and reinforced by trauma and its effects, as well as other social factors.

Stress: A Common Factor in Vulnerable Mothers’ Lives

The twenty-four mothers who participated in the study all had at least two intersecting issues that placed them at higher risk for poor pregnancy outcomes—poverty, minority status, addiction issues, violence history, and/or depression or PTSD. All of the mothers in the sample reported stress related to these factors and the difficulties that accompanied them. Stress is a very complex phenomenon. While it has biological

plausibility as a causative factor in poor pregnancy outcomes, this relationship has neither been well characterized nor conclusively demonstrated (Hogue et al., 2001; Hogue & Vasquez, 2002). Hogue and colleagues suggested that the failure to date to capture the impact of stress on pregnant women's health may be due to methodological issues. These include limiting stressor assessment to one stressor or a small number of stressors (thereby underestimating exposure), conceptualizing stress as an acute phenomenon, and focusing on objective measures such as "stressful events." The mixed-methods participatory approach employed in this study were an effort to address those limitations and yielded meaningful findings.

Stress from the Perspective of Vulnerable Mothers

The classic, triangular agent/host susceptibility/environment epidemiologic model is one way to reconceptualize the impact of stress upon women's health in pregnancy (Hogue et al., 2001). Although this is not a "comprehensive" model for conceptualization of the health impact of stress (Hogue et al., 2001), the findings from the current study fit well into such a model and illustrate its utility. The participant mothers tended to adopt an epidemiological orientation and consistently linked a wide variety of stressful experiences (exposure conditions) to their health outcomes (Kasl, 1995).

In describing stress (agent), the mothers not only discussed acute and recent difficulties, but also adopted an intersectional viewpoint that described extensive stress exposure. They described a complex, life course perspective on stress. For many, stress had been a salient if not overriding feature in their lives since childhood. Mothers shared the belief that stress negatively impacted their health and the thoughtfully articulated this relationship between stress and health. The participants' stories and responses suggested

that stress was the most common factor across their experiences of disadvantage and discrimination, whether they were challenged by SES, housing issues, minority status, addiction, violence, depression, PTSD, unfair treatment, or combinations of these difficult circumstances.

Asking participating women to define what stress meant and to articulate what was stressful to them served to prioritize their expert emic knowledge over a more etic “stressful events” approach. The women tended to describe stressors in terms of their impact and how they met these with their own degree of “host susceptibility,” that is, with adequate and/or healthy resources and coping mechanisms, or not. The mothers described becoming “worn down” in response to stress, thereby experiencing greater vulnerability to depression and illness, substance abuse, self-mutilation, and eating disturbances. They linked this greater vulnerability to both their exposures to stress in childhood and to their ongoing difficulties in adulthood.

The mothers also described their own resilience and positive coping mechanisms. Talise typified this strength in her description of how she had learned in recovery to change her thought patterns in response to stress and to connect with a community of support persons—that she called her “bubble”— that helped protect her from further stress and its consequences.

According to Hogue and colleagues (Hogue et al., 2001), the third side of the epidemiologic triangle is the environment, and it consists of contextual variables such as pervasive social and structural variables (what others would term social and structural determinants of health) that may add to or alleviate a woman’s distress. These variables include gender discrimination, gender-based violence, poverty, and institutionalized

racism. In this model, Hogue et al. suggest that women need not perceive these contextual variables as stressful for them to have an impact upon their health. However, the mothers who participated in this study were extremely insightful in their descriptions of how these social and structural determinants of health—unfair treatment and discrimination, violence and trauma, socioeconomic disadvantage—affected their lives.

Multiple Stressors: Intersecting Categories of Risk

Minority status. Racial and ethnic minority status represented a major category of interest in the study, which was reflected in the measures and qualitative probes employed. The population-based data on maternal-child outcomes make it clear that pregnant racial and ethnic minority women (in particular, African American and Native American women) suffer disparate risk for preterm birth, low birth weight, infant mortality, and maternal mortality. Years of research and intervention efforts designed to reduce such outcomes have yielded little benefit. The impact of minority status (a social construct, not a biological one) is accordingly felt in social and structural contexts, and discrimination based upon such status is believed to be a potent contributor to health disparities (Carlson & Chamberlain, 2004; House & Williams, 2003; Lu & Halfon, 2003; Smedley et al., 2003).

Exposures to unfair treatment in this study were first quantified using the Detroit Area Study Discrimination Questionnaire (DAS-DQ), then explored further in qualitative interviews. As expected, minority women in this study did report unfair treatment, including that based on race or ethnicity. However, they did not attribute the instances of unfair treatment they had experienced to race or to race alone. Instead, participating mothers, including minority women, attributed their experiences of unfair treatment to

being pregnant and/or being a mother, to physical appearance (e.g., youthful appearance/weight), and/or to their disadvantaged socioeconomic status.

Regardless of race or ethnicity, the mothers most typically reported that their financial situation represented their greatest stressor. Women and minorities are most likely to be of low socioeconomic status in the United States, and the relative contributions of discrimination and socioeconomic disadvantage to racially and ethnically based health disparities is poorly understood (Williams & Jackson, 2005). For vulnerable mothers in this study, the “ongoing grind” or persistence of poverty and deprivation appeared to be the most salient difficulty in their lives. However, two important limitations are worth noting here. First, the number of participants was small and only about one in three mothers were racial or ethnic minorities. Given a larger group of mothers, experiences of unfair treatment based on minority status may have emerged more clearly in either the DAS-DQ or the qualitative interviews. The second caveat is that the investigator, as a white woman, may have elicited fewer reports of mistreatment based upon race or ethnicity from minority women than would have an interviewer who was a woman of color. Thus, this finding should not discourage further exploration of minority mothers’ experiences of mistreatment or discrimination and their impacts upon health, as women in the study generally reported unfair treatment attributed to any social basis was highly stressful.

Socioeconomic status. Socioeconomic status (SES) has been established as a risk factor for poor pregnancy outcomes (Hogue et al., 2001; Kramer et al., 2001; Rich-Edwards & Grizzard, 2005). SES is thought to contribute to health via a number of pathways, including increased stress and decreased access to resources (Braveman,

2007). However, little is known about discrimination or unfair treatment based on SES as a contributor to health disparities (Hogue et al., 2001). Women in this study reported unfair treatment based on social class—particularly in day-to-day experiences. For example, Beatriz reported that, although she was sometimes treated poorly because she was a Latina, she was most frequently dismissed or discriminated against when she was dressed “in sweatpants and a T-shirt,” struggling to manage three children in public. She concluded she gave the impression that she was a “single welfare mom.” Likewise, women reported experiencing poor treatment in social situations that revealed their low socioeconomic status, such as spending WIC vouchers in the grocery store.

Poverty was clearly a salient factor for most of the mothers, with nearly two thirds below 2007 federal poverty guidelines. The mothers almost universally reported that their financial situation was their most severe and significant stressor. It was clear that current SES was a stressor in and of itself, when women were unable to pay their bills, purchase necessary food, or have reliable transportation. This stress contributed to worries about being able to provide for their children. Current SES also served to keep women in housing in which they were unhappy or that was unsafe and increased their exposures to housing instability, violence, and unfair treatment.

Examining current SES only, an SES “snapshot,” would have failed to reveal how SES varied across these mothers’ lifespan (the life course perspective) or its significance to them. SES in childhood is broadly related to SES in adulthood, and evidence suggests it may influence adult health independently of adult SES. Long-term low SES is even more devastating to health, in what has been described as a “dose-response” relationship (Geronimus, 2000).

Mothers that participated in this study reported childhood histories of deprivation. Further, women described how such histories of deprivation informed their stress related to current SES and contributed to their unhealthy coping mechanisms (e.g., eating disorders). This was true for not only the poorest mothers in the group but for Jackie as well, the mother whose relatively high income made her an outlier for this sample. She believed that growing up in extreme poverty led to her own food issues and made an impending decline in income even more stressful for her than it might have been. This finding for the persistent influence that a childhood history of poverty and deprivation points up the need for research on the impact of SES on maternal health to include a careful examination of the impact of SES across the lifespan in addition that of current SES.

In addition to an assessment of objective SES, this study also used an assessment of subjective social status. Subjective social status reflects where individuals perceive themselves to be ranked in the social hierarchy and is thought to be a useful aggregate measure of lifetime SES (Wright & Steptoe, 2005). In some studies, subjective social status has demonstrated an even stronger relationship with health outcomes than objective SES measures such as income or education (Adler et al., 2000; Adler & Stewart, 2007). Mothers in this study had a relatively low perceived on the SES ladder, at 3.75. Although norms for subjective SES are not available, in general, higher SES ladder scores have been associated with better health (Adler & Stewart, 2007). Healthy middle-class white women averaged 6.8 on the subjective SES ladder score (Adler, Epel, Castellazzo, & Ickovics, 2000) and a diverse low income sample of pregnant women averaged between 4.84 and 5.44 (Reitzel et al., 2007). It is unclear why mothers in the

current study, who were demographically similar to the Reitzel et al. sample, would appear to rank themselves so much lower in terms of subjective SES. Perhaps this difference is an artifact of the small sample size. On the other hand, the low rankings suggest that this group of mothers were at exceptionally high risk related to perceived SES, and underscore the idea that objective measures of SES may not accurately reflect subjective SES even among samples of women who would appear to be in similar socioeconomic groups.

Violence and trauma exposures across the lifespan. Childhood exposure to violence and trauma has been found to be common, albeit often concealed by women and unrecognized and undocumented by their health care providers. Further, childhood exposure to violence is strongly associated with poor health outcomes such as adult organic disease, social malfunction, mental illness, suicidality, and addiction (Felitti, 2004; Felitti et al., 1998; Ragin et al., 2002). Likewise, intimate partner violence is often unrecognized and undocumented in clinical settings and clearly associated with poor maternal and infant outcomes (American College of Obstetricians and Gynecologists, 2006; Berenson et al., 1994; Boy & Salihu, 2004; Campbell, Woods, Chouaf, & Parker, 2000; Coker, Sanderson, & Dong, 2004).

The women that participated in this study had extremely high lifetime exposures to violence, in terms of both witnessing and directly experiencing it violence. For example, over half reported sexual assault, rape, or molestation, and over half had experienced current (past year) and/or lifetime intimate partner violence. These rates were well above national population-based estimates for lifetime prevalence of IPV and sexual assault (Tjaden & Thoennes, 2000).

Mandatory reporting requirements in the State of Oregon prevented follow-up questions that would have revealed the timing of violence or the perpetrators of lifetime violence witnessed or experienced by the mothers. However, some women did volunteer limited information when it was evident that this would not trigger a mandatory report (e.g., perpetrator was deceased). Therefore it is not possible to report what proportion of violent exposures women actually experienced in childhood versus adulthood.

Nonetheless, these mothers' reports were consistent with the research that has found that violence exposures across the lifespan have implications for health. The high prevalence of trauma exposures in this study underscores the importance of assessing for violence and trauma in health and social service settings that serve vulnerable women.

Depression and PTSD symptoms. The high exposures to violence across the lifespan are almost certainly related to what was perhaps one of the most striking findings to emerge from this study—the unexpectedly high levels of depressive and PTSD symptoms. Over half of the mothers in the sample exceeded the cut score for significant current depressive symptoms, and a sizable portion reported that their depressive symptoms were the same or had worsened in their most recent pregnancy. Four out of five of the mothers had at least a moderate level of PTSD symptoms and over half had a severe level of PTSD symptoms, yet less than half had been diagnosed or treated. Of those with at least moderate PTSD, most had high depression symptom levels as well with several having been diagnosed with and treated for depression. This finding points up the likelihood that the mothers suffered from PTSD and comorbid depression. This is noteworthy, as these disorders are often correlated in pregnancy (Campbell, Poland, Waller, & Ager, 1992).

It is clear that the typically low screening rates for mental health issues in prenatal care result in missed diagnoses and lack of treatment (American College of Obstetricians and Gynecologists, 2006; Andersson et al., 2003; Birndorf et al., 2001; Kelly et al., 2001; Seng, 2002; Smith et al., 2004). The level of depressive and PTSD symptoms evidenced by mothers in this study was important in terms of mothers' functioning, and their physical and mental health (Seng, 2003). Like violence, PTSD and depression are known to negatively impact maternal outcomes (Bacchus et al., 2004; Field, Diego, & Hernandez-Reif, 2006; Kelly et al., 2002; Morland et al., 2007; Seng, Low, Ben-Ami, & Liberzon, 2005; Seng et al., 2001). Further, mental health issues may mediate the documented association of intimate partner violence with low birth weight, the leading cause of infant mortality. Recent research suggests that this association is strongest among abused women who have depression and/or PTSD (Rosen, Seng, Tolman, & Mallinger, 2007). Further, PTSD symptoms may be predictive of future revictimization among battered women, independent of help seeking or social support, suggesting that diagnosis and treatment of PTSD may be key to keeping abused women safer (Perez & Johnson, 2008).

If health care providers do not screen for mental health problems, women themselves may not recognize their distressing symptoms of PTSD and depression as symptoms of treatable illness and seek help accordingly. Those study mothers that had been diagnosed with PTSD relayed that they had attributed their symptom experience to stress, and not to PTSD. This finding is consistent with those reported elsewhere, in that depressed and anxious mothers view their symptoms as a normal reaction to extreme life stress and difficulty (Anderson et al., 2006). This may not be entirely off the mark, given

that traumatic events were more likely to produce PTSD in the context of chronic stress and cumulative adversity (Kubiak, 2005).

It is important to note that clinical interviews are the gold standard for diagnosing PTSD and depression. The measures used in this study were not intended to be used as diagnostic tools, although both the PCL (PTSD) and CESD-R (depression) have demonstrated excellent discriminant validity in distinguishing between clinically diagnosed and community samples (Eaton et al., 2004; Stein, McQuaid, Pedrelli, Lenox, & McCahill, 2000). Therefore, the findings from this current study are most accurately interpreted in terms of symptom levels, not clinical diagnoses. Further, women who had high levels of symptoms and attributed them to stress may have accordingly self-selected into this study that was advertised as being about stress. Nonetheless, these findings strongly suggest that PTSD and depressive symptoms are critical considerations for future research with vulnerable mothers, including those who do not identify as trauma survivors.

The women in recovery from addiction also had severe PTSD and depressive symptoms. Substance abuse may be one way that women cope with trauma, distress, and the mental health sequelae of abuse, such as post-traumatic stress disorder (Martin, Beaumont, & Kupper, 2003; Seng, Low, Sparbel, & Killion, 2004). They may also lack the support needed to abstain (Martin et al., 2003), which may be exacerbated by the social withdrawal/avoidance that characterizes PTSD (Schumm, Hobfoll, & Keogh, 2004). Mothers with co-occurring disorders (i.e., substance abuse and mental health issues) represented a particularly vulnerable group in this study.

With respect to general health and outcomes, national data point up that women with co-occurring mental health and substance abuse disorders fare more poorly, with co-occurring disorders (compared to single diagnoses) associated with lower SES, chronicity of illness, poorer physical health, hospitalization, incarceration, and homelessness (Becker et al., 2005; Kessler et al., 1997). Research specific to pregnancy is more limited but suggests that psychiatric illness, substance abuse, or dual diagnosis all significantly increase risk for delivering an infant that was preterm and/or low birth weight (Kelly et al., 2002).

These findings clearly suggest that addressing and treating women's stressors, especially mental health issues, violence, and addiction during pregnancy, are key to reducing disparities in health outcomes among vulnerable women. Unfortunately, services for women with dual diagnosis and for their children are severely lacking (Becker et al., 2005). Therefore healthcare and social service provider awareness, screening, and referral for such diagnoses are essential responses to this issue. Recommendations will be discussed at length further in this chapter.

Intersecting Social and Structural Issues and Systems Responses

In general, the more intersecting risk categories a mother faced, the more stress and difficulty she encountered. The mothers with addiction histories were the most obviously vulnerable women of all in this sample, in the sense that each had multiple overlapping categories of risk. The mothers who had an addiction history had co-occurring PTSD and depression. Without exception, they were additionally contending with poverty and involvement with Child Protection Services. As in the National

Comorbidity Survey, lifetime exposures to violence were extremely high (Becker et al., 2005).

Naomi's story illustrated the astonishing level of difficulty and complexity that some mothers faced. She lived in the context of relentless poverty and pending homelessness, a paucity of social support from family or friends, severe PTSD and depression symptoms, limited access to mental health and drug treatment, and an extremely violent partner who still used drugs himself. The systems responses that Naomi had encountered made her circumstances substantially more difficult. The evident insensitivity and/or disapproval of health care providers, and the double stigma of her past substance abuse history and the current violence she suffered, presented tremendous barriers to Naomi's seeking help. In addition, seeking help meant exposing herself to further Child Protective Services involvement, rendering seeking treatment a nearly impossible hazard.

For Sadie, being a recovering addict and her poor credit history made it difficult to find anyone who would rent to her. She was in stable subsidized housing, living with an abusive partner. Leaving her partner meant leaving and potentially losing this hard-won housing for both her and her children, putting her at higher risk for poverty and homelessness.

In Naomi's and Sadie's stories, the intersectional framework contextualized the IPV they experienced within a matrix of social and structural risk, which reinforced their vulnerability to violence. As has been found in other studies, intimate partner violence was not the most pressing priority for these mothers. They were also contending with poverty, discrimination, housing problems, depression, addiction, and other issues (Curry

et al., 2006; Eby, 2004; Lutz et al., 2006; Moe, 2007). It is critical to note that such a finding does not suggest that health and other social service providers should not screen for or help mothers living with intimate partner violence. Rather, it underscores what others have recommended: that the most helpful response to an abused woman's needs begins with a collaborative assessment of risk and priorities undertaken in partnership with the woman (Campbell & Glass, in press; Curry et al., 2006; Davies & Lyon, 1998; Hardesty & Campbell, 2004).

Problematic systems responses may also inhibit mothers' likelihood of disclosing mental health symptoms and accessing the help that they need (Anderson et al., 2006). Examples of such responses reported by the mothers in this study include healthcare providers reporting Parker to Child Protective Services when she sought treatment for postpartum depression and CPS mandating Gina to pay for expensive PTSD treatment out-of-pocket in order to regain custody of her children. These responses exacerbated mothers' acute stress—both Gina and Parker described their CPS involvement as the most stressful experiences of their lives—and likely impacted their future help-seeking behavior. Parker was socially isolated, having moved to a new town with few friends nearby, and had a longtime history of depression, self-mutilation, and suicidality. Therefore, she was almost certainly at some elevated risk for re-experiencing postpartum depression following the birth of her second child. However, as she noted, she would think very carefully before accessing treatment for postpartum depression again given the consequent CPS involvement.

Information/Resources versus Connecting with Others

The original intent of the second and third aims of this study was to identify women's information needs and priorities for supportive resources, and to collaboratively create the content for an information resource for women. This was envisioned as a pamphlet or a book, or perhaps a website. This resource would have contained information geared towards mothers who may be dealing with multiple stressors and difficulties (violence and trauma, mental health issues, addiction, poverty) that are often not addressed by mainstream information resources for women (e.g., "What to Expect When You're Expecting") or by clinicians in practice.

In these interviews, however, it quickly became apparent that these mothers did not identify information or resources as addressing their needs. Rather, they reported that information and resources were "everywhere." Further, interviewees often recommended resources that they thought would be useful for other mothers in similar circumstances, such as parenting groups, mentoring programs for CPS-involved women with addiction histories, wraparound services for impacted children, and online support groups. These resources, unfamiliar to the investigator despite experience working in the community for over a decade, were excellent recommendations. A list of these resources was compiled into a newsletter along with the study findings to then be returned to women that participated in the study.

In other words, these mothers were well informed and extremely resourceful, and did not identify these as primary concerns. Instead, what emerged from the data were two areas for intervention that mothers described as most appropriate, desired, and helpful to ameliorate their stress. The first is a description of the kind of health care, in particular

prenatal care, desired by mothers in this study. The second is a recommendation for building social support and connection with other mothers. These will be examined in turn. While these findings have implications for clinical practice, the implications also extend to social service settings in which vulnerable women are served.

Consistent with the WHO framework of social and structural determinants of health (Doherty et al., 2006), the health care system can be seen in these mothers' stories as a key intermediate determinant of health that acted to reinforce, ameliorate, or have no effect on women's existing disadvantages and stressors. Pregnancy may represent the only time in a woman's life that she has regular contact with a health care provider and provides a window of opportunity for health promotion and risk reduction (Ickovics et al., 2003). Mothers spend a great deal of time in health care providers' offices, and women in this study sometimes felt quite vulnerable and disempowered in these settings. Conversely, even in women's most trying and difficult circumstances, when they endured problems they were too afraid to disclose, the empathy that health care providers communicated had enormous impacts. Recall that Sadie said, "It's that little seed, you know, that people drop in, into your soul. And it just keeps on building, and it grows a tree eventually." Empathy extends beyond the moment it is expressed.

Mothers in this study wanted health providers to respect their time, to listen to their concerns, to communicate and not to judge, to support them, and to demonstrate empathy. As Iris thoughtfully observed, mothers want to know "that they're just not another patient. You need to know who... who they are... and where they've come from... You're there to care for them and to make them feel better." Although women did not use the jargon term "trauma-informed care," it is congruent with the kind of care that

these mothers described as desirable—including mothers who did not disclose as trauma survivors.

Trauma-Informed Care

The findings of this study are consistent with much of the literature about disadvantaged women: trauma exposures are common. Trauma survivors are typically reluctant to identify themselves as such, and often with good reason. Yet trauma and its sequelae significantly impact a woman's emotions, identity, expectations of self and others, relationships, and view of the world, in addition to her health (Elliott, Bjelajac, Falloot, Markoff, & Reed, 2005). Failing to acknowledge trauma can result in misdiagnoses, inappropriate treatment, and perhaps worst of all, retraumatization (Huntington, Moses, & Veysey, 2005).

Since 2005, the National Center for Trauma-Informed Care within the federal Substance Abuse and Mental Health Services Administration has provided training, technical assistance, and resources to publicly funded systems and programs to promote trauma-informed care (Substance Abuse and Mental Health Services Administration, n.d.). Trauma-informed services are those not directly designed to address trauma issues but are designed with trauma and its sequelae in mind (Substance Abuse and Mental Health Services Administration, 2000). This philosophy of care is intended to ameliorate the health, behavioral health, and social impact of trauma by facilitating recovery. It has been practiced and evaluated in social service settings where a majority of clients are trauma survivors (e.g., mental health and addiction services, domestic violence service providers).

Trauma-informed care has also been described as useful and appropriate (if underutilized to date) in primary care and other healthcare settings (Elliott et al., 2005). Proponents of trauma-informed care assert that health care and social service providers cannot assume that they always know who among their clients is a trauma survivor. Trauma-informed care recommendations are geared towards all patients or clients, and can be characterized as a respectful way to interact that is also appreciated by those who are not survivors of traumatic events (Fallot & Harris, 2002). This approach is consistent with the findings that emerged from the current study. Mothers did not differ in their descriptions of desirable and undesirable treatment by health care providers based upon whether or not they identified as a trauma survivor.

Consistently, study women sought a relationship with their health care providers that embodied the principles of trauma-informed care. The first principle of trauma-informed care is based upon prioritizing recognition, acknowledgement, validation, and addressing trauma and its impacts. This means that women should be assessed for trauma and its sequelae at every point of entry to care (Becker et al., 2005), starting “where the person is” and asking how providers can support them based on their own priorities (National Center for Trauma-Informed Care, 2007).

The well-documented low screening and treatment rates in prenatal settings for mental health issues (American College of Obstetricians and Gynecologists, 2006; Andersson et al., 2003; Birndorf et al., 2001; Kelly et al., 2001; Seng, 2002; Smith et al., 2004) and for intimate partner violence (Chamberlain & Perham-Hester, 2000; Clark et al., 2000; Shadigian & Bauer, 2004) not only exclude pregnant women from treatment and increase their health risk, but also are incongruent with trauma-informed care.

Moreover, providing integrated and comprehensive care for trauma, mental health problems, and addiction within the health care setting—or partnering closely with agencies that provide such services—versus simply “referring out” for fragmented and uncoordinated services—is key to treating the whole woman and addressing her needs (Elliott et al., 2005; Huntington et al., 2005).

Recognizing and addressing the impact of violence and victimization on women requires an awareness of the potential for re-triggering in the health care setting. It is not surprising that the women in this study, with a high prevalence of trauma and mental health sequelae, emphasized that poor communication from healthcare providers was particularly distressing. The disempowerment, sense of exposure, and loss of control over one’s own body that can accompany clinic visits can replicate past victimization experiences for women (Elliott et al., 2005). Poor communication exacerbates the control dynamic, furthering the replication.

Therefore, maximizing the sense of choice and control for women is central to preventing this replication of trauma. The philosophy of trauma-informed care is based on empowerment and collaboration with survivors, a sharp contrast with an expert medical model that pervades healthcare. The sense of connection, acknowledgement, and empathy that mothers in this study wanted from their healthcare providers (and some few women enjoyed) are key aspects of trauma-informed care. Caring relationships that balance the power between provider and client are healing, help rebuild lost self-esteem, and represent “the opposite of traumatizing...offering respect, information, connection, and hope” (Elliott et al., 2005).

Another key principle of this care model involves recognizing the sociopolitical and cultural contexts in which women are embedded (Elliott et al., 2005). This recognition should include acknowledgement of women's social position but the findings of this study suggest this principle should extend attention to larger systems issues. As has been noted elsewhere (Becker et al., 2005), barriers to help exist on multiple levels for these mothers. In addition to problematic healthcare provider responses (or lack thereof), there are fractured and underfunded public health, mental health, and substance abuse systems, limited available services, and little insurance. It is no longer tenable for healthcare providers to base their practice solely on the individual level with little awareness of larger systems issues (within their own system or beyond) or — importantly— how they themselves might advocate for change.

For vulnerable mothers, health care providers must specifically acknowledge women's very rational fears about the possible consequences if they disclose violence, addiction, or other difficult circumstances. It is incumbent upon those who work with vulnerable women to not only convey the empathy, care, and non-judgmental attitude that allow women to feel safe, but they must also educate themselves adequately so that treatment options, resources, and mandatory reporting requirements are transparent and conveyed to women clearly. Most women care deeply about their children (Campbell & Parker, 1992), as did Naomi, and fear losing them if Child Protective Services were to become involved (Becker et al., 2005). If unaddressed, this fear will remain a barrier that prevents mothers from getting the help that they need.

Partnering with survivors to advocate for system-level policy change in other settings is another avenue for healthcare providers to contest health disparities. For

example, abused women need support in the child welfare system so that they are not held accountable for their partner's violence (Carter & Schechter, 1997), as Gina was when her children were taken into custody after witnessing their father's abusive behavior. It is also critical to note that all of the nine women who had current or previous involvement with Child Protective Services had severe levels of PTSD symptoms (not necessarily diagnosed or treated). This finding suggests that child welfare providers also should consider how they can assess for PTSD and address it with CPS-involved women—in ways that are not punitive to mothers who have already been victimized by violence and trauma, and may have few resources for treatment.

Finally, trauma-informed care requires that survivors become part of the systems themselves. As intersectionality theory suggests, for marginalized women, their social location at multiple, overlapping systems of domination (i.e., gender, race, social class) provides them with a unique and privileged knowledge of those systems. In this study, the mothers who were the most marginalized—had the most overlapping risk factors—were among the most insightful and helpful women interviewed. They identified not only the negative impact of systems of domination but also identified protective factors for women in the face of adversity. Their insider or emic knowledge was crucial to understanding the issues, needs, and strengths. In a similar fashion, women can and should be involved in designing, delivering, and evaluating the health care and social services that are intended to serve them, through advisory boards, focus groups, and feedback forums (Elliott et al., 2005).

Again, trauma-informed care has been relatively underutilized in primary care settings. Future research should evaluate the impact of such care on health outcomes for

mothers. Based on the findings that emerged from the women in this study, trauma-centered care aligns as a potential way to support vulnerable mothers with the connected, empathetic, and empowering care they desire.

Building Connection with other Mothers

The second recommendation for intervention follows from the finding that emerged from the women's almost universal identification of pregnancy and motherhood as intensely isolating and lonely, and their expressed desire for substantive connection with other mothers. Mothers in this sample were rather well informed and extremely resourceful, and did not identify a lack of information or resources as primary concerns. This is not to imply that all mothers felt equally well informed or that none of the mothers wanted information. Rather, what these mothers conveyed was a desire for information that came from health care providers (particularly information specific to their situation or plan of care), and to share that information and support with other mothers. Recall Michelle's description of the difference between reading about stress and emotions in a pregnancy book, and connecting with someone else who understood: "It's supposed to help, but it really doesn't. Because it's just words. (It's) the being able to talk to somebody else, who is going through it."

More important, sharing information with other mothers was not unidirectional. Women described wanting to hear from other mothers in similar circumstances, to understand, as Iris put it, "how someone else is getting through this." However, women also wanted to support other women, and described this as an empowering experience. Altruism has been described as a personality trait that increases resilience in the context of extreme trauma and stress (Milne, 2007). Beatriz noted, "Because then it is that

something good has come out of what I have been through, if I can help someone else get through it.” Thus, from these mothers stories emerged a much richer concept of women’s priorities for information and support than originally envisioned—an outcome made possible by the participatory study design.

The isolation and intense loneliness shared by nearly all of these mothers could be attributed, in part, to the universal and often overwhelming demands of pregnancy and parenting (particularly for women with very young children). Thus it is possible that many women would share such feelings. However, many of these mothers had chaotic and stressful childhoods and shared that they had loosened social bonds and had feelings of isolation and depression that substantially predated becoming a parent. Their childhood family systems were fractured by their own parents’ drug abuse, violence, and neglect. The damage that such adverse childhood experiences may inflict on health has been well described (Dietz et al., 1999; Felitti, 2004; Felitti et al., 1998; Ragin et al., 2002). Mothers in this study attributed their inexperience and uncertainty with making the desired social connections to a lifetime of disruption, relocation, and difficulty. New social situations caused anxiety in the face of certainty that others would judge or dislike them. The arousal, hypervigilance, and avoidance common to PTSD may have served as an additional barrier to walking into a room full of strangers, however desirable the connections.

Thus, it is evident that the mothers need help, support, and a safe atmosphere to facilitate the connections. A salient aspect of trauma-informed care involves actively facilitating these connections by “the formation of a forum where women can relate to each other in a *mutually supportive* way” (Elliot et. al., p. 466).

A recent model for facilitating such connections within the healthcare setting is the CenteringPregnancy model of group prenatal care, initially piloted on the East Coast in 1993. Currently, scores of CenteringPregnancy (and a newer pediatric care model, CenteringParenting) programs can be found across the nation (Centering Healthcare Institute, 2008; Schindler-Rising, Powell-Kennedy, & Klima, 2004). In this model, women have their initial intake into their obstetric care in the usual manner, meeting with the provider individually and having a thorough history and physical examination. They are then invited to join a group of with eight to twelve other pregnant women with similar due dates, beginning in early pregnancy and extending through early postpartum. Groups meet monthly for the first four months, then bi-weekly, for a total of about 20 hours of contact during pregnancy. Women are taught to perform their own basic health measures to empower them to become active participants in their own care (Schindler-Rising et al., 2004). As women arrive for the group, they weigh themselves, measure their own blood pressure, estimate their gestational age and record their own information on their chart. They have refreshments and a chance to socialize with other women in the group as assessments are ongoing.

The women then meet briefly with the provider to listen to fetal heart tones, measure for uterine growth, and talk individually about specific problems and concerns. Finally, the provider facilitates a discussion group, using a dialogic, facilitative leadership style that entrails listening and providing guidance and redirection where appropriate—not a didactic lecture style. Women share in discussing topics of interest related to pregnancy, childbirth, parenting, and personal growth. Groups decide by consensus

whether or not family support persons or others will be admitted into the group setting or if it will be a woman-only group (Schindler-Rising et al., 2004).

The CenteringPregnancy model is intended to provide comprehensive, holistic prenatal care that is an alternative to the “medical illness model” (Baldwin, 2006).

Empowerment, community building, and facilitating connections between the mothers are key components of the model (Schindler-Rising et al., 2004). Sharon Schindler-Rising, the founder of the CenteringPregnancy program, noted:

Groups provide women with social support. That support is built through actions from others that contribute to a feeling of inclusion and importance and to the development of a network of belonging... Groups honor a pregnant woman’s need for affiliation and also provide opportunity for skill building, attitude change, self-responsibility, and the development of social support and community as members share their common life experiences (Schindler-Rising et al., 2004).

Outcomes research comparing standard prenatal care with the CenteringPregnancy model is needed (Baldwin, 2006). In the handful of studies that have been conducted, CenteringPregnancy participants reporting being highly satisfied with their care (Grady & Bloom, 2004; Ickovics et al., 2003). Ickovicks et al. (2003) conducted a matched cohort study of predominantly low-income and minority women attending three urban public clinics ($N = 458$). In comparison to women receiving traditional individual care, CenteringPregnancy participants bore significantly higher birth weight infants ($p < .01$). Among mothers delivering preterm, CenteringPregnancy mothers delivered significantly later (34.8 versus 32.6 weeks, $p < .001$), and their preterm infants were significantly larger. Mothers in this study were not randomized to the type of care they would receive therefore some selection bias may have been in effect. Nonetheless, such findings are intriguing, given that preterm birth and low birth weight

are the leading causes of infant morbidity and mortality—and key drivers of health disparities in infant outcomes in the United States (Mathews & MacDorman, 2007).

No research studies were located that specifically evaluated the use of the CenteringPregnancy model with mothers who were contending with histories of trauma and addiction, or depressive or PTSD symptoms. However, among these mothers, all of whom had extensive trauma histories, the responses to this model were positive. As noted, only one mother, Beatriz, expressed some reservation, related to her concerns about “being heard” in a group setting. This concern is consistent with Beatriz’ substantial trauma history, and with the trauma-informed care perspective which privileges returning power and voice to trauma survivors, and avoiding silencing or disenfranchisement that replicate past victimization experiences (Elliott et al., 2005).

The trauma-informed care perspective also is based upon meeting the survivor where she is, thus, for some trauma survivors a group care model may be uncomfortable and undesirable. Research to evaluate the use of such a model with trauma survivors and women with other difficult issues is needed. Such a model is congruent with the finding that women wished to connect in a meaningful way to other mothers and build community with them, and with the practice of trauma-informed care, which prioritizes facilitating such connections between survivors. Further, the preliminary exploration of the idea of such a model with mothers in this sample revealed that it is largely acceptable, even appealing, to them.

Implications for Research

Appropriate avenues for future research include description of the most effective ways to facilitate such connections. The effectiveness and appropriateness of existing group prenatal care models such as CenteringPregnancy should be explored further for mothers who have multiple intersecting vulnerabilities, including violence and trauma histories, addiction issues, and mental health problems. Finally, research is needed to understand the impact of trauma-informed care approaches, including facilitation of group connections, upon prenatal outcomes among groups of mothers at high risk for disparities in maternal-child health.

Limitations

Limitations of the study include a small sample size and a convenience sampling technique in which highly stressed women with high exposures to violence and depressive and PTSD symptoms may have self-selected into the study. Interviews conducted by a white interviewer may have inhibited minority women's ability to comfortably discuss unfair treatment or stress related to their minority status, thus this factor may have more salience in mothers' lives than these data suggest. Exclusion of adolescents—who are at high risk for poor pregnancy outcomes—and of non-English speaking women likely misses entire categories of risk and difficulty faced by mothers who are young and/or who experience language barriers.

Summary

This mixed-methods, participatory research study was designed to describe the experience of pregnancy and early motherhood among a sample of twenty-four diverse, primarily low-income urban Oregon mothers, focusing on social and structural

determinants of health known to be associated with preterm birth/low birth weight, infant mortality, and maternal mortality. The findings of this study add to the body of knowledge needed to generate effective interventions to ultimately reduce poor maternal-child outcomes in the United States. Study questions and findings were refined collaboratively with a group of lay advisors who were mothers from the target population.

Among the vulnerable mothers in this study, financial distress was nearly universal, trauma exposures were highly prevalent, and depressive and PTSD symptoms were unexpectedly high—and largely undiagnosed and untreated. Intersecting, overlapping, and complex relationships were witnessed between mothers' challenges related to race, class, trauma, violence, mental health issues, and/or substance use. Such findings underscore the utility of the intersectional lens to examine complex research issues which are best understood using a complex and holistic approach.

These mothers exhibited tremendous resiliency and strength, but also articulated experiences of stress and discrimination associated with these challenges, and described multiple impacts of such experiences upon their health, including fatigue, low self esteem, eating disturbances, self-mutilation, self-medication, and other unhealthy coping methods. Childhood stress and deprivation continued to impact adult health for many of the mothers in this study. Women also described intense feelings of isolation and loneliness related to pregnancy and becoming a mother, exacerbated by traumatic life experiences. Finally, women also described protective factors, such as the role of social support and acceptance. The role of the health care setting as an intermediate determinant

of health, that could reinforce, ameliorate, or have no effect upon structural and social determinants of health, was supported within the data.

Finally, the study aimed to describe mothers' priorities for support and information to ameliorate the impact of stressors. Women in the sample were extremely resourceful, and did not identify information resources as a priority. They did identify that connected, empathetic, and supportive health care was highly important to alleviating their stress. Also highly desired yet elusive for most of these mothers, was meaningful connection with other women. They anticipated such connections would provide a way to reduce their feelings of loneliness and isolation, allow them to cope with stress, and provide an opportunity to help other women to do the same.

Recommendations for clinical care based upon these findings include an emphasis on empathetic and empowering trauma-informed care, which includes facilitating social bonds and connections between vulnerable mothers. Appropriate avenues for future research include description of the most effective ways to facilitate such connections. The effectiveness and appropriateness of existing group prenatal care models such as CenteringPregnancy should be explored for mothers who have multiple intersecting vulnerabilities, including violence and trauma histories, addiction issues, and mental health problems. Finally, research is needed to understand the impact of trauma-informed care approaches, including facilitation of group connections, upon prenatal outcomes among groups of mothers at high risk for disparities in maternal-child health.

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APPENDICES

Appendix A: Lay Advisors Information Sheet

Oregon Health & Science University (OHSU)
Information Sheet

Title: A collaborative, Intersectional approach to health disparities in pregnancy

PRINCIPAL INVESTIGATOR: Nancy Glass, Ph.D., MPH, RN; (503) 494-0107

CO-INVESTIGATORS: Mary Ann Curry, Ph.D., RN
 Tina Bloom, MPH, RN

SPONSOR: National Institutes of Health/National Institute for Nursing Research

PURPOSE OF STUDY: You have been invited to be in this research study because you are a woman who is either pregnant now, or has delivered a child within the previous three years. The purpose of this study is to learn more about what women think is stressful during pregnancy and when they are becoming mothers. We also want to know more about what helps with stress, and what information women think would be most helpful to pregnant women. This study will include a total of about 40 women. Your participation in this study will consist of between one and three interviews. Each interview will last between 1 hour and 1 1/2 hour.

PROCEDURES: If you choose to be in this study, you will first be asked to fill out a survey. The survey has questions about: 1) you (such as your age, race, and income); 2) times when you may have been treated unfairly; 3) how much stress you have; 4) violent experiences you may have had; and 5) questions about your health and if you have had mental health symptoms. This survey will take about 30 minutes to complete.

Then, the researcher will interview you. The researcher will be asking you to give your advice and opinion about the survey questions. We would like to ask you if the questions made sense, if we are asking them the right way, and if there are questions we have missed or changes we should make. This part of the meeting will be audiotaped and transcribed. The audiotape will be destroyed after it is transcribed. You can ask to have the tape recorder turned off at any time. This second part of the study will take about an hour.

The researcher will meet with you in any place that is safe and convenient for you. None of the information gathered from this survey will be included in your permanent medical records at Oregon Health & Science University. There will be no medical procedures.

Over the next six months, the researcher may contact you again for 1-2 additional interviews. For these additional interviews, she will share the results of the study with you. She will ask you to look at the results and tell her if it is easy to read, if it makes sense, and if there are changes that should be made to make them better for pregnant women. You will not see any information that would identify women who are in the study. This interview will also be audiotaped and transcribed. The audiotape will be destroyed after it is transcribed. You can ask to have the tape recorder turned off at any time. This interview will take about an hour.

RISK AND DISCOMFORTS: Some of the survey questions you may be asked to review as part of this study may seem very personal or embarrassing. They may make you think about stressful experiences in your own life, and you could become upset. You can refuse to talk about any of the questions that you do not wish to answer. If you feel very upset, the researcher will help you to find a counselor.

ALTERNATIVES: Being in this study is voluntary. You can choose not to take part in this study. You can change your mind at any time about being in the study.

BENEFITS: You may or may not personally benefit from being in this study. However, by being in a study, you may help us learn new information that may benefit other women in the future.

CONFIDENTIALITY: Neither your name nor your identity will be used for publication or publicity about the study. The survey will not contain your name but rather a number code, and will be kept in locked files in the researcher's office at OHSU indefinitely. Your contact information will be kept in a separate locked file and will be destroyed when the study is over. Under Oregon Law, if we learn something that would immediately put you, your child, or another person in danger, we may discuss it with you, if possible, and it must be reported to appropriate authorities. Under Oregon Law suspected child or elder abuse must be reported to the appropriate authorities.

COSTS: There will be no costs to you for being in this study. There is a \$30 compensation for your time, which will be given to you each time you meet with the researcher.

CONTACT: If you have questions about the study, please contact the **Principal Investigators, Nancy Glass, at (503) 494-0107, or Mary Ann Curry at (503) 494-3847.** If you have questions regarding your rights as a research participant, please contact the **OHSU Research Integrity Office at (503) 494-7887.**

RESOURCES:

Portland Women's Crisis Line: 1-888-235-5333, toll free statewide

Appendix B: Telephone Script For Screening And Recruitment, Lay Advisors

1. Read the following:

My name is Tina and I am working with Oregon Health & Science University on a study about women's health. I would like to tell you about this study. You are not obligated in any way to take part in this study. Although you may have heard about it through a community program or service, such as Healthy Start or WIC, the study is not connected with any community program. It does not affect your services there if you decide to be in the study or not, and your study information is not shared with them. The purpose of this study is to learn more about what women think is stressful during pregnancy and when they are becoming mothers. We also want to know more about what helps with stress, and what information women think would be most helpful to pregnant women. I am asking women to help me design the study by looking at the study questions and giving their opinion about them.

If you take part in this part of the study, I will ask you to fill out a written survey that has study questions on it. Then, I will ask you to help me with my study by telling me what you think about those questions and some other questions I am planning to ask. Later, if you are willing, I would meet with you to talk about the study results and ask your opinion about them. I would meet with you between one and three times over the next six months, in any place that is safe and convenient for you. The conversation should take about an hour to an hour and a half, and I can provide childcare for your children while we are talking and \$30 to compensate you for each time we meet. Do you think you would be interested in being part of the study?

If she says no, ask “Would it help if I told you more about what I am doing?”

If she says no again, say “Well, thank you so much for your time. If you do change your mind or if you have questions about what we are doing, please feel free to contact me at (phone #).

[*Conclude call*]

If she says yes, begin with, “As I mentioned, my name is Tina. I am a doctoral student at Oregon Health & Science University and I am currently studying women's health. I'd like to ask you a couple of questions to make sure this study is right for you.

Follow up with the screening questions:

- Are you currently pregnant, or have you delivered a child within the last three years?
- Are you 18 years old, or older?

Can you speak English fluently?

If the answer to ANY screening question(s) are no, say, “Because of [X] this study is not quite right for you. However, thank you so much for your time and willingness to help.” [*Conclude call*]

If the answer to ALL screening questions is yes, say, “Thank you. You would be eligible to be in this study. I would like to tell you a little more about the study now and you can decide if you are interested in participating.

If you agree, I'm going to ask you to meet with me for approximately one and a half hour. First I will ask you to fill out a survey. The survey has questions about: 1) you (like your age, race, and income); 2) times when you may have been treated unfairly; 3) how much stress you have; 4) violent experiences you may have had; and 5) questions about your health and if you have had mental health symptoms. This survey will take about 30 minutes to complete.

Then, I will ask you to think about the study questions on the survey. I would like you to tell me if the questions make sense, if I am asking them the right way, and if there are questions I have missed or changes I should make. I will also ask you to look at another set of study questions and give your opinion on them.

The entire conversation should take about an hour and will be tape-recorded. I can turn off the tape at any time you ask me to. To compensate you for your time, I would like to give you an envelope with \$30.

Later in the study, I may also ask you to meet with me again. I will be using information from the study to make an information resource for pregnant women. I would ask you to look at the information and tell me if it is easy to read, if it makes sense, and if there are changes that I should make. I may ask you to meet with me a third time if you are willing and if I have more questions. Each meeting should take approximately one hour, and to compensate you for your time, I would like to give you an envelope with \$30.

There are no right or wrong answers because I am asking about your opinion. You can skip any question you don't want to answer, and you can stop the conversation or change your mind about being in the study at any time if you don't want to continue. If at any point, you need assistance with other resources or information and support, I can help arrange for that.

I am not part of the medical or criminal justice system. Information that you may tell me will remain confidential, unless you tell me about a child or an elderly person who is being abused. I am not asking questions about child or elder abuse in this study. Your name will not be linked with what you say. Most importantly, you are not obligated in any way to participate in this study; it is totally your choice whether or not you talk with me. If you choose to be in this study or not to be in the study, it will not affect your services at any community programs, and they will not see your answers or know who is in the study.

Do you have any questions for me? Are you willing to participate?

If she says no, ask "Would it help if I told you more about what I am doing?"

If she says no again, say "Well, thank you so much for your time. If you do change your mind or if you have questions about what we are doing, please feel free to contact me at (phone #).

[*Conclude call*]

If she says yes, say: Thank you. Would you like to set up a time to meet?

Proceed to contact sheet.

Appendix C: Contact Sheet for Lay Advisors

Remind participant that her name and contact information is confidential, and will be kept under lock and key. Remind participant that contact information will be destroyed after the study is completed.

Name (first name only): _____

Date of contact (see contact codes*):

Contact information: Phone number _____ Safe? Y/N

Alternate phone number: _____ Safe? Y/N

Message phone/email: _____ Safe? Y/N

Eligibility:

Fluent in English

Currently pregnant OR delivered a child within previous 3 years....

18 years of age or older

Date & Location for Meeting:

Do you need childcare for your interview?

If yes, # children/ages: _____

Do you need help with transportation for your interview?

Notes: _____

To be filled in after interview:

Dates of Interviews/Notes:

*Contact codes: NA=no answer, CB= called back, LM= left message, BZ=busy, DC= disconnected,

Appendix D: Interview Guide For Interviewing Lay Advisors: Phase One

Read the information sheet with participant and perform the informed consent process with her.

Introductory comments, background, and purpose: Pregnancy is safe for most mothers and their babies, but women can experience health problems during pregnancy, during childbirth and soon after the birth of their child. Through talking with pregnant women, we have learned that stress and/or emotional problems may be related to difficulties during and soon after pregnancy. We have also heard from women that stress is related to many factors that occur during their lives and may include things like not having enough money, being treated unfairly by other people, and being exposed to violence. These things can be hard to talk about, but we think they are important to learn more about to improve health care for pregnant women.

In our conversation, I would like to know what you think about these kinds of stresses. By taking part in this study you are helping us to better understand stress during pregnancy and soon after and what makes things better for women, and what makes things harder. Thank you for meeting with me to take part in this important research. Please remember that there are no right answers to the questions I am asking you, and that I am most interested in what you think. You will be helping me to make this study better by helping me to ask the right kinds of questions in the right way.

Part of our interview will be tape-recorded, because I want to be able to remember what we talk about, and your thoughts and ideas are very important to me. Later on, I will use the tape to write what you say on paper, and then I'll destroy the tape. Your name won't be on the tape or the paper. Also, if you say anything when we're talking that I think might identify you or someone else, I will leave that out, because your privacy is very important to me. If at any point you want me to turn the tape recorder off, just tell me. Do you have any questions for me? Are you ready to begin?

Let's start by talking about stress in general. 1A. What does the word stress mean to you?

1B. After participant has given her input, continue: In this study, I am using the word "stress" or "stressors" to mean the kinds of difficulties or challenges that people have in their lives, including things like not having enough money, dealing with unfair treatment, or violence. Keeping the idea of stress in mind, I would like you to think for just a minute about your life and some of the stresses that may have affected you. Some things may have happened to you early in life, even as a child. For example, you may have lost someone close to you at a young age, or witnessed someone getting hurt. They might not matter now, or they may still bother you sometimes. Other things may have happened more recently, or are still happening now. Please take a moment to think about what has been most stressful and difficult for you in your own life.

2. Now that we have talked some about what stress means to you, and you have thought about some of your own stresses, I would like you to take just a moment to think about how those have affected you as a person and especially as a mother, during pregnancy and after the baby was born. You may not feel like some stressful things have affected you, and that is OK. Or you may not be sure how they have affected you, and that is OK too. You don't have to share those stressful experiences with me; I am only asking you to reflect for a minute on the role that tough times have had in your life.

Now that we've talked and thought about stress a little bit, I am going to ask you questions from a survey. The questions on this survey will ask about you (like your age, race, and income), your level of stress, mental health symptoms you might be feeling, and experiences you may have had over your lifetime of violence, and of being treated unfairly. Please remember that your answers are kept private, and your name will not be written anywhere on this survey. Also, please remember that you can skip any questions that you don't want to answer. When we finish these questions, I want to ask you what you thought about these questions.

Provide her with an additional, blank copy of the survey. Administer the survey questions and record her responses.

Now, I would like to turn on the tape recorder and ask you some questions about what you thought about the questions on the survey. Are you ready? Do you need a break before we start?

3. You have a blank copy of the same survey you just took if you need to look at it again. What did you think of these survey questions?

Probes:

- *Were there any questions or subjects that you thought were especially important?*
- *Did it make sense that each section was part of the survey? Does it fit in a study about stress and its health effects?*
- *Were there any questions that were offensive to you?*
- *Were there questions you didn't understand or that didn't make sense? How would you change them?*
- *Were there questions that didn't quite fit with your experiences?*
- *Were there questions that were missing?*

4. Now I'd like to ask you to look at another set of questions. These are interview questions, and they ask the same kinds of questions but in a different way. Instead of asking women to fill out a survey, they ask questions in a more open-ended way. In this study, I would be asking women the questions I just asked you on the survey, and then I would follow up with these interview questions. The idea is that by asking the same thing in different ways, we learn more. Let's take just a moment to go through these questions, and then I will ask you what you think about them. I am not asking you to answer these questions yourself, rather, I want to ask you if the questions make sense and are complete. Are you ready to look at them? **Provide her with a copy of the qualitative questions and read the through qualitative questions with her.**

Probes:

- *Were there any questions or subjects that you thought were especially important?*
- *Did it make sense that each section was part of the survey? Does it fit in a study about stress and its health effects?*
- *Were there any questions that were offensive to you?*
- *Were there questions you didn't understand or that didn't make sense? How would you change them?*
- *Were there questions that didn't quite fit with your experiences?*
- *Were there questions that were missing?*

5. I have just a couple more general questions about this study for you and then we are finished. What would you change about these questions or how I plan to do this study?

Probe if needed:

- *Is there anything that I should have asked about that I missed?*

- *What do you think that people studying how stress affects women and their health need to know about?*
- *Does it make sense to ask questions in different ways, first with a survey and then asking women to talk more in-depth? Will it annoy people?*
- *Am I asking too many questions, not enough questions, or about the right amount of questions?*
- *What would you add or take out?*
- ***Are there parts of this survey that seem unimportant?***
- *Are there parts of this survey that would offend or upset people too much to leave in?*

We have finished with all the questions and I will turn off the tape recorder now. **[Turn off tape]** I want to thank you so much for your help with this study. I will be working to make the survey better based on the feedback I get from you and other women. I want to remind you that if you are comfortable with it, I may contact you again to ask you to review any changes that I make to the survey. If we meet again to talk about it, it will take an hour or less, and I will pay you for your time again. Also, when I have the study results, I may contact you to ask you your opinion about them. If I contact you, I would arrange to meet with you again like we have met today, and would compensate you for your time. Is it still all right with you that I contact you again? You can change your mind at any time about whether you want to continue to be in the study.

Thank you!

Appendix E: Qualitative Questions Draft 11/27/2007: Document for Lay Advisors to Review

Introductory comments, background, and purpose:

Pregnancy is safe for most mothers and their babies, but women can experience health problems during pregnancy, during childbirth and soon after the birth of their child. Through talking with pregnant women, we have learned that stress and/or emotional problems may be related to difficulties during and soon after pregnancy. We have also heard from women that stress is related to many factors that occur during their lives and may include things like not having enough money, being treated unfairly by other people, and being exposed to violence. These things can be hard to talk about, but we think they are important to learn more about to improve health care for pregnant women.

In our conversation, I would like to know what you think about these kinds of stresses. By taking part in this study you are helping us to better understand stress during pregnancy and soon after and what makes things better for women, and what makes things harder. Thank you for meeting with me to take part in this important research. Please remember that there are no right answers to the questions I am asking you, and that I am most interested in what you think.

Our interview will be tape-recorded, because I want to be able to remember what we talk about, and your thoughts and ideas are very important to me. Later on, I will use the tape to write what you say on paper, and then I'll destroy the tape. I keep all my things locked up in my office. Your name won't be on the tape or the paper. Also, if you say anything when we're talking that I think might identify you or someone else, I will leave that out, because your privacy is very important to me. If at any point you want me to turn the tape recorder off, just tell me. Do you have any questions for me? Are you ready for me to turn the recorder on and to begin?

Let's start by talking about stress in general.

1. What does the word stress mean to you?

After participant has given her input, continue:

In this study, I am using the word "stress" or "stressors" to mean the kinds of difficulties or challenges that people have in their lives, including things like not having enough money, dealing with unfair treatment, or violence. Keeping the idea of stress in mind, I would like you to think for just a minute about your life and some of the stresses that may have affected you. Some things may have happened to you early in life, even as a child. For example, you may have lost someone close to you at a young age, or witnessed someone getting hurt. They might not matter now, or they may still bother you sometimes. Other things may have happened more recently, or are still happening now. Please take a moment to think about what has been most stressful and difficult for you in your own life.

2. Now, let's start by talking about the kinds of things that you are stressful for women in their lives, especially things that affect them when they are pregnant or raising young children. What kinds of things do you think are most important?

[This Page is Question 2 Prompts; Only to be Used As Needed]:

A. Socioeconomic Status: We know that many pregnant women and mothers of young children have a hard time making ends meet. What do you think about that?

Follow-up probes to be used as needed:

- *Is not having enough money important to health?*
- *What is the most difficult thing about it? Are some kinds of money problems worse than others?*
- *How does this affect pregnant women and mothers?*
- *Has this been an issue for you? Can you share an example of how this has affected you, especially as a pregnant woman or a mother?*
- *What keeps women poor? What helps women support their families' financial needs?*
- *What about growing up not having enough to make ends meet? Does this make a difference in your life later? Is this important when we think about being poor?*

B. Discrimination: What about unfair treatment or discrimination? Is this important?

Follow-up probes to be used as needed:

- *How are women treated unfairly? Where? Why?*
- *Is this a big stressor? Is it important to health?*
- *What is the most difficult thing about it?*
- *Has unfair treatment been an issue for you in your life? Can you describe an example of unfair treatment that has impacted your health, especially as a pregnant woman or a mother?*
- *Are some kinds of unfair treatment worse than others? What is the worst kind? Do you think unfair treatment has an affect on women's health?*
- *Does it make a difference in your life as an adult if you have grown up with unfair treatment?*
- *Is it hard to talk about unfair treatment?*

C. Violence: We know that many women will also experience domestic violence during their lifetime, even during pregnancy. This happens when a partner is controlling, and can include hitting, pushing, choking, emotional abuse, constant jealousy, forced sex, or threats. Many women experience other kinds of abuse besides domestic violence in their lifetimes, such as being abused as a child, sexually assaulted by someone who isn't an intimate partner, or dealing with violence in the community. What effects do you think this has?

Follow-up probes to be used as needed:

- *Are some kinds of violence worse than others? What is the worst?*
- *What is the most difficult thing about it?*
- *How does this affect pregnant women and mothers?*
- *Has this been an issue for you? Can you describe an example of how that has affected your health, especially as a pregnant woman or a mother?*
- *What keeps women from being able to escape from violence? What makes it hard for pregnant women and mothers to talk about or ask for help?*
- *What about growing up with violence? Does this make a difference in your life later?*

D. *Mental Health*: Many people have to deal with mental health problems like depression. Is that an important issue for pregnant women and mothers?

Follow-up probes to be used as needed:

- *What is the most difficult thing about it?*
- *How does this affect pregnant women and mothers?*
- *Do women keep depression a secret from family, friends, and health care providers?*
- *What makes it hard to talk about? What leads women to keep it a secret?*
- *Has this been an issue for you? Can you describe an example of how that has affected your health, especially as a pregnant woman or a mother?*

E. *Substance Abuse*: Many people turn to drugs or alcohol to try to feel better. Do you think this is important?

Follow-up probes to be used as needed:

- *Is it also a stressor? What is the most difficult thing about it?*
- *How does this affect pregnant women and mothers?*
- *Do women keep substance abuse a secret because they are afraid they may lose their children?*
- *What makes it hard to talk about? What leads women to keep it a secret?*

Appendix F: Participant Information Sheet

Oregon Health & Science University (OHSU)
Information Sheet

Title: A collaborative, Intersectional approach to health disparities in pregnancy

PRINCIPAL INVESTIGATOR: Nancy Glass, Ph.D., MPH, RN; (503) 494-0107

CO-INVESTIGATORS: Mary Ann Curry, Ph.D., RN
 Tina Bloom, MPH, RN

SPONSOR: National Institutes of Health/National Institute for Nursing Research

PURPOSE OF STUDY: You have been invited to be in this research study because you are a woman who is either pregnant now, or has delivered a child within the previous three years. The purpose of this study is to learn more about what women think is stressful during pregnancy and when they are becoming mothers. We also want to know more about what helps with stress, and what information women think would be most helpful to pregnant women. This study will include a total of about 40 women. Your participation in this study will consist of between one and three interviews. Each interview will last approximately an hour and a half.

PROCEDURES: If you choose to be in this study, the researcher will meet with you in any place that is safe and convenient for you. First, the researcher will interview you. The study questions will focus on stress, and what kinds of problems you think are most important for pregnant women and mothers, and what kind of information you think women need to have healthy pregnancies. This part of the study will be tape-recorded and transcribed. You can ask to have the tape recorder turned off at any time. The recorded interview will take about an hour.

Then, you will be asked to fill out a survey. The survey has questions about: 1) you (such as your age, race, and income); 2) times when you may have been treated unfairly; 3) how much stress you have; 4) violent experiences you may have had; and 5) questions about your health and if you have had mental health symptoms. This survey will take about 30 minutes to complete.

The researcher will meet with you in any place that is safe and convenient for you. None of the information gathered from this survey will be included in your permanent medical records at Oregon Health & Science University. There will be no medical procedures.

Over the next six months, the researcher may contact you again for 1-2 additional interviews. For these additional interviews, she will share the results of the study with you. She will ask you to look at the results and tell her if it is easy to read, if it makes sense, and if there are changes that should be made to make them better for pregnant women. You will not see any information that would identify women who are in the study. This interview will also be audiotaped and transcribed. The audiotape will be destroyed after it is transcribed. You can ask to have the tape recorder turned off at any time. This interview will take about an hour.

RISK AND DISCOMFORTS: Some of the survey questions you may be asked to review as part of this study may seem very personal or embarrassing. They may make you think about stressful experiences in your own life, and you could become upset. You can refuse to talk about

any of the questions that you do not wish to answer. If you feel very upset, the researcher will help you to find a counselor.

ALTERNATIVES: Being in this study is voluntary. You can choose not to take part in this study. You can change your mind at any time about being in the study.

BENEFITS: You may or may not personally benefit from being in this study. However, by being in a study, you may help us learn new information that may benefit other women in the future.

CONFIDENTIALITY: Neither your name nor your identity will be used for publication or publicity about the study. The survey will not contain your name but rather a number code, and will be kept in locked files in the researcher's office at OHSU indefinitely. Your contact information will be kept in a separate locked file and will be destroyed when the study is over. Under Oregon Law, if we learn something that would immediately put you, your child, or another person in danger, we may discuss it with you, if possible, and it must be reported to appropriate authorities. Under Oregon Law suspected child or elder abuse must be reported to the appropriate authorities.

COSTS: There will be no costs to you for being in this study. There is a \$30 compensation for your time, which will be given to you each time you meet with the researcher.

CONTACT: If you have questions about the study, please contact the **Principal Investigators, Nancy Glass, at (503) 494-0107, or Mary Ann Curry at (503) 494-3847.** If you have questions regarding your rights as a research participant, please contact the **OHSU Research Integrity Office at (503) 494-7887.**

RESOURCES:

Portland Women's Crisis Line: 1-888-235-5333, toll free statewide

Appendix G: Script for screening and recruitment, Phase 1 Interview Participants

My name is Tina and I am working with Oregon Health & Science University on a study about women's health. The purpose of this study is to learn more about what women think is stressful during pregnancy and when they are becoming mothers. We also want to know more about what helps with stress, and what information women think would be most helpful to pregnant women. The interview can take place any place you are comfortable—your home, or in my office, or we can arrange to meet in a safe place near you. I will ask you questions about your health, safety, and employment. The conversation should take about an hour and a half, and I can provide childcare for your children while we are talking and \$30 to compensate you for your time. Do you think you would be interested in being part of the study?

If she says no, ask “Would it help if I told you more about what I am doing?”

If she says no again, say “Well, thank you so much for your time. If you do change your mind or if you have questions about what we are doing, please feel free to contact me at (phone #).

[*Conclude call*]

If she says yes, begin with, “As I mentioned, my name is Tina. I am a doctoral student at Oregon Health & Science University and I am currently studying women's health. I'd like to ask you a couple of questions to make sure this study is right for you.

Follow up with the screening questions:

- Are you currently pregnant, or have you delivered a child within the last three years?
- Are you 18 years old, or older?

Can you speak English fluently?

If the answer to ANY screening question(s) are no, say, “Because of [X] this study is not quite right for you. However, thank you so much for your time and willingness to help.” [*Conclude call*]

If the answer to ALL screening questions is yes, say, “Thank you. You would be eligible to be in this study. I would like to tell you a little more about the study now and you can decide if you are interested in participating.

If you do agree to be in the study, I'm going to ask you tell me a little bit about your experiences with pregnancy and becoming a mother. I will be asking what has helped you, and what has made it harder and more stressful. Some of the questions I am asking are about difficult things. They have to do with women's experiences of not having enough money, dealing with violence or discrimination, or having health problems like mental health symptoms or problems with alcohol or drugs. This is not an all or nothing situation, you can skip any question you don't want to answer, and you can stop the conversation at any point if you don't want to continue. If at any point, you need assistance with other resources or information and support, I can help arrange for that.

I am not part of the medical or criminal justice system. Information that you may tell me will remain confidential. Your name will not be linked with what you say. Most importantly, you are not obligated in any way to participate in this study; it is totally your choice whether or not you talk with me.

The entire conversation should take about an hour and a half. Part of it is a paper survey which I will give you, and part of it will be me asking you questions which will be tape-recorded. I can turn off the tape at any time you ask me to. To compensate you for your time, I would like to give you an envelope with \$30.

Do you have any questions for me? Are you willing to participate?

If she says no, ask “Would it help if I told you more about what I am doing?”

If she says no again, say “Well, thank you so much for your time. If you do change your mind or if you have questions about what we are doing, please feel free to contact me at (phone #).

[*Conclude call*]

If she says yes, say: Thank you. Would you like to set up a time to meet?

Proceed to contact sheet.

Appendix H: Contact Sheet for Phase One Interview Participants

Remind participant that her name and contact information is confidential, and will be kept under lock and key. Remind participant that contact information will be destroyed after the study is completed.

Name (first name only): _____

Date of contact (see contact codes*): _____

Contact information: Phone number _____ Safe? Y/N

Alternate phone number: _____ Safe? Y/N

Message phone/email: _____ Safe? Y/N

Eligibility:

Fluent in English

Currently pregnant OR delivered a child within previous 3 years....

18 years of age or older

Date & Location for Meeting:

Do you need childcare for your interview?

If yes, # children/ages: _____

Do you need help with transportation for your interview?

Notes: _____

To be filled in after interview:

Dates of Interviews/Notes:

*Contact codes: NA=no answer, CB= called back, LM= left message, BZ=busy, DC= disconnected

Appendix I: Interview Guide and Qualitative Questions Final 1-3-08

Introductory comments, background, and purpose:

Pregnancy is safe for most mothers and their babies, but women can experience health problems during pregnancy, during childbirth and soon after the birth of their child. Through talking with pregnant women, we have learned that stress and/or emotional problems may be related to difficulties during and soon after pregnancy. We have also heard from women that stress is related to many factors that occur during their lives and may include things like not having enough money, being treated unfairly by other people, and being exposed to violence. These things can be hard to talk about, but we think they are important to learn more about to improve health care for pregnant women.

In our conversation, I would like to know what you think about these kinds of stresses. By taking part in this study you are helping us to better understand stress during pregnancy and soon after and what makes things better for women, and what makes things harder. Thank you for meeting with me to take part in this important research. Please remember that there are no right answers to the questions I am asking you, and that I am most interested in what you think.

Our interview will be tape-recorded, because I want to be able to remember what we talk about, and your thoughts and ideas are very important to me. Later on, I will use the tape to write what you say on paper, and then I'll destroy the tape. I keep all my things locked up in my office. Your name won't be on the tape or the paper. Also, if you say anything when we're talking that I think might identify you or someone else, I will leave that out, because your privacy is very important to me. If at any point you want me to turn the tape recorder off, just tell me. Do you have any questions for me? Are you ready for me to turn the recorder on and to begin?

Let's start by talking about stress in general. Some people use the word "stress" or "stressors" to mean the kinds of difficulties or challenges that people have in their lives, including things like not having enough money, dealing with unfair treatment, or violence.

1. What does the word stress mean to you?

After participant has given her input, continue:

Keeping the idea of stress in mind, I would like you to think for just a minute about your life and some of the stresses that may have affected you. Some things may have happened to you early in life, even as a child. For example, you may have lost someone close to you at a young age, or witnessed someone getting hurt. They might not matter now, or they may still bother you sometimes. Other things may have happened more recently, or are still happening now. Please take a moment to think about what has been most stressful and difficult for you in your own life.

2. Now, let's start by talking about the kinds of things that you are stressful for women in their lives, especially things that affect them when they are pregnant or raising young children. What kinds of things do you think are most important? (*see prompts as needed*)

3. Are there any kinds of stresses that are important that I haven't asked about? Are we missing anything?

4. We have talked about some different kinds of stresses. But often women have to deal with more than one stress. For example, abused women might fear having their children taken away. But being treated unfairly by child protective services could be harder for women who don't have enough money to hire a lawyer. How do you think that these kinds of stresses act together?

- *Do they make each other worse? Do they pile on together?*
- *How do these different kinds of stresses pile together? Does having one kind of stress make the others worse?*
- *Are they equal? Is there one kind of stress or problem that you think is the most important? The worst? Can you give an example?*

5. What is most helpful to pregnant women and mothers of young children when they are dealing with stress?

- *How can health care providers support women better?*
- *What about other people?*

6. What kinds of resources are most needed to help pregnant women and mothers of young children?

- *If you wanted to make sure that all women and children were healthy and happy, what would you do?*
- *Is there information that would help women, especially pregnant women or mothers of young children? Is there anything you think it is important for them to know?*
- *Is there information that is hard for women to find when they need it?*
- *If you could write a book for women who have these kinds of stresses, what would you tell them to help them?*
- *If you could write a book for people who want to really help women who have a lot of stress, what would you tell them? What should doctors, nurses, or social workers know? What about people in the system, like DHS, children's protective services, or other agencies?*

Conclusion:

I want to thank you for your help with these questions. Your thoughts are really important to me. Is there anything that you would like to add before I turn off the tape recorder?

[If no, turn off the tape recorder].

I want to remind you that I will destroy this tape when I've finished writing down what you told me, and I won't write down anything that might identify you. And that what you have told me is private and confidential, and I will keep everything locked up in my office.

If you think of anything later that you think is important for me to know, please call me.

As I think about what women in the study tell me, I will be working to understand what kind of stresses women feel are important, how these stresses act together, and what would be most helpful for women. I might think of new questions as I go that I hadn't thought to ask before. Can I have your permission to contact you if I have another question for you? If I have more than a few questions, we can meet if you have time and are willing, and I will pay you for your time again too.

Thank you!

QUESTION 2 PROMPTS

[These are Question 2 Prompts; Only to be Used As Needed]:

A. *Socioeconomic Status*: We know that many pregnant women and mothers of young children have a hard time making ends meet. What do you think about that?

Follow-up probes to be used as needed:

- *Is not having enough money important to health?*
- *What is the most difficult thing about it? Are some kinds of money problems worse than others? How does this affect pregnant women and mothers?*
- *Has this been an issue for you? Can you share an example of how this has affected you, especially as a pregnant woman or a mother?*
- *What keeps women poor? What helps women support their families' financial needs?*
- *What issues with working present challenges for pregnant women or mothers? What about child care?*
- *Does documentation play a role? How does this keep women and their families poor?*
- *What about growing up not having enough to make ends meet? Does this make a difference in your life later? Is this important when we think about being poor?*

B. *Housing*. Is housing a health issue for pregnant women and mothers of young children?

- *How is housing important to health?*
- *How does this affect pregnant women and mothers?*
- *Has this been an issue for you? Can you share an example of how this has affected you, especially as a pregnant woman or a mother?*
- *What keeps women and children from housing? What helps women find housing?*

C. *Discrimination*: What about unfair treatment or discrimination? Is this important?

Follow-up probes to be used as needed:

- *How are women treated unfairly? Where? Why?*
- *What about mistreatment by systems, or by people working in systems, such as Child Welfare, DHS, or others?*
- *Is unfair treatment a big stressor? Is it important to health? Does it add up over one's lifetime?*
- *What is the most difficult thing about it?*
- *Has unfair treatment been an issue for you in your life? Can you describe an example of unfair treatment that has impacted your health, especially as a pregnant woman or a mother?*
- *Are some kinds of unfair treatment worse than others? What is the worst kind? Do you think unfair treatment has an affect on women's health?*
- *Does it make a difference in your life as an adult if you have grown up with unfair treatment?*
- *Is it hard to talk about unfair treatment?*

Question 2 Prompts, Continued

C. *Violence*: We know that many women will also experience domestic violence during their lifetime, even during pregnancy. This happens when a partner is controlling, and can include hitting, pushing, choking, emotional abuse, constant jealousy, forced sex, or threats. Many women experience other kinds of abuse besides domestic violence in their lifetimes, such as being abused as a child, sexually assaulted by someone who isn't an intimate partner, or dealing with violence in the community. What effects do you think this has?

Follow-up probes to be used as needed:

- *Are some kinds of violence worse than others? What is the worst?*
- *What is the most difficult thing about it?*
- *How does this affect pregnant women and mothers?*
- *Has violence you've experienced in adulthood been an issue for you? Can you describe an example of how that has affected your health, especially as a pregnant woman or a mother?*
- *What keeps women from being able to escape from violence? What makes it hard for pregnant women and mothers to talk about or ask for help?*
- *What about growing up with violence? Does this make a difference in women's lives later? I want to remind you that if you tell me about child abuse that happened to you as a child, it may be reportable under Oregon law. I am not asking you to tell me details about things that may have happened to you, but I am interested in what you think about how violence exposure in childhood affects women.*
- *Is there a difference in how past or current abuse affects pregnant women and mothers? Are there similarities?*

D. *Mental Health*: Many people have to deal with mental health problems like depression. Is that an important issue for pregnant women and mothers?

Follow-up probes to be used as needed:

- *What is the most difficult thing about it?*
- *How does this affect pregnant women and mothers?*
- *Do women keep depression a secret from family, friends, and health care providers?*
- *What makes it hard to talk about? What leads women to keep it a secret?*
- *Has this been an issue for you? Can you describe an example of how that has affected your health, especially as a pregnant woman or a mother?*

E. *Substance Abuse*: Many people turn to drugs or alcohol to try to feel better. Do you think this is important?

Follow-up probes to be used as needed:

- *Is it also a stressor? What is the most difficult thing about it?*
 - *How does this affect pregnant women and mothers?*
 - *Do women keep substance abuse a secret because they are afraid they may lose their children?*
 - *What makes it hard to talk about? What leads women to keep it a secret?*
- *F. Parenting*: What about being a parent, or becoming a parent, is most stressful and difficult? *What is the hardest thing about being a parent?*
 - *Do all of these other stressors factor into how hard it can be to be a parent?*
 - *What about stepchildren? Or ex-wives/former partners? Is this a big factor?*

Appendix J: Quantitative Measures

These brief survey questions are to help me understand more about your experiences. They are all answered as yes/no, or multiple choice, or short answer, and we can finish them quickly. You might find that they trigger thoughts, ideas, or stories, but I'll ask you to save those until we finish these questions. When we finish, I'll interview you, and you'll have a chance to share those thoughts when I can record them on tape, because your thoughts and ideas are important to this study.

Demographic Information. These first questions are just to get an idea about your age, race, education, income, and how you see yourself compared to other people in your community. Please answer as completely as you can. Remember all your questions are private and your name is not on the survey. You can skip questions you don't want to answer.

Age). What is your age? _____

Relat). What is your relationship status? (*Please check all that apply*).

- | | |
|---|------------------------------------|
| <input type="checkbox"/> 1 Single, living alone/children. | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 2 Living with a partner | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 3 Married | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 4 Never married | |
| <input type="checkbox"/> 5 Separated | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 6 Divorced | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 7 Widowed | For how long? ___ Years ___ Months |
| <input type="checkbox"/> 8 Other (specify) | For how long? ___ Years ___ Months |

Lat). Are you Spanish/Hispanic/Latino? ___ (0)No ___ (1)Yes

Race). What is your race? (*Please check all that apply*)

- | | |
|---|--|
| <input type="checkbox"/> 1. White | <input type="checkbox"/> 5. Native Hawaiian/Pacific Islander |
| <input type="checkbox"/> 2. Black/African American | <input type="checkbox"/> 6. Other |
| <input type="checkbox"/> 3. Asian | <input type="checkbox"/> 7. Don't want to identify |
| <input type="checkbox"/> 4. American Indian or Alaska Native: Tribe _____ | |

Natality). Where were you born? What is your country of origin?

YrsUS). If you were born outside the US, how long have you been living continuously in the US? _____ years

LiveNow). Where do you live now?

- 1. Own apartment/house, paying rent
- 2. Own apartment/house, paying at least some of the rent
- 3. Own house, paying a mortgage
- 4. Transitional housing program
- 5. Motel
- 6. Homeless shelter
- 7. DV shelter
- 8. On the street/in your car/camping out
- 9. Other (specify)

Notes)

Think of this ladder as representing where people stand in their communities.

People define community in different ways; please define it in whatever way is most meaningful to you. At the **top** of the ladder are the people who have the highest standing in their community. At the **bottom** are the people who have the lowest standing in their community.

Where would you place yourself on this ladder?

Please place a large **"X"** on the rung where you think you stand at this time in your life, relative to other people in your community.



Think of this ladder as representing where people stand in the United States.

At the **top** of the ladder are the people who are the best off – those who have the most money, the most education and the most respected jobs. At the **bottom** are the people who are the worst off – who have the least money, least education, and the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder?

Please place a large “X” on the rung where you think you stand at this time in your life, relative to other people in the United States.



***YrSchool).* What is the highest grade (or year) of regular school you have completed? (Circle one.)**

School	Elementary	High School	College	Graduate School
	01 _____	09 _____	13 _____	17 _____
	02 _____	10 _____	14 _____	18 _____
	03 _____	11 _____	15 _____	19 _____
	04 _____	12 _____	16 _____	20+ _____
	05 _____			
	06 _____			
	07 _____			
	08 _____			

***Degree).* What is the highest degree you've earned?**

- | |
|---|
| <input type="checkbox"/> 1. High school diploma or equivalency (GED) |
| <input type="checkbox"/> 2. Associate degree (junior college) |
| <input type="checkbox"/> 3. Bachelor's degree |
| <input type="checkbox"/> 4. Master's degree |
| <input type="checkbox"/> 5. Doctorate |
| <input type="checkbox"/> 6. Professional (MD, JD, DDS, etc.) |
| <input type="checkbox"/> 7. Other specify |
| <input type="checkbox"/> 0. None of the above (less than high school) |

***Employ).* With regard to your current or most recent job activity: What kind of work do (did) you do? (Job Title)**

***Earn).* How much did you earn, before taxes and other deductions, during the past 12 months?**

- | | |
|---|---|
| <input type="checkbox"/> 1. Less than \$5,000 | <input type="checkbox"/> 7. \$50,000 through \$74,999 |
| <input type="checkbox"/> 2. \$5,000 through \$11,999 | <input type="checkbox"/> 8. \$75,000 through \$99,999 |
| <input type="checkbox"/> 3. \$12,000 through \$15,999 | <input type="checkbox"/> 9. \$100,000 and greater |
| <input type="checkbox"/> 4. \$16,000 through \$24,999 | <input type="checkbox"/> 10. Don't know |
| <input type="checkbox"/> 5. \$25,000 through \$34,999 | <input type="checkbox"/> 11. No response |

____ 6. \$35,000 through \$49,999

How many people are currently living in your household, including yourself?

HSSize) . ____ Number of people
Child) . ____ Of these people, how many are children?
Adult) . ____ Of these people, how many are adults?
AdultInc) . ____ Of the adults, how many bring income into the household?

***TotInc*). Which of these categories best describes your total combined family income for the past 12 months? This should include income (before taxes) from all sources, wages, rent from properties, social security, disability and/or veteran's benefits, unemployment benefits, workman's compensation, help from relatives (including child payments and alimony), and so on.**

- ____ 1. Less than \$5,000
- ____ 2. \$5,000 through \$11,999
- ____ 3. \$12,000 through \$15,999
- ____ 4. \$16,000 through \$24,999
- ____ 5. \$25,000 through \$34,999
- ____ 6. \$35,000 through \$49,999
- ____ 7. \$50,000 through \$74,999
- ____ 8. \$75,000 through \$99,999
- ____ 9. \$100,000 and greater
- ____ 10. Don't know
- ____ 11. No response

Notes:

DAS-DQ: We are interested in how unfair treatment might affect women's health. These questions ask about times when you may have been treated unfairly, and why you think it happened.

DASMLE1. Do you think you have ever been *unfairly* fired or denied a promotion?

_____ (yes/no)

If yes, what was the main reason? _____

(see response scale below for "a" questions).

Did that happen in the last 12 months? _____ (yes/no)

DASMLE2. For *unfair* reasons, do you think you have ever not been hired for a job?

_____ (yes/no)

If yes, what was the main reason? _____

Did that happen in the last 12 months? _____ (yes/no)

DASMLE3. Have you ever been *unfairly* stopped, searched, questioned, physically threatened or abused by the police?

_____ (yes/no)

If yes, what was the main reason? _____

Did that happen in the last 12 months? _____ (yes/no)

DASMLE4. Have you ever been *unfairly* discouraged by a teacher or advisor from continuing your education?

_____ (yes/no)

If yes, what was the main reason? _____

Did that happen in the last 12 months? _____ (yes/no)

DASMLE5. Have you ever been *unfairly* prevented from moving into a neighborhood because the landlord or a realtor refused to sell or rent you a house or apartment?

_____ (yes/no)

If yes, what was the main reason? _____

Did that happen in the last 12 months? _____ (yes/no)

DASMLE6. Have you ever moved into a neighborhood where neighbors made life difficult for you or your family?

_____ (yes/no)

If yes, what was the main reason? _____

Did that happen in the last 12 months? _____ (yes/no)

***Was it so bad that you moved out?** _____ (yes/no)

Reasons for unfair treatment ("a" questions):

1. Ethnicity

5. Religion

9. Other

2. Gender

6. Physical appearance

3. Race

7. Sexual orientation

4. Age

8. Income level/social class

DAS-DQ Subscale B. Everyday Discrimination. In your day-to-day life how often have any of the following things happened to you?

- | | |
|--------------------------|-------------------------|
| 0. Never | 3. A few times a month |
| 1. Less than once a year | 4. At least once a week |
| 2. A few times a year | 5. Almost everyday |

DASED1. You are treated with less courtesy than other people. _____

DASED2. You are treated with less respect than other people _____

DASED3. You receive poorer service than other people at restaurants or stores. _____

DASED4. People act as if they think you are not smart. _____

DASED5. People act as if they are afraid of you. _____

DASED6. People act as if they think you are dishonest. _____

DASED7. People act as if they're better than you are. _____

DASED8. You are called names or insulted. _____

DASED9. You are threatened or harassed. _____

Perceived Stress Scale (PSS)

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate how often you felt or thought a certain way.

0. Never
1. Almost Never
2. Sometimes
3. Fairly Often
4. Very Often

PSS1). In the last month, how often have you been upset because of something that happened unexpectedly? 0 1 2 3 4

PSS2). In the last month, how often have you felt you were unable to control the important things in your life? 0 1 2 3 4

PSS3). In the last month, how often have you felt nervous and stressed? 0 1 2 3 4

PSS4). In the last month, how often have you felt confident about your ability to handle your personal problems? 0 1 2 3 4

PSS5). In the last month, how often have you felt that things were going your way? 0 1 2 3 4

PSS6). In the last month, how often have you found that you could not cope with all the things you had to do? 0 1 2 3 4

PSS7). In the last month, how often have you been able to control irritations in your life? 0 1 2 3 4

PSS8). In the last month, how often have you felt that you were on top of things? 0 1 2 3 4

PSS9). In the last month, how often have you been angered because of things that were outside your control? 0 1 2 3 4

PSS10). In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? 0 1 2 3 4

Thinking back to your last pregnancy, do you think you would have answered these questions about stress differently while you were pregnant? How would your answers have been different?

- More stress
- About the same,
- Less stress?

CESD-R

Below is a list of ways you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past week or so.

0 = Not at all or less than one day

3 = 5-7 days

1 = 1-2 days

4 = Nearly every day for two weeks

2 = 3-4 days

My appetite was poor.	0	1	2	3	4
I could not shake off the blues.	0	1	2	3	4
I had trouble keeping my mind on what I was doing.	0	1	2	3	4
I felt depressed.	0	1	2	3	4
My sleep was restless.	0	1	2	3	4
I felt sad.	0	1	2	3	4
I could not get going.	0	1	2	3	4
Nothing made me happy.	0	1	2	3	4
I felt like a bad person.	0	1	2	3	4
I lost interest in my usual activities.	0	1	2	3	4
I slept much more than usual.	0	1	2	3	4
I felt like I was moving too slowly.	0	1	2	3	4
I felt fidgety.	0	1	2	3	4
I wished I were dead.	0	1	2	3	4
I wanted to hurt myself.	0	1	2	3	4
I was tired all the time.	0	1	2	3	4
I did not like myself.	0	1	2	3	4
I lost a lot of weight without trying to.	0	1	2	3	4
I had a lot of trouble getting to sleep.	0	1	2	3	4
I could not focus on the important things.	0	1	2	3	4

Thinking back to your last pregnancy, do you think you would have answered these questions about depression symptoms differently while you were pregnant? How would your answers have been different?

- More symptoms
- About the same
- Less symptoms

PCL. These questions relate to thoughts and feelings about stressful events that may have happened to you in the past.
 Response Scale: 1=not at all, 2=a little bit, 3=moderately, 4=quite a bit, 5=extremely

How much have you been bothered by:	
PCL1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?	1 2 3 4 5
PCL2. Repeated, disturbing dreams of a stressful experience from the past?	1 2 3 4 5
PCL3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?	1 2 3 4 5
PCL4. Feeling very upset when something reminded you of a stressful experience from the past?	1 2 3 4 5
PCL5. Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past?	1 2 3 4 5
PCL6. Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?	1 2 3 4 5
PCL7. Avoid activities or situations because they remind you of a stressful experience from the past?	1 2 3 4 5
PCL8. Trouble remembering important parts of a stressful experience from the past?	1 2 3 4 5
PCL9. Loss of interest in things that you used to enjoy?	1 2 3 4 5

<p>Response Scale:</p> <p>1=not at all, 2=a little bit, 3=moderately, 4=quite a bit, 5=extremely</p>
<p>PCL10. Feeling distant or cut off from other people?</p> <p>1 2 3 4 5</p>
<p>PCL11. Feeling emotionally numb or unable to have loving feelings for those close to you?</p> <p>1 2 3 4 5</p>
<p>PCL12. Feeling as if your future will somehow be cut short?</p> <p>1 2 3 4 5</p>
<p>PCL13. Trouble falling or staying asleep?</p> <p>1 2 3 4 5</p>
<p>PCL14. Feeling irritable or having angry outbursts?</p> <p>1 2 3 4 5</p>
<p>PCL15. Having difficulty concentrating?</p> <p>1 2 3 4 5</p>
<p>PCL16. Being “super alert” or watchful on guard?</p> <p>1 2 3 4 5</p>
<p>PCL17. Feeling jumpy or easily startled?</p> <p>1 2 3 4 5</p>

My Exposure to Violence (My ETV)

Sometimes witnessing or experiencing violent events can affect women's health. I have some questions about whether you have witnessed or experienced some different violent events, over the past year, or in your lifetime.

Here is a card to help you choose an answer during this interview. The top portion lists the choices for how often something has happened to you. You can choose (1) Once, (2) 2 or 3 times, (3) 4 to 10 times, or (4) more than 10 times. Sometimes it's hard to remember how often things have happened. If you're not sure, just take your best guess.

1. In the past year, have you seen someone get chased when you thought they could really get hurt?

1A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

1B. Have you **EVER** seen someone get chased when you thought they could really get hurt?

1C. If yes, about how many times has this **EVER happened**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

2. In the past year, have **YOU** been chased, *but not caught*, when you thought that you could really get hurt?

2A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

2B. Have you **EVER** been chased, but not caught, when you thought that you could really get hurt?

2C. If yes, about how many times has this **EVER happened**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

3. In the past year, have you seen someone get hit, slapped, punched, or beaten up? This does not include when they were playing or fooling around.

3A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

3B. Have you **EVER** seen someone get hit, slapped, punched, or beaten up? This does not include when they were playing or fooling around.

3C. If yes, about how many times has this **EVER happened**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

4. In the past year, have YOU been hit, slapped, punched, or beaten up? Again, this does not include when you were playing or fooling around.

4A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

4B. Have you EVER been hit, slapped, punched, or beaten up? Again, this does not include when you were playing or fooling around.

4C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

5. In the past year, have you seen someone get attacked with a weapon?

5A. If yes, about how many times has this happened in the past year?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

5B. Have you EVER seen someone get attacked with a weapon?

5C. If yes, about how many times has this EVER happened ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

6. In the past year, have YOU been attacked with a weapon?

6A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

6B. Have you EVER been attacked with a weapon?

6C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

7. In the past year, have you seen someone get shot?

7A. If yes, about how many times has this happened in the past year?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

7B. Have you EVER seen someone get shot?

7C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

8. In the past year, have YOU been shot?

8A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

8B. Have you EVER been shot?

8C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

9. In the past year, have you seen someone get shot AT?

9A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

9B. Have you EVER seen someone get shot AT?

9C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

10. In the past year, have YOU been shot AT?

10A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

10B. Have you EVER been shot AT?

10C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

11. Other than what you have already told me, in the past year, have you heard gunfire nearby?
This does not include hearing gunfire while hunting or at a shooting range.

11A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

11B. Have you EVER heard gunfire nearby?

11C. If yes, about how many times has this **EVER happened**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

12. In the past year, have you seen a serious accident where *someone else* was hurt very badly or died?

12A. If yes, about how many times has this happened in the past year?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

12B. Have you EVER seen a serious accident where *someone else* was hurt very badly or died?

12C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

13. In the past year, have YOU BEEN IN a serious accident where you were hurt very badly or *someone else* was hurt very badly or died?

13A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

13B. Have you EVER been in a serious accident where you were hurt very badly or *someone else* was hurt very badly or died?

13C. About how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

14. In the past year, have you seen someone get killed as a result of violence, like being shot, stabbed, or beaten to death?

14A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

14B. Have you EVER seen someone get killed as a result of violence, like being shot, stabbed, or beaten to death?

14C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

15. A number of people experience sexual assault or unwanted sexual contact during their lifetime. In this question, we are asking about any sexual assault that was forced on you or that you were pressured into, whether it was done by a stranger or someone you know. In the past year, have you been sexually assaulted, molested, or raped?

15A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

15B. Have you EVER been sexually assaulted, molested, or raped?

15C. If yes, about how many times has this **EVER happened**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

16. Other than what you have already told me, in the past year, have you seen someone threaten to seriously hurt another person? This includes being threatened with a weapon.

16A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

16B. Have you EVER seen someone threaten to seriously hurt another person? This includes being threatened with a weapon.

16C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

17. Other than what you have already told me, in the past year, has anyone seriously threatened to hurt you? This includes being threatened with a weapon.

17A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

17B. Has anyone EVER seriously threatened to hurt you? This includes being threatened with a weapon.

17C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

18. In the past year, have you found a dead body?

18A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

18B. Have you EVER found a dead body?

18C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

19. In the past year, have you been in a natural disaster?

19A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

19B. Have you EVER been in a natural disaster?

19C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

20. In the past year, have you been in any other kind of situation not previously described, where you were frightened or thought you or someone else would get hurt very badly or die?

20A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

20B. Have you EVER been in any other kind of situation not previously described, where you were frightened or thought you or someone else would get hurt very badly or die?

20C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

21. In the past year, have you been told that someone you knew got shot, but not killed?

21A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

21B. Have you EVER been told that someone you knew got shot, but not killed?

21C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

22. In the past year, have you been told that someone you knew got killed?

22A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

22B. Have you EVER been told that someone you knew got killed?

22C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

23. In the past year, have you been told that someone you knew killed themselves?

23A. If yes, about how many times has this happened in the **past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

23B. Have you EVER been told that someone you knew killed themselves?

23C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

24. In the past year, have you been told that someone you knew died suddenly or was seriously injured?

24A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

24B. Have you EVER been told that someone you knew died suddenly or was seriously injured?

24C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

25. In the past year, have you been told that someone you knew had been raped?

25A. If yes, about how many times has this happened in **the past year**?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

25B. Have you EVER been told that someone you knew had been raped?

25C. If yes, about how many times has this **EVER happened** ?

Once 2 or 3 times 4 to 10 times More than 10 times (specify) _____

DANGER ASSESSMENT. Author: J. Campbell

We know that some women experience violence from an intimate partner (husband, partner, ex-husband, or ex-partner) in their lifetimes. Several risk factors have been associated with increased risk of homicides (murders) of women and men in violent relationships. We cannot predict what will happen in your case, but we would like you to be aware of the danger of homicide in situations of abuse and for you to see how many of the risk factors apply to your situation.

Mark **Yes** or **No** for each of the following.
("He" refers to your husband, partner, ex-husband, ex-partner, or whoever is currently physically hurting you.)

1. Has the physical violence increased in severity or frequency over the past year?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. Does he own a gun?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. Have you left him after living together during the past year?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3a) If have <i>never</i> lived with him, check here :	<input type="checkbox"/>
4. Is he unemployed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. Has he ever used a weapon against you or threatened you with a lethal weapon?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5a. If yes , was the weapon a gun?	<input type="checkbox"/> Yes <input type="checkbox"/> No
6. Does he threaten to kill you?	<input type="checkbox"/> Yes <input type="checkbox"/> No
7. Has he avoided being arrested for domestic violence?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Do you have a child that is not his?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Has he ever forced you to have sex when you did not wish to do so?	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Does he ever try to choke you?	<input type="checkbox"/> Yes <input type="checkbox"/> No
11. Does he use illegal drugs? ("uppers" or amphetamines, speed, angel dust, cocaine, "crack", street drugs or mixtures).	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Is he an alcoholic or problem drinker?	<input type="checkbox"/> Yes <input type="checkbox"/> No

13. Does he control most or all of your daily activities? (For instance: does he tell you who you can be friends with, when you can see your family, how much money you can use, or when you can take the car)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
13a. If he tries, but you do not let him, check here: <input type="checkbox"/>	
14. Is he violently and constantly jealous of you? (For instance, does he say "If I can't have you, no one can.")	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. Have you ever been beaten by him while you were pregnant?	<input type="checkbox"/> Yes <input type="checkbox"/> No
15a. If you have never been pregnant by him, check here: <input type="checkbox"/>	
16. Has he ever threatened or tried to commit suicide?	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Does he threaten to harm your children?	<input type="checkbox"/> Yes <input type="checkbox"/> No
18. Do you believe he is capable of killing you?	<input type="checkbox"/> Yes <input type="checkbox"/> No
19. Does he follow or spy on you, leave threatening notes or messages on answering machine, destroy your property, or call you when you don't want him to?	<input type="checkbox"/> Yes <input type="checkbox"/> No
20. Have you ever threatened or tried to commit suicide?	<input type="checkbox"/> Yes <input type="checkbox"/> No