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THROUGH THE EYES OF SINGLE MOTHERS: POSTPARTUM DEPRESSION AND PERCEPTIONS OF RISK

By

Tracy M. Woodford

A thesis

presented to Lakehead University

in fulfillment of the

thesis requirements for the degree of

Master of Public Health

Thunder Bay, Ontario, Canada, 2010

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Through the Eyes of Single Mothers: Postpartum Depression and Perceptions of Risk

Tracy Woodford

Master of Public Health, Lakehead University, 2010

Abstract

A recent systematic literature review suggests that single mothers are at an increased risk for postpartum depression (PPD) compared to partnered mothers. However, the roles of potential contributing factors, such as socio-economic status, education or social support, are not well understood. In particular, there is a lack qualitative research to assist in exploring this phenomenon from the perspective of single mothers themselves. The purpose of this qualitative study was to examine single mothers' perceptions of risk for PPD in order to begin to elucidate the psychosocial mechanisms for the relationship between single status and risk for PPD. Using a grounded theory approach, 11 single mothers within 1-year postpartum underwent a one-time, open-ended research interview pertaining to their experiences as single mothers during the postpartum period. Analysis of the data identified social support as the key factor perceived to determine risk for PPD. Specifically, participants considered single mothers as a group to be at greater risk for PPD compared to partnered mothers, because of a perceived disparity in level of available social support. These findings suggest that clinical or public health interventions designed to improve or expand upon the support networks available to single mothers may show promise in the prevention and treatment of PPD.

Acknowledgements

I would like to first thank the women who offered me a glimpse of their world as seen through their eyes. I am so very grateful for their generosity of time and spirit in sharing their personal stories.

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Lastly, an enormous thank you to my family who continued to encourage and support me even when there didn't seem to be an end in sight. Graham, you stood by me wholeheartedly throughout this entire process; through the good stuff and the bad. It would not be an exaggeration to say I could not have done this without you, and for that I am infinitely grateful.

Dedication

This paper is dedicated to the memory of my loving brother

Adam Vincent Woodford

This one's for you AVW!

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Introduction

Depression occurs more frequently during the postpartum period than at any other period in a woman's life (Misri, Kostaras, Fox, & Kostaras, 2000). Postpartum Depression (PPD) is a debilitating mood disorder that can seriously affect a mother's physiological, psychological and social well- being, and as such represents a significant public health concern (Dennis, Janssen & Singer, 2004; Beck, 1992). The detrimental consequences of PPD are well documented; anxiety, weight and appetite change, sleep disturbances, loss of pleasure, excessive feelings of guilt and suicidal ideation are among the symptoms women can experience (Beck, 1992; Cooper & Murray, 1998; Ross et al., 2005).

Postpartum depression can have a negative effect on a woman's relationship with her partner, children and family members and can compromise the quality of mother-infant bonding. Depressed mothers often display less affection towards their children, and tend to be less responsive and children of depressed mothers are often fussier, less vocal, and express fewer positive facial expressions (Beck, 1995; Martins and Gaffan, 2000; Tronick & Reck, 2009).

The quality of the maternal-infant relationship can have a significant impact on child development. For example, Murray (1992) found a significant correlation between PPD and attachment insecurity in infants at 18 months postpartum. Children whose mothers experience PPD often show emotional, cognitive and behavioural problems, and there is some evidence that these developmental issues can persist well into the prepubescent age (Murray &

Cooper, 1997; Murray et al., 1993; Goodman & Gotlib, 1999; Brennan et al., 2000; Grace, Evindar & Stewart, 2003). In a longitudinal study of over 4500 mothers and their children assessed at 4 different times-during pregnancy, 3-4 days postpartum, 6 months postpartum up until the children were 5 years of age- postpartum, Brennan et al. (2000), found that the severity of reported depressive symptoms was significantly related to children's behavioural problem scores such that the more severe the reported depressive symptoms the poorer the behavioural outcomes. In another longitudinal study of a community sample of mothers and their children, postnatal depression at 3 months postpartum was identified as a risk factor for children's subsequent cognitive and behavioural problems at 11 years of age (Hay, et al., 2001).

Several theories exist with respect to the etiology of PPD, including biological, social and personality models. However, current research suggests that there is likely not one cause but a combination of risk factors that differ between individuals. The biopsychosocial model of illness, which includes biological and social factors, appears to be the most likely explanation (Ross et al., 2005).

Prevalence Rates

Prevalence rates for PPD in existing epidemiological studies range from as low as 3% to greater than 25% (O'Hara & Swain, 1996; Dennis, Janssen & Singer, 2004; Gavin et al., 2005). This inconsistency is due in part to varying study sample sizes, outcome measurements and diagnostic criteria. Current meta-analyses and systematic reviews suggest that the prevalence of PPD is

more likely to range from 7% to 13%, depending on the type of methodology used. However, studies included in the meta-analyses have been largely drawn from homogeneous samples (O'Hara & Swain, 1996; Gavin, et al., 2005). The homogeneity of participant characteristics in existing studies limits the extent to which these characteristics will be identified as statistically significant risk factors (Ross et al., 2006), and thus underscores the need for additional research to establish prevalence estimates specific to under-represented populations.

It is likely that prevalence rates may in fact be even greater for women with certain risk factors (O'Hara & Swain 1996). Yet the existing literature does not address the impact of potential risk factors relevant to more diverse populations such as ethno-cultural, Aboriginal, impoverished, lesbian/gay and single mothers. A study examining the demographic characteristics of participants in previous prevalence studies on PPD found that the majority were white, partnered and of mid to high socio-economic status. With respect to partner status in particular, approximately 88% of the 45,246 participants (from a total of 112 studies) were partnered (Ross et al., 2006). This provides a very limited evidence base to inform our understanding of the postpartum mental health of single mothers.

In order to address this research gap, a recent systematic literature review was conducted to summarize studies reporting on risk for PPD among single women (Woodford, Ross, Dennis & Gorospe; unpublished manuscript). Please see Appendix A. A search of 5 electronic bases, from their start dates to

January 2009, yielded only 16 original studies which reported prevalence rates of PPD among single mothers. The majority of these studies reported higher risk for PPD among single mothers compared to partnered mothers, however, the precise magnitude of risk remains unclear, since the reported prevalence rates and odds ratios were highly variable between studies.

Methodological differences between studies may have contributed to this variability, due to inconsistent assessment periods, measurements, diagnostic criteria and sample sizes. For example, only 3 studies used a clinical interview as a diagnostic measure of depression based on DSM-IV criteria (American Psychiatric Association, 1994), while the remainder used self-report screening instruments, such as the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden & Sagovsky, 1987), to establish prevalence of PPD. Despite these limitations, the majority of studies found higher risk for PPD among single mothers compared to married mothers (reported prevalence estimates ranged from 11% to 50% (mean = 26%) for single mothers compared to 2.4% to 33% (mean = 11%) for partnered mothers and odds ratios ranging from approximately 1.5 to 4.5); findings that are consistent with prior meta-analyses (Beck, 2001; O'Hara and Swain, 1996).

In summary, there are relatively few population-specific studies on the relationship between PPD and single mother status compared to PPD research in general. However, for those studies that do exist, there is strong evidence that single mothers may be at an increased risk for PPD compared to partnered mothers (Adewuya, 2005; Wissart, Pashad & Kulkamis, 2005; Mancini, Carlson &

Albers, 2007; Nakku, Nakasi & Mirembe, 2006). This is not entirely surprising, when one considers that many single mothers have multiple known psychosocial risk factors for PPD, such as lack of social support, lower socio-economic status, and unwanted or unplanned pregnancy (Beck, 2001; Ross et al., 2005).

Single Mothers and Lifetime Depression

Population prevalence rates indicate that approximately 16% (1,414,060) of Canadian households are headed by a single parent, and single mothers account for approximately 80% (1,132,290) of this estimate (Statistics Canada, 2006). For the most part, single mothers are socially and economically disadvantaged compared to partnered mothers and perhaps as a result, face an increased risk of a variety of mental health problems, including depression. In a nationally representative Canadian study, single mothers ranging in age from 15 to 54, living with at least one child under 25 in the home, were shown to be twice as likely to have suffered an episode of major depression in the previous year compared to married counterparts (Cairney et al., 1999). In a recent longitudinal study in Australia, the prevalence of moderate to severe mental disability was assessed among 354 single mothers and 1,689 partnered mothers. The prevalence of moderate to severe mental disability was significantly higher for single mothers compared to partnered mothers (28.7 % vs. 15.7%, respectively). Socio-demographic factors, household income, financial constraints and social support together accounted for 94% of the

relationship between marital status and poor mental health in this study (Crosier, Butterworth & Rodgers, 2007).

On the basis of these and several large population-based studies, it is now commonly held that single mothers are at increased risk for psychiatric disorders, including anxiety, dysthymia and depression (Cairney et al., 2006). Using data from the National Comorbidity Survey collected between 1992 and 1993 in order to assess psychiatric disorders in 1346 women aged 15 to 55 years with children, investigators found that previously married mothers had elevated rates of mental disorders compared to married mothers and concluded that marital separation and divorce may be indicators for elevated risk (Cairney et al., 2006). The stressors associated with poverty, sole-parenting responsibilities and lack of social support are thought to account for the elevated rates of general depression in single mothers compared to partnered mothers (Cairney et al., 2003). It is possible that these pre-existing stressors could be exacerbated by childbirth, making the postpartum period a time of particular risk for this already at-risk group (Beck, 2001).

PPD Risk Factors for Single Mothers

The identification of potential risk factors for PPD in single mothers has considerable clinical implications for the early detection, prevention and treatment of the disorder among these women. Although PPD can occur in women with no known risk factors, the results from 2 large meta-analyses of more than 14,000 participants suggest that women with one or more risk factors are statistically more likely to experience PPD (Beck, 2001; O'Hara and

Swain 1996). Family history of depression, previous history of depression, depression or anxiety during pregnancy and lack of social support are considered to be the strongest predictors for PPD (Robertson et al., 2004). A smaller, yet nonetheless, statistically significant indicator is marital status (Beck, 2001; O'Hara &Swain 1996). However, the under-representation of single women in the research literature on risk factors for PPD may partly account for marital status being classified as a small risk factor in meta-analytic studies. It is likely that marital status is in fact a stronger predictor for PPD, particularly considering the body of research associating partner support with both lower risk for PPD (Beck, 2001; Dennis & Ross, 2006; Fisher et al., 2002; Logsdon & Usui, 2001; Patel et al., 2002), and improved treatment outcomes in depressed women. For example, 29 women from a reproductive mental health program in Vancouver Canada, who met DSM-IV criteria for major depression, were randomly assigned to either the control group, in which they attended all therapy sessions alone, or the support group, in which their partner attended the sessions with them. Results of the study indicate that participants in the support group demonstrated a measurable decrease in depressive symptoms compared to the control group Misri et al. (2000).

Although the exact relationship between single marital status and PPD risk remains unclear, several factors are thought to account for an increased risk for PPD in single mothers, relative to partnered mothers, including age, socio-economic status and social support (Beck, 2001; Robertson et al., 2004;

Rubertsson, Waldenström & Wickberg, 2003; Rubertsson, Wickberg, Gustavsson & Radestad, 2005).

Age

Current research indicates that maternal age is not a risk factor for PPD in younger adult women. However, there is a correlation between adolescence and PPD; the rate in teenage mothers is estimated to be approximately 26% compared to 13% in adult mothers (Troutman & Cutrona, 1990). Because younger mothers may also be single, these combined factors are likely to contribute to an increased risk for PPD in this population.

Socio-Economic Status

Research evidence suggests that socio-economic factors such as low income, unemployment and low education play a small but significant role in the development of PPD (O'Hara & Swain, 1996). As previously mentioned, single mothers are often socially and economically disadvantaged compared to partnered mothers, therefore, it is plausible that they might be at greater risk for PPD. Single mothers may have fewer resources to draw upon in order to manage the transition to motherhood (Beck, 2001).

Social Support

There is a large body of research showing a correlation between social support and depression during pregnancy and the postpartum period (Beck, 1996; Menaghann, 1990; Sequin et al., 1999). Becoming a mother is a major transitional period for a woman, and lack of appropriate, tangible support can seriously affect a single mother's successful transition to parenthood (Beck,

2001; Campbell-Grossman et al., 2005). A lack of social support has been associated with poorer health outcomes, particularly during stressful periods, such as the transition to motherhood (DeJoseph & Norbeck, 1996). This evidence suggests that women who lack social support are at greater risk for PPD. Because single mothers are lacking a primary source of support, typically provided by a partner, and may also be isolated from other sources of support (e.g., friends or family members) due to sole-parenting responsibilities, it is not surprising that they may be at an increased risk for PPD. The absence of a supportive social network is thought to impact the psychological well-being of single mothers more than partnered mothers who are, comparatively speaking, afforded social and financial support from a partner (Cairney, 2003).

Across interdisciplinary literature, social support has been defined in several ways, and various theoretical models have been applied to explain relationships between social support and health outcomes such as social exchange theory (Homans, 1958) and the stress-buffering hypothesis (Cohen & Wills, 1985). This paper, we will draw from Cohen's extensive work in this area. According to Cohen (2004), social support refers to a social network's provision of psychological and material resources intended to benefit an individual's ability to cope with stress. Four types of supportive functions have been differentiated: emotional support, which pertains to the demonstration of sympathy, caring and acceptance of others through words or actions; instrumental support, which refers to support that is practical or tangible in nature, such as childcare, domestic help or monetary aid; informational

support, which refers to advice or guidance that results in an increase in useful information that in turn results in more effective coping; and validation support, which involves social comparison or normativeness of one's thoughts, feelings or behaviours (Cohen, Underwood & Gottlieb, 2000).

Statement of Problem

A systematic review of studies that examined a potential association between marital status and PPD found that single mothers are at an increased risk for PPD relative to partnered mothers (Woodford et al., unpublished manuscript). However, potential moderating factors for risk such as socio-economic status and social support remain under-investigated, making it difficult to identify which variables might account for this increase in risk among single mothers. In addition, research on the potential risk factors has been primarily limited to epidemiological studies. The relatively small amount of qualitative research on PPD has done little to clarify this, and to the best of the investigator's knowledge, no qualitative research has specifically aimed to understand the subjective experiences of mothers at risk for PPD within the context of single parenthood.

Qualitative Research on PPD

The number of qualitative studies on PPD has increased in the past decade. For example, an online social sciences database search, using the keywords words *postpartum depression*, *postnatal depression*, *qualitative*, *phenomenology* and *grounded theory* for the time period of 1990 to 1999 yielded 16 hits for peer-reviewed journal articles compared to 58 for 2000 to 2010.

Existing qualitative studies on PPD have provided valuable insights about women's experiences and the social and psychological processes used to cope, such as praying or seeking support (Beck, 1992; Ugarriza, 2002). In contrast to

quantitative methodology that relies on objective measures of the symptoms of PPD, qualitative research attempts to uncover the underlying psychological processes of depression (Beck, 1992).

Two meta-syntheses of the existing qualitative research regarding the experiences of PPD have recently been conducted. In the first, Beck (2002) examined 16 qualitative studies published between 1990 and 1999 and 2 unpublished studies written during this time period. The synthesizing and translation of metaphors and concepts from each of the 18 studies yielded 4 overarching themes related to PPD: incongruity between expectations and the reality of motherhood (myths of motherhood and societal expectations versus personal feelings and experiences), spiralling downward (thoughts and feelings such as anxiety, guilt and sadness progressively worsening throughout time), pervasive loss (loss of self, loss of interest, loss of control) and making gains (acceptance of change, help seeking, surrendering). Please see Figure 1. for a summary of meta-themes.

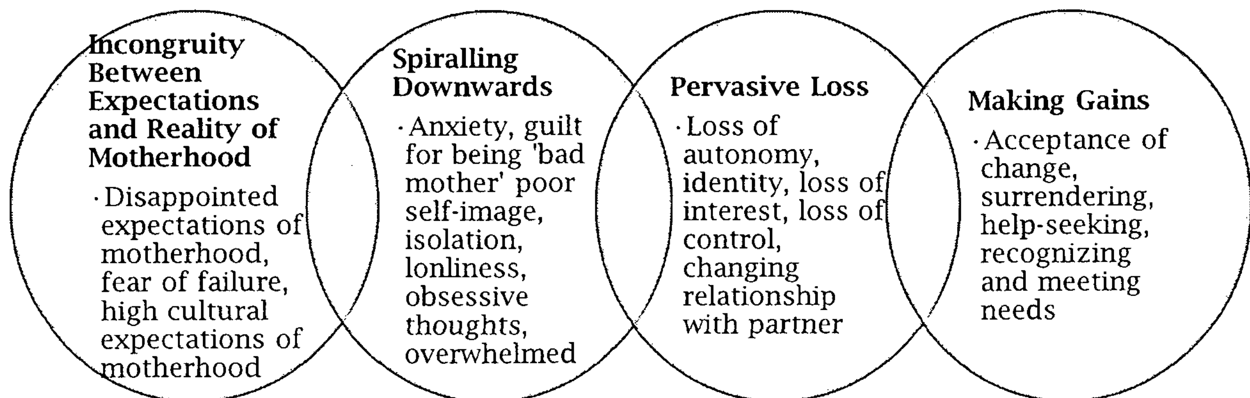

Figure 1. Four Overarching Themes involved with Postpartum Depression (Beck, 2002)

Knudson-Martin and Silverstein (2009) subsequently conducted a meta-analysis of 9 qualitative studies on PPD between 1999 and 2005 (two of which were included in Beck's analysis). The investigators found that women's experiences of PPD were described in similar terms across all samples; findings which confirm Beck's (2002) meta-synthesis outlined above. In addition, Knudson-Martin and Silverstein also investigated factors that women perceived to be related to the maintenance and persistence of their depression. For example feelings of loss of self, anxiety, or guilt were not in and of themselves viewed as responsible for sustaining the depression, but rather the inability to express these emotions within a supportive context and the subsequent isolation, that was perceived to be responsible (Please see Figure 2). These results suggest that interventions should therefore include an expanded construct of motherhood in which both negative and positive experiences of motherhood are expected and validated within support contexts (Knudson-Martin & Silverstein, 2009).

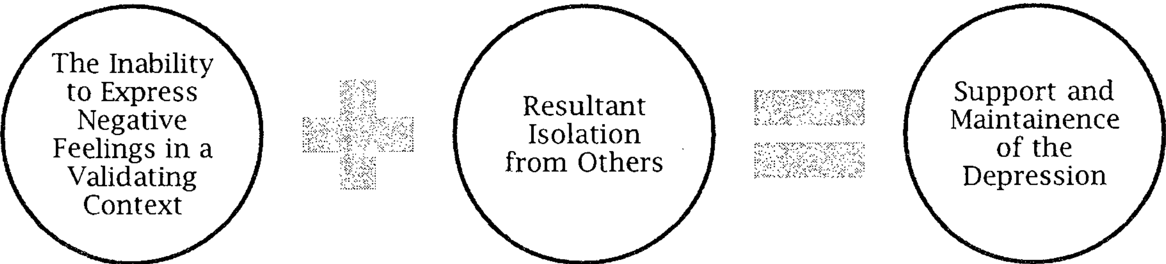

Figure 2. Relational processes involved with Postpartum Depression. Martin-Knudson & Silverstein (2009)

Despite the valuable contribution of existing qualitative studies have made in contributing to our knowledge of PPD, the experiences of single mothers have largely been ignored. In particular, little is known about relative risk from the perspective of mothers themselves, and what factors are meaningful to them. Because single mothers can experience multiple risk factors, it may be the case that their lived experiences of postpartum depression may differ from the findings described in the aforementioned meta-analyses. The purpose of the proposed study is to gain a better understanding of single mothers' experiences of PPD, and in particular, to understand if and why single mothers perceive themselves to be at particular risk for PPD.

As previously mentioned, a lack of qualitative research on single mothers makes it difficult to clarify our understanding of why this population is ostensibly at greater risk. To the investigator's knowledge, this qualitative study is the first of its kind to interview a non-clinical population of single mothers specifically about their experiences of PPD. This study contributes to existing research by providing a critical analysis of the factors single mothers perceive to contribute to their increased risk for PPD, relative to partnered mothers, as well as providing theoretical support for the development of targeted interventions for single mothers, and streamlining future research directions. The identification of the relationship between PPD and contributing factors may provide valuable insight with respect to recommendations for service delivery within this clinical population.

The following research questions guided this investigation:

Research Questions

Primary Research Questions

1. Do single mothers perceive themselves to be at particular risk for PPD relative to partnered mothers?

2. If so, are there common themes (stories) among participants that can explain this unique vulnerability?

Secondary Research Questions

3. Do they perceive factors such as social support, maternal age, or socio-economic status to have contributed to their state of well-being in the prenatal or postpartum period?

4. Is any one factor considered more accountable or are they viewed as equally important in determining risk for PPD?

Methods

Research Design:

A qualitative design, in this case grounded theory (Strauss & Corbin, 1998), was chosen due to the nature of the research questions. In order to better understand single mothers' personal experiences of PPD, and to explore whether they perceive themselves to be at an increased risk for PPD, we speculated that these questions would be best answered through personal inquiry. Grounded theory is a qualitative method frequently used in social research whereby the investigator systematically develops a theory by examining the interaction between data and analysis. In other words, the investigator extracts or creates the theory from the data itself rather than using the data to support a theory that has already been developed or preconceived, as is the case with quantitative methodology. As a result, the investigator generates a theory consisting of credible relationships that they identified among a set of key concepts or themes. According to Corbin & Strauss (1998), a theory derived from the data is more likely to represent "reality."

Unlike other qualitative methodologies such as phenomenology-in which the main objective is to describe the subjective experiences of individuals-grounded theory also entails theory development. Because the objective was to develop a theory based on the assumption that single mothers are at an increased risk for PPD, grounded theory was considered the most appropriate method of enquiry for this study. A modified version of the grounded theory approach was employed because although there is some evidence regarding

potential risk factors for single mothers in which the investigator desired to further explore (e.g., age, education, social support), it would have been limiting to ignore other potentially important relationships that may have been discounted or not examined in previous research. This was accomplished by asking participants themselves if and why they perceived themselves to be at risk for PPD and what factors they perceived as contributing to this risk. This allowed for a new theory or theories to emerge from within the data. This research was conducted in accordance with the regulatory and ethical guidelines in effect at Lakehead University and The Centre for Addiction and Mental Health (CAMH).

Participants:

A convenience sample of 11 primiparous or multiparous single mothers ranging in age from 21 to 39 were recruited from a concurrent CIHR funded study on the prevalence of PPD in single mothers, rural mothers and lesbian/bisexual mothers, as well as through advertising within surrounding communities in South Western Ontario (See below for more details). Nine participants described themselves as "single," 1 as "separated" and 1 as "divorced." For the purposes of this study, single mothers are defined as those who do not have a cohabitating partner.

The majority of the participants completed high school and 4 of the participants had some post-secondary education. Approximately a third of the participants self-identified as Caucasian, a third Afro-Canadian and the remaining self-identified as Asian, mixed or none. Selected socio-demographic

characteristics of the participants are provided in Table 1. Each participant was given a $25 gift certificate as compensation for their involvement in this study. Criteria for inclusion into the study were that single mothers were 18 years of age and older, had given birth to a healthy, full-term infant within the last 3 months at the time of data collection, and were sufficiently fluent in English to read and comprehend the consent form and to understand the interview questions. Due to feasibility reasons (i.e., difficulty recruiting eligible participants within the original parameters), the inclusion criteria were later extended to include women who were between 3 and 12 months postpartum at the time of data collection. As previously mentioned, there is a correlation between adolescence and postpartum depression (Troutman & Cutrona, 1990). Therefore, in order to reduce potential confounds an exclusion of a minimum age of 18 years allowed us to eliminate younger mothers. Exclusion criteria also included giving birth more than 1 year prior to the time of data collection, in order to eliminate major depression outside of the postpartum period.

Table 1. Selected socio-demographic characteristics of participants:

Variable	Participants (N = 11)
Age: Mean (SD)	**26.0 (5.3)**
(Range: 21-39 years)	
Partner Status	
Single	9 (81.8%)
Separated	1 (9.1%)
Other (divorced)	1 (9.1%)
Number of Children	
1	9 (81.8%)
2	1 (9.1%)
4	1 (9.1%)
Ethno-cultural Identity	
Caucasian	4 (36.4%)
Afro-Canadian	3 (27.3%)
Canadian	1 (9.1%)
Asian	1 (9.1%)
Mixed	1 (9.1%)
None	1 (9.1%)
Education Completed	
Incomplete High School	2 (16.7%)
Completed High School	5 (41.7%)
College Completed	2 (16.7%)
University Undergraduate Completed	2 (16.7%)
Combined Household Income	
Less than 10,000	6 (54.5%)
10,000 -19,999	3 (27.3%)
20,000 -29,000	0 (0%)
30,000 -39,999	1 (9.1%)
40,000 -59,000	0 (0 %)
60,000 --79,999	1 (9.1%)
Recruitment Sites	
Social Locations Study	3(27.3)%
Women's College Hospital	3 (27.3%)
GTA community	3 (27.3%)
Outside GTA	2 (18.1%)

Recruitment:

The recruitment phase of the study began after receiving approval from the Institutional Research Ethics Review Boards of Lakehead University and the Centre for Addiction and Mental Health.

Social Locations Study Sample

Single mothers participating in the Social Locations study who scored above the cut-off of 12 on the EPDS, which measures clinical depression, and/or who met DSM-IV criteria for major depressive disorder, were contacted by the research coordinator for their 6-8 weeks postpartum assessment. During this time, eligible participants were given preliminary details of the current study (Appendix B). With permission, interested individuals were contacted over the phone by the investigator of the current study at a minimum of 3-4 months postpartum and screened for eligibility (Appendix C).

Community Study Sample

Recruitment of single mothers from within the community was conducted through the distribution of flyers at various hospitals and clinics located in downtown Toronto, such as Mt. Sinai Hospital, Women's College Hospital and several midwifery clinics, as well as community support programs across South Western Ontario, such as the Ontario Early Years Centres and the "Healthy Babies, Healthy Children" programs offered through local public health units. Recruitment notices were also posted on a maternal, newborn and child listserv which is distributed across Ontario. (Please see Appendix D for a

sample advertisement). Interested individuals were contacted by the study investigator and screened for eligibility over the phone (Appendix E).

Measurements

Depression risk was assessed at the time of screening using the EPDS. The EPDS is a 10-item self-report screening tool for perinatal depression (Appendix F). The EPDS has high specificity and sensitivity for this clinical population because it has been designed to avoid common loading of somatic factors (e.g., sleep, appetite; which commonly fluctuate during pregnancy and postpartum) compared to other self-report measures such as the BDI (Astbury et al., 1994). Scores greater than 12 are predictive of probable major depression and scores of greater than 9 are predictive of minor depressive symptoms. The EPDS is not a diagnostic tool, however it is frequently used in clinical settings to assess depressive symptoms. The EPDS was used in the current study to assess depression risk.

Data Collection:

One participant was interviewed in person and the remaining 10 participants opted for a telephone interview. Two copies of the consent form were mailed out beforehand to all participants. Informed consent was obtained in person from the participant interviewed in her home (Appendix G). For the telephone interviews, verbal consent to participate was noted and dated by the study investigator at the time of interview, and participants subsequently returned signed copies of the consent form in self-addressed, stamped envelopes.

A brief socio-demographic questionnaire was administered to each participant (Appendix H), followed by a semi-structured, qualitative interview. All interviews were digitally recorded. The interview guide is provided in Appendix I.

Participants were asked the following question at the outset: "As a single mother, do you perceive yourself to be at greater risk for PPD than mothers who have a partner?" Depending on their response to this question, participants were subsequently prompted about various potential risk factors which might relate to their perceived risk for PPD. In keeping with the tradition of qualitative methodology, the interview guide was adapted as needed during the process of data collection in order to capture emerging issues and themes. Interviews continued until repetition of the discourse occurred. Each interviewed averaged approximately 45 minutes in length.

Data Analysis:

All interviews were digitally recorded and transcribed verbatim. Interview transcriptions were verified for accuracy by the investigator and analyzed using NVivo 8-QSR International text management software (QSR International, 2008).

The interview data were analyzed using the grounded theory procedures recommended by Strauss and Corbin (1998). Specifically, each transcript was read, coded, reread and recoded where necessary. The data were coded in 3 different stages. The first stage consisted of exploring general concepts or recurring themes relevant to participants' experiences of PPD, using open

coding. For example, themes such as "lack of support" or "perceived judgement" were noted. These concepts or themes were further refined using axial coding in which the transcripts were reread in order to identify any relationships or sub-themes between the general concepts identified in the open coding process. The third and final stage of analysis involved selectively coding the key concepts or meta-themes. In other words, the meta-themes were identified to which all sub-themes were systematically related. These meta-themes were a) perceptions of risk and b) social support.

Theme memos were subsequently developed in order to further analyze the relationships between these sub-themes. In this process, the text related to each meta-theme was reviewed and summarized in order to capture the key features relevant to each meta-theme. By examining the prevalent themes weaving throughout participants' personal stories, a theoretical framework describing the relationship between single marital status and risk for PPD was developed. As described in detail below, this theoretical framework aims to demonstrate how participants' perceive their single status affects their risk for depression in the postpartum period.

Results

Time of administration of the EPDS in this study ranged from 4.5 weeks to 32 weeks postpartum ($M = 13.41$; $SD = 10.07$). Slightly less than half of participants scored greater than 12 on the EPDS, while an additional 27% scored between 9 and 12, suggesting presence of depressive symptoms. The results indicate that overall, participants were at a moderate to high risk for PPD. Table 2 Provides EPDS scores for participants.

Table 2. Breakdown of EPDS Scores:

Variable	Participants ($N = 11$)
EPDS Score Mean (SD)	**12.0 (4.20)**
Range of Scores	**Number Scoring within range**
0-6	1
7-9	2
10-12	3
13-15	3
16+	2

Qualitative Results

Two meta-themes were identified in participants' discussions regarding their experiences of depression in the postpartum period: 1) Perceptions of Risk for PPD and 2) Social Support. Within the meta-theme of social support, the discussion is focused on 2 broad topics: type of support and source of support. Figure 3 outlines the social support key theme and related sub-themes:

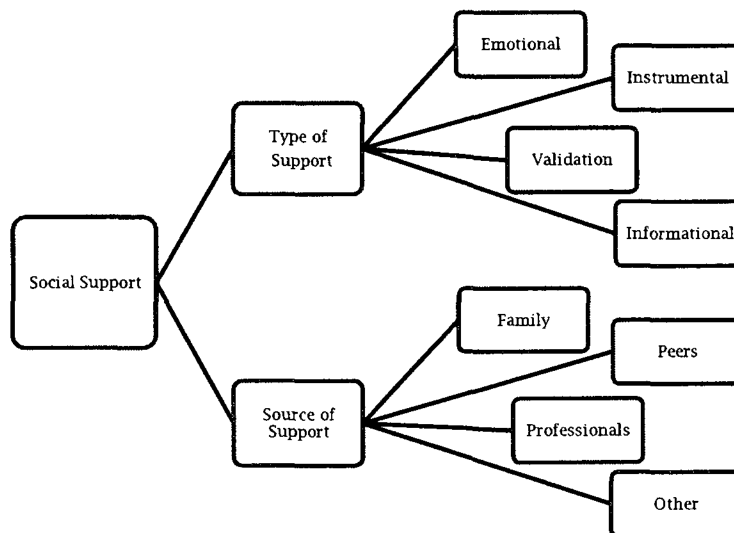

Figure 3. Social Support Key theme and Sub-themes

Perceptions of Risk

In order to better understand their perceptions of depression risk based on their experiences as single mothers, participants were asked the following question: "As a single mother, do you perceive yourself to be at greater risk for PPD than mothers who have a partner?" In this section, we examine how participants' perceived their experiences, as single mothers, in the postpartum period to be different from mothers who are partnered. Please note that names provided after each quote are pseudonyms.

Discussions varied in terms of specific responses to this question; some believed that yes, they were at an increased risk, as illustrated in the following quote:

"Well before I had him I wouldn't have said that but now that I have been through it I would say yes (single moms are at greater risk), *just because there's not sort of, in the middle of the night when I'd be having those racing thoughts, there wasn't anybody there to sort of sit up and say, you know, "I'm feeling this way" and what not. Like I had you know, family and friends but I wouldn't want to call them in the middle of the night."* Katie

Other participants did not feel that their single marital status had much impact on their levels of risk. The following quote provides such an example:

"It depends on how you take the pregnancy and who you can talk to about...it with you. Because even though you don't have a partner you know you have like family members, you have friends who will support you, who can support you." Judy

This quote demonstrates that Judy did not feel that she was at increased risk but believed this was due to the level of support she was receiving from family members.

As single mothers, participants often reported feeling burdened by the sole responsibilities of the day-to-day tasks related to parenting:

"Yes I think it (being a single mom) has affected me greatly because it's a big responsibility that is on my head. I am the only one that has to be with him, when he's crying, when he's wet, when I have to go here and there. Everywhere I

go, he's with me, no matter what I have to do, always. The father isn't even here." Sarah

Despite differences in perceptions of their own individual risk for PPD, participants consistently identified lack of support, and specifically that support which they perceived a partner would provide, as the primary reason why, collectively, single mothers might be at an increased risk for depression. In particular, participants described their expectation that partnered mothers were more likely to have continuous, reliable support, which they could draw from at any given time, day or night:

"I believe that yes, you're at greater risk because when you do have another person around...you need someone there every day that can help you. You know, not somebody that you can just randomly call in. It's in the middle of the night when you have such a hard time. The lack of sleep and the baby's screaming and screaming, you know, you need someone up to help you, someone to be there with you when you're crying and you're frustrated. Yeah that definitely has a lot to do with it." Barb

Social Support

One major theme emerged from the interview transcripts, relating all 11 participants' experiences in the postnatal period. Social support was consistently identified as the key risk factor for depression among single mothers. Subsequent analysis of the data identified source of support and type of support as significant sub-themes stemming from this key concept.

Participants reported receiving or desiring a variety of different types of support from various sources. These preferred sources and types of support are described in detail below. Because source of support and type of support are so closely interrelated, (i.e., participants' discussions of type of support also entailed a description of the sources providing them), both sub-themes have been incorporated in the following section, to allow for a more coherent discussion:

Source of Support

Three primary potential sources of support from within participants' social network emerged from the data: *family members* (i.e., blood relatives, in-laws and step-families), *peers* (i.e., friends and or peer support group members), and *professionals* (i.e., doctors, nurses, other health care practitioners and community resources).

Very few discussions involved support from other sources (i.e., ex-partners, neighbours or strangers) and are therefore, not viewed as primary sources of support to the same degree as were family members, peers or professionals. As would be expected, discussions about partner support focused mainly on lack of support. Relatively few participants mentioned other people such as neighbours or strangers as providing support. For those who did, this support was primarily instrumental and occasional in nature; for example, watching their babies while they ran an errand.

Type of Support

Participants identified 4 different types of support that they received or desired from their social networks: *emotional, instrumental, informational* and *validation*. These types of support are consistent with Cohen, Underwood & Gottlieb's (2000) conceptual framework of functional support.

Emotional Support

Emotional support pertains to the demonstration of sympathy, caring and acceptance of others through words or actions. Participants' discussions of emotional support involved family members, professionals and peers. The nature of the emotional support received varied slightly across sources (e.g., negative or positive examples of emotional support).

Family Members

Participants' discussions about emotional support included family members who were perceived to be providing words of encouragement or support, or as having 'been there' on an emotional level for them during stressful periods. One participant described how her father could recognize when she was struggling and would provide reassurance that things were okay:

"I think when I get really paranoid, or really worried, he (father) just reminds me (that everything will be okay) *and then I don't panic as much... And that there's someone I can talk to about what I'm feeling...Which helps a lot...cause I know when you let your emotions and your feelings build up I know what happens...you just explode, or you get really depressed."* Nicole

In the following quote, one participant describes how her sisters had been emotionally supportive:

"Because it's not every day that you might be happy or you might feel you know, just that whenever you're feeling down or sometime maybe stressed a bit or depressed, they (sisters) are the one who will be there for you and they are the one who will encourage you and try to make you feel better you know, in a quicker, faster time." Christina

There were however, very few participants that perceived the emotional support they were receiving from family members to be beneficial. For several participants, emotional support from family members was often perceived to be lacking, or at best, attached with some reservations or feelings of reproach:

"My mom's not helping me. She made it very clear that she was not going to help me whatsoever. This is my mistake, not necessarily, not mistake in a bad way, but this is, I don't know if you know the saying 'you make your bed hard you lay in it hard?' I made my bed hard so I have to deal with the consequences. So all I knew was just going to work, having him, raising him, and that was it." Judy

The following quote poignantly describes how one participant felt judged by her family members, which in turn, lead to more distress because she felt guilty for feeling the way she did towards her baby. This quote is indicative of why some women may be reluctant to ask for help in the first place:

"Because even my mom and both of my sisters, you know, they kind of... 'Oh Barb, that's kind of crazy, you know, why do you feel that way? Why do you want

to throw Jimmy against the wall? I mean, it's not that bad, you know?' - It's not like it's that bad; I'm not coping with it as well as I should be. But the lack of support is making it worse on me because now I not only feel the way that I feel (feeling frustrated with the baby) but I feel guilty for feeling the way that I feel." Barb

In fact, several participants perceived their parents to be judgemental, and to resent having to provide support because they didn't agree with participants raising their children without a partner. This suggests that a stigma remains whereby single mothers are not viewed as socially desirable.

In contrast, for some participants, the quality of the emotional support was not the issue, but rather the availability of support. In this case, participants reported having more support from family members prior to their pregnancies, but due to changes in relationship status, or geographic location, this support was now limited or nonexistent:

"All my friends and family are there (hundreds of miles away. I'm here by myself basically, I met my (ex) husband here, so it's basically just me and his family. It's hard sometimes, like I need someone to talk to or just somewhere to go or just something familiar, just to kind of try to make you feel better. The people that knew you the people that knew you your whole life that know what to say. I don't have that now." Ann

Professionals

Several discussions of emotional support included relationships with professionals. Participants reported how discussing their experiences with

professionals such as primary care givers, was beneficial. Unlike discussions involving family members, participants reported having very few negative experiences with professionals overall, and there is little indication that there were any difficulties accessing emotional support from professionals. The support received appears to have been viewed as less judgemental or more objective compared to support received in the context of other types of relationships such as familial. Participants may have felt more comfortable discussing their experiences because they perceived themselves to be in a safe and confidential environment:

"I went to my doctor (OB) at my 6-week check-up and he and the nurse both sort of looked at me and were like, 'You don't look very well.' And I said, 'I'm not doing very well'. He tried to get me in to see someone at (reproductive mental health clinic) and they weren't calling back and thankfully my doctor kept calling me to check and see how I was doing." Katie

"She (health nurse) sat down with me for about an hour and a half and just let me get everything off my chest. So that helped a lot." Barb

In some cases, the support received from professionals was described by participants as being on both an emotional and a peer-based level:

"They (social worker and nurse) gave me emotional support. They said, 'This is your choice, you can do it.' The nurse is also a single mom raising two boys and she said if she can do it, anyone can do it." Tina

"Oh yeah, yeah, my midwives are great. My last appointment, I think we sat down for a good hour just talking about so much different stuff, so they're really

good. Actually, this student midwife...we became friends almost, so yeah, I feel like I definitely have them here if I need them." Ann

Overall, professional support was valued by participants. However, there were two cases-exceptions to the norm-in which participants felt that the support they were receiving from professionals was not very helpful, as illustrated in the following quote:

"Like shortly after Chelsea was born I found myself crying a lot more and, for me I thought that that wasn't normal. I thought there was something wrong with me. You know, and then going to the doctor (GP) and I tell her "okay, well I'm crying and thinking of my daughter dying. I need some help. I want to be safe. This isn't normal." And for me, I didn't think that was an acceptable answer." (That PPD is common and thoughts like those are normal). Megan

Peers

In addition to discussions regarding emotional support from family members and professionals, discussions also included support from peers. Some participants reported having peers that they could talk to about their depression, or mothers that accepted their friendship regardless of their personal circumstances, so they perceived themselves to be receiving helpful emotional support:

"If didn't have the people to talk to, my other "mother friends" that I just sort of kept talking to who kept saying it was going to get better and finally it did. Yeah, if you were isolated, I think it would be so difficult to get through it (early postpartum period). If anything, they're super supportive of what I'm doing (i.e.,

single mother by choice) and I would say, once a day one of them is like, 'you know, I was having a really hard night last night and then I think about you doing it by yourself and I think, 'what do I have to complain about?'... they're very supportive of me being single and they don't exclude me from things." Katie

In contrast, some participants reported difficulties in sustaining existing friendships since becoming mothers. Consequently emotional support from peers was now viewed as negligible by these participants. Because they were single mothers and were dealing with depression, they believed that their friends didn't want relationships with them:

"My friends kind of veered away. They have their own lives and their own kids...obviously I have some of their support but nobody wants to keep hearing the same thing over and over again. I feel like they don't always want to hear it." Megan

"Before I had the baby she (friend) used to call me more than I called her. She always used to call my cell, always calling my phone. Always used to call me; all my friends used to call me, they called me, we'd talk. And at school, now because I have a baby, they all try to run away from me like a stain, like they see something on you that is bad. That's how they kind of react." Sarah

Validation

Validation support involves social comparison or normativeness of one's thoughts, feelings or behaviours. This type of support may be of particular importance to single mothers who may be lacking support as they struggle to understand their experiences with depression. Several participants were

involved in peer support groups for postpartum depression, which provided primary sources of validation support. A critical distinction from emotional support from peers, the benefit of validation support is that there may be a lessening in perceived self "deviance" by favourable comparisons to others. Through discussions with group members, participants discovered other women in similar situations who could relate to what they were experiencing. Consequently, this gave them a sense of commonality:

"If I was questioning whether I had depression or not, the group was the thing that made me realize, 'okay, I do, this is beyond me, this is not something that I need to hide, this is something that I need to get help with, and that other people are experiencing the same thing'. Because as much as my therapist would have said, 'yes, this is a sign of depression and what you're experiencing is this, and it's common for a woman to feel this way,' that's different from actually having somebody sit there in front of you and cry and say that they can't get out of the shower until they get out of that dark space in their mind. Hearing that and being like, "well, yeah, I did that yesterday," you know, it was easy to relate to those people and to those things that they were saying." Dana

Some participants commented that it was not relevant whether other members in their PPD group were single or not, they felt that they could still relate to them because they shared the same challenges of childrearing. For them, the validation did not have to come from other single mothers; the struggles of parenting provided the common bond among group members:

"You sort of realize that you're all going through the same things, and whether

people have partners or not, they're all going through the same stresses and same things with the kids that you're going through." Katie

Despite the similarities that single mothers may share with partnered mothers with respect to parenting issues, some participants nonetheless reported feeling like they did not fit in with the therapy group precisely because they were single mothers:

"*I would go to these mothers' groups and be like, 'Ugh, I don't belong here' and got frustrated listening to, 'My husband this and my husband that'...and so I felt like I didn't fit in... I think it was just part of the depression and it was sort of me wishing that I had a partner to help and what not."* Katie

It addition to the importance of validation by other members in the group, the effectiveness of group therapy may also depend on at what point in recovery an individual is at Pearlstein, 2008; Dennis et al., 2009) or whether they are considered high-risk for PPD (Shaw et al., 2006). Group therapy may be more beneficial in the initial stages of illness where social comparison may be more critical with respect to understanding and accepting one's illness. But as one progresses, the group may no longer provide the same sense of commonality if other participants are at different levels of recovery, regardless of marital status. The following quotes describe some participants' frustration with their current PPD support groups and their desire to find other women sharing similar circumstances:

"Sometimes I almost find that it's hard to be there and be supportive of someone else and I almost feel like it rehashes some of the feelings that I'm trying to get

over, like, I've been there and I've gotten through that stage of depression and I almost don't want to think about it anymore, I just want to forgive myself for what's happened and accept that it's happened and just move on and I almost feel like it's not healthy to hang around people who are maybe going through that...it just kind of reminds me of where I've been and I'd just rather put it out of my mind." Dana

"I don't feel like I belong there. There's only one other girl in the group that is a single mom. I don't know. I just, I don't feel like I belong there. They've been going to the group for a long time. Yeah, they have toddlers or children now, not babies anymore... Yeah, I need to find moms who are going through what I'm going through." Barb

The view that peer support groups are therapeutic in the early stages of depression, but less helpful or desirable as participants' work through their recovery, are consistent with research on peer support groups for mental health issues in general (Shaw et al., 2006; Perlstein, 2008). This may be of particular relevance to single mothers as the groups might provide the necessary validation or normalization of their thoughts and feelings with respect to depression in the beginning, however, it could eventually lead to a sense of alienation if they are unable to relate to the experiences of married (or equivalent) mothers in the group.

Informational Support

Informational support refers to advice or guidance that results in an increase in useful information or resources that in turn leads to more effective

coping. Within this context, it is not surprising that discussions regarding informational support from family members in particular (of which there were very few comments) related to parenting. In contrast, discussions about support from professionals, evidently the primary source of informational support for this study sample, more often involved issues regarding postpartum depression or public health programs that targeted single mothers.

As previously mentioned, discussion of informational support from family members was negligible. Only one participant reported receiving positive informational support from family members. In this case, she felt she had received useful parenting information by observing her sisters with their own children:

"Just them (sisters) like being there for you is like um and some watchin', because they have kids also, so some watchin' what they are doin', they kind of you know teach me. I know how to be a good mother in terms of what to do." Christina

In direct contrast, one participant felt that the information or advice she was getting from her mother regarding parenting was not the least supportive:

"My mom, herself, is a very judgemental person so when you try to tell her things like "my baby is throwing up all the time", it's my fault, so automatically my parenting is bad because he shouldn't be crying and he should be sleeping all the way through the night now, he should be eating every 3 hours, you know, he should be eating 5 or 6 ounces not 4 ounces, so everything is my fault. So that's a lot of feeling that I'm doing something wrong because, you trust your mom. You want to know that your mom is giving you the correct advice and telling me

that I'm not doing things right is not very good support for me. My mother-in-law is the same way, you know, "he should be sleeping through the night, he should be eating 5 or 6 ounces, he should be eating every 3 hours on the hour". It's not support. And then as far as anybody actually helping me...I can't find it." Barb

It is likely that this description of judgemental support or advice, particularly from family members, may be a common view and not specific to the experiences of single mothers. In other words, most mothers can relate to receiving unsolicited advice at some point, particularly from family members in which there may be generational differences in attitudes towards childrearing. However, if they are more reliant on the support of others because they already lack support from a partner, then the quality of these resources may be particularly critical because they may feel they have few alternatives.

Overall, participants reported that the informational support they had received from professionals such as doctors or social workers was beneficial, because they were perceived as being knowledgeable about postpartum depression and they recognized that participants were receiving very little support from other sources, such as family members. This is not surprising, as for the most part this type of support would be implicit from those qualified to work within this particular profession. In the following quote, the participant describes how the support was beneficial because not only did she receive valuable information but she felt less alone as a direct consequence of this type of support:

"Usually when she (social worker) comes here she wants to help me get involved with other postpartum groups to try and get over this little hump...If I have any questions about the baby's feedings or if she's not burping well, she works with me to find ways to make it easier... I'd say for the support that I'm starting to get now it's been a positive because now I don't feel so alone." Megan

Instrumental Support

Instrumental support refers to support that is practical or tangible in nature, such as childcare, domestic help or monetary aid. Participants most often described receiving instrumental support from family members or professionals and community support services. None of the discussions involved instrumental support from peers. It may be that peers are not perceived to be typical sources of instrumental support and therefore participants did not expect to receive this type of support, did not ask for it, or it was not offered.

Discussions about instrumental support often involved issues specifically relating to childcare or financial support. Because the single mothers in this sample were the primary caregivers for their children and may have had little or no childcare or financial support from their ex-partners (as sometimes may be the case for single mothers in general), it is not surprising that these types of supports might be perceived as having a significant impact on participants' well-being as they struggled to meet the demands of raising their family with very limited resources.

Family Members

Several participants commented that they were receiving beneficial instrumental support from family members. One participant described how her father would give her a well-needed break from her baby when he saw signs that she was having difficulty coping:

"He (father) can tell when I'm starting to feel sorry for myself, and getting down on myself... he's like, 'here, Erika's just ate, let me have her for a bit, go have a bath, go upstairs, read or something'... here (at her father's house) I can still have a bath and I can still hear her and I know where she is, I know she's safe." Nicole

This support was twofold because not only was this participant receiving beneficial practical support by getting some time on her own, but also because the support was coming from her father, someone whom she trusted, she was able to take full advantage of the break on an emotional level; she did not have to worry about the well-being of her baby.

Receipt of a particular kind of support may have an implicit benefit, but this benefit can also go beyond the obvious. A good example of this is illustrated in the following quote:

"Luckily my father is in a financial position that he was able to help out so I got a nurse in at night for a few weeks to, you know, get my sleep back...get back on my feet that way...I think it helped, I mean, it helped a great deal. I think a big part of my depression was the exhaustion and you know, I keep thinking if my dad wasn't available to provide that help I just, you know, I don't know what I

would've done because I wouldn't have a chance to sort of catch back up on sleep and feel like I could get a grip on it." Katie

The participant's father provided instrumental support, in this case, a night nurse, in order for her to catch up on well-needed sleep. The effects of the support, however, went beyond the short-term. She believed that this lack of sleep was directly related to her depression. Therefore, because she received this type of instrumental support, she was better able to cope as a result. Discussions regarding instrumental support by family members, primarily with respect to childcare, were not always viewed as ideal. In some cases, the level of support was perceived to be limited or problematic:

"The only person that would actually be able to take him when he's (the baby) been that way (when he's crying a lot and the participant feels frustrated) is my mother-in-law who is physically and mentally disabled. So, I mean, she would do it and she would love to do it all the time for me. She lives in another town, which is 20 minutes away. She doesn't drive so it's very difficult to get her here but also the fact that it's hard for her to watch him, properly, without my help. It's not like she could just take him for 3 hours and it would be fine, it's not that easy for her." Barb

In the following quote, the participant describes her feelings of guilt because she depends solely on her parents for childcare:

"Even though I have the practical support from my parents, they don't always have the energy to play with him, maybe an hour or two at a time... He cries a lot when I'm gone and my parents can only do so much. They're not really young

and usually when I leave him with them, it's I have appointments or if I just need to take a shower, a little bit of "me time." I always feel guilty if I have an appointment with my obstetrician or if I have an appointment with the lawyer, if I have to leave him two, three hours at a time I feel really guilty." Tina

Some participants felt they had to accept support that was not always ideal. However, as previously mentioned, due to the fact that single mothers may have minimal support in the first place, they may feel they have no choice but to accept whatever support they can get, regardless of the quality of the support. In other cases, instrumental support from family members was not even possible. Some participants felt the negative impact of the lack of support they otherwise would have had if not for the geographic distance between them and their family members:

"...it would make things a lot easier for me I wish that I had that support like someone (family members) to call on, you know, like if I need help with something or if I need a ride from work or if I need someone to watch the kids or pick them up or something like that you know, or sometimes even just as simple as a baby-sitter for the night." Ann

Professionals

Overall, participants reported having received beneficial instrumental support from professionals:

"I have to say that my health nurse has been awesome. She's getting everything together that I need to have. She's been a main source of support as well. She's

gotten me referrals to all of these different types of programs, studies and stuff. And then, she knows everything that's going on in the community." Barb

Community Support Services

Several discussions regarding instrumental support included social programs designed to address the needs of single mothers. Some participants reported that they had received helpful instrumental support in the form of domestic help, childcare or clothing donations from some of the social programs they were involved in.

One participant in particular felt that one of the factors directly contributing to her depression was that she could not find the time to clean her house or attend to personal hygiene. In this instance, she perceived the respite care program she signed up for - a program that provides domestic help in the home - would be beneficial:

"A lot of the reason for the depression is that I'm an absolute full-believer in "a cluttered house, a cluttered mind." So if I had someone to come in who wasn't judgemental so I didn't have to worry about that, I could just get my house cleaned, I could have a shower, I could sit down and eat a meal and that will help me. Just that few hours where I can do what I need to do, my mind is free of "oh my goodness, the place is such a mess. Oh my goodness I haven't had a shower in three days. I haven't eaten anything healthy in a week." It would definitely help me." Barb

In this case, the assistance was to be quite minimal. However, the fact that the participant's perception that a few hours assistance per week would be

so beneficial speaks to how one small aspect of support can have such a great impact.

The support needs of a particular single mother might not be as easily met as in the previous example. Therefore, social programs that can address a variety of support needs might be more beneficial to some. One participant emphatically described the value of a social program she had been involved in that provided a host of supportive services such as residency, childcare, education and retraining. She believed that most of her support needs were being met through this one primary source:

"They (program for young single parents) have something where they get donations from various stores, people whatever the case is. And you go down there and pick up as much as you want of like, clothes. And then when your child is born if you need anything like dishes, home ware, whatever you can get that there too. Anything you can think of... It's a good place, and you save your money." Judy

Of interest is the fact that this participant did not perceive herself to be at risk for PPD. In fact, she believed that it was because of this program- specifically, that it was providing a variety of support- that she was at lower risk relative to other single mothers.

In general, however, most participants reported a frustration while trying to meet their specific needs. In particular, several participants described a struggle to become more self-sufficient while recognizing the need for support from others (in this case, instrumental support from professionals). This

struggle is succinctly demonstrated in the following quote from a participant who was finding access to subsidized daycare problematic:

"Obviously financially I've been struggling, and now I'm just finding there's a shortage of daycare. So now I'm kind of in this "catch 22" where I can't work unless I get daycare but I can't get daycare unless I can either afford to pay for it or I can get subsidy for it. So in that way there's not a lot of support in getting back to what's 'normal." Dana

She perceived this lack of instrumental support to be directly related to her emotional well-being:

"Yeah, if I could get him back in daycare and work, I think I would feel like it would be that missing piece. Because right now I don't feel very productive... but it's up to me to find the daycare and get him on the waiting list...The whole daycare thing and running out of money (is) starting to really pull me under again, where I'm thinking less of myself and I'm starting to be harder on myself." Dana

Once again, this speaks to how one type of support which may not only have noticeable benefit for which it was intended (e.g., childcare support), but may also have deeper implications, such as an impact on perceived levels of stress. In this context, the availability of public childcare may provide additional benefits to single mothers.

However, several participants discussed a substantial lack of social programs that addressed the specific support needs of single mothers. One participant commented that there were programs that addressed the needs of

new mothers in general, but with respect to the specific needs of single mothers, programs that may have been beneficial did not exist in her (small south western) community.

"We have Mother Care (a pre/postnatal program that offers information and support regarding nutrition and breastfeeding issues) here in town, and that's a great place, but other than that you really don't have anywhere being a single mum to go." Nicole

In some cases, participants described programs that did exist in their communities but they faced barriers in accessing them. For example, a program did exist in one participant's community that addressed the needs of single mothers, however, the participant's age excluded her. This program was one that she believed would have provided essential, instrumental support:

"There seems to be a lot of programs and helpful outlets for women (single mothers), things that could have helped me out, especially with housing, different education things, you know, there were things along the way that probably could have changed the course of my life a bit, maybe made things easier. But the cut-off was 21. I just wish there was more support and it wasn't so much "age-specific. But when you're a lot younger, it's almost like there's more opportunity. I almost wish that if I was going to go through it, I almost wish that I had gotten pregnant the year before." Dana

One participant was from a large urban community and was connected with a program that not only provided support to single mothers, but was specifically geared towards women of diverse backgrounds, yet she was unable

to attend because she lived too far away. In this case, a lack of accessible transportation was a barrier to her receiving needed support:

"They (Community health centre) have a program for new mothers every other Friday, but it's all the way downtown and it's too far for me to take the baby with the subway and the bus." Gloria

This suggests that not only are programs specifically targeting single mothers necessary, but that an assessment of potential barriers, particularly with respect to the socio-demographics within the community, would also be an important consideration. One participant in particular illustrates such an example. This participant reported facing additional barriers to needed support in addition to being a single mother precisely because of her socio-demographic profile. She was ineligible for certain social programs such as subsidized daycare because she did not have her landed immigrant status, and was not living with her former partner, who would have to apply on her behalf (a barrier that Canadian born single mothers, would not be faced with). Because she did not have family members living in Canada she had to rely on public daycare yet was unable to afford it because she did not have a work permit and her ex-partner was not providing any financial support.

She describes her frustration with trying to do things independently, however, she is bound in part by a social system that assumes she is receiving adequate support from her baby's father, but does not allow for any provisions when this is not the case:

"It's hard being a single mom and not being landed (having landed immigrant status). It's hard because... if your ex-boyfriend is landed he has to do everything (e.g., sponsor her). *And it can be difficult at times...Because if you're landed you could give your child your last name and you could move to another place and try to start over."* Gloria

Interesting to note are the number of participants that indicated they would prefer to be less reliant on others, while still recognizing that support from others was related to attaining this goal, at least in the initial stages of their depression. For several of the participants this meant completing their education or securing employment so they could become more self-sufficient. Paradoxically, it is precisely the lack of support (in this case instrumental support) however, that was perceived to be thwarting this process and consequently affecting their well-being.

Based on participants' comments, it appears that in addition to the challenges with which single mothers may be faced, particular socio-demographic subgroups of women (e.g., immigrant women) may be directly affected by a lack of social support. Not only do geographic location and demographic characteristics such as age appear to be important with respect to addressing the support needs of single mothers in particular, but other factors that may further marginalize these women need to be taken into account.

Discussion

This paper describes a qualitative investigation of the relationship between social support and perceptions of risk for postpartum depression in single mothers. The primary aim of this study was to examine whether single mothers perceived themselves to be at particular risk for PPD compared to partnered mothers, and if so, whether there common themes regarding those risk factors perceived to have contributed to their state of well-being in the prenatal or postpartum period.

Social support was identified as a meta-theme in the analysis; it was the predominant perceived risk factor for PPD among women in this study. Participants' perceptions of the importance of social support to their mental health are consistent with numerous studies indicating that individuals with supportive social networks are in better overall health than those with fewer supportive contacts (Cohen & Wills, 1985; Cohen, Underwood & Gottlieb, 2000; Cohen, 2004), as well as literature demonstrating a strong association between lack of social support and risk for postpartum depression (Beck, 1996; O'Hara & Swain, 1996; Beck, 2001; Dennis, 2004).

A key finding of the current study is that single mothers consider themselves to be at greater risk for PPD, compared to partnered mothers, because of a perceived disparity in available social support. Participants' reports of lacking continuous support from which to draw at any given time, day or night, provides an indication of how single mothers might differ from most partnered mothers. The results suggest that this difference may be

further moderated by the amount of outside resources (e.g., support from family and friends) available to them. This finding is can be understood in the context of substantial research associating partner support with both lower risk for PPD (Beck, 2001; Dennis & Ross, 2006; Fisher et al., 2002; Logsdon & Usui, 2001; Patel et al., 2002), and improved treatment outcomes in depressed women. For example, in a study on the impact of partner support on treatment of PPD, women whose partners participated in the treatment intervention experienced more rapid recoveries from PPD compared to women whose partners did not (Misri et al., 2000). As such, the participants' perceptions of the importance of social support are very consistent with the empirical literature in this area.

'Surrogate Support'

Data from this study suggest that since single mothers lack a partner who can theoretically share some of their parenting responsibilities, they feel an increased need for support from others - a kind of 'surrogate' support, so to speak - that partnered mothers may not experience in the same regard. In order to feel adequately supported during the postpartum period, single mothers may attempt to seek out the support that a partner might otherwise provide from various sources within their social networks. However, drawing the various types of support needed from within their existing social network may not always be possible, nor desired. Furthermore, receipt of this support may require creating new types of supportive relationships that perhaps may not be socially endorsed or valued (e.g., receiving financial aid from ex-partner's

family, or living in a residence for young mothers). This may be related to the stigma associated with single parent status. Despite the number of current single-parent families, the notion of the traditional two-parent family as the norm still prevails. In a qualitative study on low-income, African American women, single mothers collecting welfare were viewed as deviant by employers and case workers. Both their social status and a reliance on public assistance were used as evidence that single women do not value traditional norms of economic independence and family structure (Jarrett, 1996). According to Olsen & Haynes (1993), research that continues to focus on the negative aspects of single-parent families perpetuates these negative social stereotypes.

In addition, single mothers would need to feel that the surrogate support was obtainable, and secondly, that the support, if accepted, would be beneficial. With respect to the study results, two issues arose in terms of obtaining this 'surrogate' support; firstly, some participants felt they had no place to go or no one to provide the support, and secondly, some participants felt that the support they perceived to be available, or that they received from these surrogate sources was not always ideal. Because social support is a contributing factor in risk for PPD, then these issues may be of particular importance to single mothers who may not have beneficial sources for this 'surrogate support.' Their health and well-being may be affected as a result.

The support received from others (Cohen et al., 2000), and the quality and quantity of our social interactions (Kiecolt-Glaser & Newton, 2001) are documented indicators of health and well-being. According to Dennis et al.,

(2009), it is the quality and not the quantity of social interactions and relationships that is more strongly associated with health outcomes. As previously mentioned, participants may have attempted to seek out support from a number of different sources in order to try to fulfill their support needs.

The need for multiple support resources is consistent with other research on the relationships between stress, social support, and health. According to the stress buffering model, social support benefits an individual's health by providing the essential resources need to cope with a particular stressor (Cohen, 2004). However, in order for the support to act as a stress buffer, the type of support available during stressful periods must meet the coping needs of an individual within a particular context (Cohen & Wills, 1985). Relating this to the current study for example, it may be beneficial to supply diapers and formula to a single mother with very few financial resources, but this specific form of support will not be very helpful to her in the middle of the night when she is alone, exhausted and frustrated by her baby's incessant bouts of crying. The availability of a variety of types and sources of support that, in combination, can meet the diverse support needs of single mothers would therefore be necessary.

However, the data suggest that the types and sources of support received or perceived to be available to study participants did not always appear to match their individual support needs. The support offered was not always viewed as beneficial, and participants sometimes had to choose whether to accept a particular offering of support, look elsewhere, or simply go without.

For example, one participant described how her parents provided instrumental support (i.e., childcare), but were not emotionally supportive, partly because of family norms related to expression of emotion and also because they did not agree with her having a baby out of wedlock. She understood that she would not receive emotional support from them and accepted that she could only expect instrumental support. This example illustrates how single mothers may need to amass several different sources in order to receive the perceived equivalent of partner support.

Participants also reported accepting support that they perceived to be less than ideal because they felt they had little alternative. One participant described how she felt criticized by her mother whenever she talked with her about her experiences with PPD. However, she reluctantly continued to do so because she believed that part of a mother's role was to provide emotional support. She continued to seek out the support of her mother despite the fact that she described this support has having negative, rather than positive, effects on her. This example further illustrates that one particular source of support may not meet all the various support needs of an individual single mother, and thus, underscores the need for a range of sources from which to draw support. However, as mentioned previously, multiple support resources are only beneficial insofar as they match the particular coping needs of an individual. Also of importance is an individual's perception about the availability of these sources of support.

It is possible that there may have been a difference between the perceived availability of support and what was actually available to participants. In other words, participants may have not asked for a particular type of support because they did not feel that the support would be offered or felt that it would not be helpful. Participants may have also discounted the level of support they actually needed. According to Sword et al., (2008), the normalization of symptoms (by women and family members) a limited understanding of PPD, or waiting for symptom improvement can all influence whether a woman will ask for help. In addition, participants may have not asked for help because they were not comfortable discussing their mental health concerns (e.g., they felt shameful, or feared being judged). For example, one participant described her reluctance to discuss her thoughts of wanting to harm her baby with her parents because she believed it was something they would not want to hear. As a result, she never began a dialogue with them that might have resulted in some form of support or intervention.

The social stigma associated with PPD, including being "labelled a "bad mother" or a deviant, may make mothers reluctant to discuss their experiences with PPD, and therefore, may prevent them from getting necessary help (Beck, 2001). A qualitative study on stigma among women experiencing PPD showed that women perceived that a stigma existed and as a result, they concealed their illness from others such as family members and medical professionals (Edward & Timmons, 2005). In addition, the social stigma of PPD may be further compounded by the stigma associated with single parenthood.

Clinical Implications

Two key implications for the clinical care of single mothers emerge from this research: 1) that social support plays a fundamental role in perceived risk for PPD; 2) that group support for PPD may have potential benefits on health outcomes for single mothers.

Social Support and Early Intervention

Providing evidence that social support is of fundamental importance to single mothers' perceived risk for PPD may suggest value in early targeted screening for this population. If single mothers are at risk because of a lack of appropriate sources of 'surrogate' support, than an evaluation of their available social resources during prenatal and early postnatal periods may be very appropriate for those women who may benefit most from early intervention. This is clinically important because there is some evidence to suggest that early intervention with women who are at high risk may be more effective at improving health outcomes than universal screening procedures (Beck, 2001; Dennis 2004).

While social support is an established risk factor for PPD, and therefore appropriate for applications in such targeted screening initiatives, more research is needed in order to determine whether single mothers as a group are at elevated risk for PPD solely on the basis of their marital status. If established as a risk factor, however, marital status is easily identifiable from a clinical perspective and could provide an initial flag for follow-up or for triaging. Regardless of whether social support or marital status is used of the

indicator of risk, it is notable that some participants reported having discussed their symptoms of depression with their primary care providers rather than with specialists. This suggests that early targeted screening by primary care providers may be very appropriate for single mothers, as this may provide the first opportunity for intervention.

The finding that single mothers believe they are at greater risk for PPD relative to partnered mothers because of a perceived disparity in level of support may help clinicians better understand the association between social support and women's experiences of PPD, particularly among single mothers. Identifying the support needs of single mothers who may be at risk for postpartum depression may lead to ways of reducing risk or improving health outcomes for this population through support-enhancing interventions. However, the fact that different types and sources of support may be valued or perceived to be available over others, depending on the context and experiences of an individual, suggests that there is no universal formula that can be applied to address the support needs of those single mothers who may be at risk for PPD. Instead, it may be more important to examine the support needs on a case-by-case basis and attempt to identify persons and/or services that might provide the specific support that a particular single mother is lacking.

For example, it may be beneficial to take a social inventory (administered by a primary care provider or other service provider), similar to the process undertaken during the initial stages of interpersonal psychotherapy, in which a patient's current social relationships are evaluated (O'Hara et al., 2000;

Markowitz & Weismann (2004). In this case, a list comprised of individuals who are currently available within their social network or who might be added (e.g., co-workers, neighbours, community contacts, etc.), may help women identify where their 'surrogate support' might come from. Including the four types of support identified in the current study (i.e., emotional, instrumental, informational and validation) as part of the assessment may help to streamline the process of identifying available sources of support. In cases where the support may potentially exist, but may not be ideal (e.g., support provided in a judgmental manner), this might mean working with individuals or families who have been identified as potential sources of support to educate them and try to improve their support skills, or help them identify other types of support they might best provide (e.g., instrumental rather than emotional support).

Helping women to feel they have a supportive network even if they don't draw from it may itself prove valuable. Research indicates that perceived support may be more strongly associated with risk for PPD than actual support received (Dennis, 2004). The perception that support is available regardless of whether women choose to seek out the support, may in itself decrease the perceived level of risk for PPD. According to Cohen (2004), the belief that others will provide necessary resources may strengthen one's perceived ability to cope and consequently lower their appraisal of stress within a given situation. In other words, helping a woman to expand her perceived social network by creating a social inventory, regardless of whether she actually

draws on each and every source included, might change her perceptions of her availability of support and thereby decrease her perception of her risk for PPD.

Peer Support Groups

The second key clinical implication to emerge from this study relates to the provision of group support for single mothers with PPD. The data suggest that while peer support groups are perceived to be beneficial for many single mothers, the extent of the benefits may be related both to participants' marital status and their present level of recovery. This result is consistent with the research literature on support groups in general (Dennis, 2003; Shaw et al., 2006; Lipman, 2007; Perlstein, 2008), which has indicated that belonging to a group of others in similar circumstances may be beneficial to health outcomes. Some participants in this study felt that the peer support groups they attended with predominantly partnered mothers did not benefit their mental health. It may be that these participants perceived partnered mothers to be less burdened or as not having the same degree of stress that they were experiencing, and could not therefore relate to them to the extent that they may have felt they could have related to other single mothers. Alternatively, participants may have felt judged by partnered mothers in the group, as a result of the social stigma attached to single parenting. In either case, the data suggest that if group members are predominantly partnered, single mothers may not feel they are receiving needed validation support in a peer group context, due to a lack of perceived shared experiences. Based on these results,

it may be desirable to provide PPD support groups that are exclusive to single mothers, in regions where this is feasible.

However, despite these negative experiences, many participants in this study valued access to peer support, suggesting that this is an appropriate intervention to explore in future research. For example, there is evidence to suggest that support from women who have recovered from PPD can be engaged as peer supporters for women who are in the early stages of the disorder. In a mother-to-mother telephone-based support intervention called "Mothers Helping Mothers," women identified as high-risk for PPD were paired with a peer volunteers with a history of and recovery from PPD. The peer support decreased the number of mothers who later developed PPD (Dennis, et al., 2009). Alternative modalities such as tele-support or web-based support groups could also prove particularly helpful for single mothers who may be too overwhelmed by the responsibilities of sole-parenting to attend meetings in person (Ugarriza, 2002). These types of support services might also benefit those who are not comfortable participating in in-person group therapy or who may face barriers to attending the programs in person (e.g., rural moms). More research on potential peer support interventions for single mothers at risk for PPD is therefore warranted.

Policy Implications

With respect to policy implications, the data indicate that it is necessary that a variety of social programs be in place to meet the various support needs of single mothers who cannot rely on individuals in their social networks for

surrogate support, (e.g., immigrant mothers, single mothers who are isolated from their family members). For example, access to affordable daycare and barriers to education were often reported as contributing factors to participants' well-being. An example a program that addressed a variety of support needs was that described by one participant as providing a number of services for single mothers, including residency, education, employment retraining and a daycare. One of the most beneficial aspects of the program was the convenience it afforded because she was able to access everything under one roof; the participant did not have to "branch out" for support elsewhere. Considering the data suggesting that availability of these social programs may decrease the risk for poor outcomes for mother and baby associated with PPD, research evaluating their effectiveness, and cost-effectiveness, in this regard would be warranted.

The data indicate that the availability of specialized social programs such as those geared toward low-income or single mothers varies across communities. Participants in this study were drawn from a cross-section of south-western Ontario communities, including both small towns and large urban centres. As a result, some participants in this sample reported having more access to social programs than others. In a qualitative study on single, low-income mothers in the Mid-Western U.S., deficiencies in community services were thought to account for single mothers' inability to parent successfully (Campbell-Grossman et al., 2005). The quality of specialized social programs available from within a given community may be of particular

significance to single mothers, who may be more likely to draw from them than partnered mothers, who in most cases, will have more informal support available to them.

Strengths and Limitations

This study is, to the best of the investigator's knowledge, the first qualitative study to examine a non-clinical group of single mothers' experiences of depression in the postpartum period. The finding that single mothers perceive themselves to be lacking important support that a partner might otherwise provide, and therefore, may feel an increased need to seek out a variety of types and sources of 'surrogate' support as a consequence, may offer valuable insight into understanding why single mothers may be at an increased risk for PPD. There are however, some study limitations that should be noted.

Interviews for this study were conducted predominantly over the telephone. Only one participant opted for a face-to-face interview. There is some evidence that telephone interviews provide less detail than those in person and make establishing rapport more difficult, thus hampering participants' ease with disclosing personal information (Novick, 2008). Single mothers may face challenges in obtaining childcare which would enable them to participate in longer, face-to-face interviews, and they might, therefore, prefer to be interviewed over the telephone. Future studies might consider assisting participants in securing any paying for childcare for the purpose of conducting interviews face-to-face.

In the socio-demographic questionnaire, participants were asked to self-report on their ethno-cultural identity. Due to the wording of this question however, race and ethnicity were conflated (Appendix H). As a result, participants may have interpreted the question in different ways, therefore, rendering the data unusable. Future research should include a more accurate framework for describing race and ethnicity when including this demographic variable.

Clinical diagnosis of depression was not part of the inclusion criteria for this study. As a result, participants had a range of depression severity as per the EPDS, and we have no information about their diagnostic status. We do not know whether women's perceptions of risk for PPD might have differed depending on their depression severity. However, it is interesting to note that participants at both the high end and low end of the spectrum of EPDS scores discussed the importance of social support as it relates to risk for PPD, in their experiences as single mothers in the postpartum period. Additional research that limits inclusion to EPDS scores greater than 12 or to women with a clinical diagnosis of depression may be useful, to understand perceptions of key risk factors for PPD among a clinically depressed group of single mothers.

The sample size was relatively small in this study. Although it appears that theoretical saturation was achieved with the social support meta-theme-which was discussed by all 11 participants-theoretical saturation was likely not achieved for the sub-themes of type of support and source of support. This is consistent with recent data suggesting that meta-themes are identifiable after

coding of 6 interview transcripts, but lower-order themes reach saturation only after inclusion of a minimum of 12 homogeneous transcripts (Guest, Bunce & Johnson, 2006). Including additional stories from single mothers with lower education levels or from those who are marginalized in other ways, such as lesbian/bisexual, Aboriginal or immigrant women, may have enabled this investigator to uncover additional themes that might ultimately better our understanding of the relationship between social support and perceived risk for PPD among single mothers.

Future Research

To date, single mothers have been greatly under-represented in research on PPD, and the theory developed in this project regarding why they are at increased risk for PPD requires empirical validation. For example, there may be cultural variations worthy of exploration, particularly with respect to cross-cultural views on the concept of 'family' and what this constitutes (e.g., nuclear or extended family), as well as differences in perceptions about the acceptability of single parenthood. These variations may play a significant role in the extent to which familial support is expected or provided.

It might also be useful to compare single mothers who planned their pregnancies to those who did not. For example, are single mothers who choose to adopt or use in-vitro fertilization more likely to secure support systems in advance? Further quantitative research that includes a large sample of single women, ideally of a variety of socio-demographic situations, will help to

confirm the data indicating a key role for social support in risk for PPD among single mothers.

The extent to which partnered mothers feel they are also at risk for PPD due to lack of support cannot be determined based on these data. Although the single participants in this study presumed that partnered mothers were receiving at least some useful support from their partners, this may not always be the case. If partnered mothers had been included in this study, they too may have felt at risk for PPD for similar reasons. Future research might examine single mothers with an appropriate comparison group of partnered mothers in a longitudinal design, in order to determine how received and perceived support may relate to depression risk for both groups of women.

Conclusion

The aim of this study was to gain a better understanding of single mothers' perceptions of their risk for depression in the postpartum period. The findings indicate that single mothers perceive themselves to be at greater risk than partnered mothers because of a relative lack of support, and that this risk may be related to the perceived availability of appropriate sources of 'surrogate' support. As a consequence, single mothers may feel an increased reliance on others to compensate for this lack of support compared to partnered mothers.

Assisting single mothers to identify potential sources of 'surrogate support' within their existing network, or helping them to create new, sustainable relationships, may prove to be very beneficial to the health outcomes for these women. In addition, social programs that address the specific needs of this clinical population while taking into account potential barriers to uptake of support, may be particularly critical to ensure that single mothers, where necessary, are provided with potential sources of support outside of their existing support networks. Further evidence-based research is needed to better understand the support needs of single mothers, as well as to validate the finding that social support is the critical determinant of PPD risk for single mothers. That single mothers are at risk for PPD is an important public health concern, and the recognition of such is a necessary step towards reducing the stigma of PPD for these women.

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Appendix A

Manuscript: The prevalence of postpartum depression among single mothers: A systematic review of the literature (Woodford, Ross & Gorospe).

Abstract

Purpose: Several risk factors have been identified for postpartum depression (PPD) and there is some evidence to suggest that single mothers may be at an increased risk for PPD. However, very few population-based studies have examined prevalence of PPD among single mothers. The goal of this systematic review was to examine risk for PPD among single mothers.

Methods: MEDLINE, CINAHL, EMBASE, PsychINFO and the Cochrane Library were searched from start dates to January 2009 using combinations of search terms related to the perinatal period, mental health, and marital status.

Study Selection: Any published, peer-reviewed articles in English, French or Spanish were included if a standardized assessment of depression was administered between 2 and 52 weeks postpartum, and if either the prevalence of PPD in single mothers or a comparison of depression scores between single and partnered mothers were reported.

Results: A total of twenty-six studies meeting eligibility criteria were examined. The number of studies that reported on prevalence of PPD in single mothers is very limited (i.e. N = 16). However, taken together, the available data provide

evidence that single mothers are at an increased risk for PPD relative to partnered mothers (odds ratios ranging from approximately 1.5 to 4.5). Conclusions: Single mothers appear to be at increased risk for PPD relative to partnered mothers. However, existing studies have important methodological limitations. Future population based studies that include appropriate comparison groups and standardized screening tools or diagnostic criteria will confirm this proposed increased risk for PPD among single mothers.

Key Words: single mothers, postpartum depression, prevalence, risk factors

Introduction

The postpartum period is now recognized as a particularly vulnerable time for many women of childbearing age, with respect to depression. It is estimated that an average of 13% of women will experience postpartum depression (PPD) at some point in their lives and it is likely that this rate may be greater for women with certain risk factors (O'Hara and Swain 1996). The identification of potential risk factors for PPD may have considerable clinical implications for the early detection, prevention and treatment of this disorder. Although PPD can occur in women with no known risk factors, the results from 2 large meta-analyses of more than 14,000 participants suggest that women with one or more risk factors have a statistically increased chance of developing PPD (Beck 2001; O'Hara and Swain 1996). The strongest identified risk factors include family history of depression, previous history of depression, depression or anxiety during pregnancy and lack of social support. Two other smaller, yet statistically significant predictors of PPD are socio-economic status and marital status (Beck 2001; O'Hara and Swain 1996); the latter, single marital status in particular, the focus of this review.

Several large population-based studies have examined risk for psychiatric disorders among single and married mothers in the general population. On the basis of these studies, it is now widely held that single mothers are at increased risk for psychiatric disorders, including anxiety, dysthymia and depression (Cairney et al, 2006). In a nationally representative Canadian study, single mothers were twice as likely to have suffered an episode of major depression in

the previous year compared to married mothers (Cairney et al, 1999). Although the reasons for this increased risk have not been fully characterized, single mothers are largely socially and economically disadvantaged compared to partnered mothers (Cairney et al, 2003; Crosier et al, 2007). The stressors associated with poverty, sole-parenting responsibilities and lack of social support are thought to account for some of the elevated rates of general depression in single mothers compared to partnered mothers. For example, in a recent Australian study, the prevalence of moderate to severe mental disability was significantly higher for single mothers compared to partnered mothers, and socio-demographic variables (including household income) and social support accounted for 94% of the relationship between marital status and poor mental health (Crosier et al, 2007).

Pre-existing stressors such as financial strain and lack of social support may be exacerbated by childbirth. In addition, stressors such as an unplanned/unwanted pregnancy may increase the risk for depression (Beck 2001). These risk factors, not uncommon in single mothers, are further evidence of the likelihood of poorer health outcomes for this population. There are, however, relatively few population-specific studies on the relationship between PPD and single marital status. Beck (2001) found a small but significant effect size for the relationship between marital status and PPD (r =.21-.35), however, this analysis was based on only 3 studies. Ross et al. (2006) showed that the majority of women in PPD studies are partnered, therefore, there may be an insufficient number of single mothers included in the meta-

analyses to provide a precise estimate of the magnitude of risk in this population (Ross et al, 2006). Mediating factors for risk such as socio-economic status and social support remain under-investigated, making it difficult to ascertain what variables might account for any increased risk among single mothers. This gap in the literature is very likely to be of considerable importance, considering the body of research associating partner support with both lower risk for postpartum depression (Beck, 2001; Dennis and Ross, 2006; Fisher et al, 2002; Logsdon and Usui 2001; Patel et al, 2002) and improved outcomes in treatment of depressed women (Misri et al, 2000).

In this review we examine the current literature on the prevalence of PPD in single mothers compared to partnered mothers. Based on the resulting data, we discuss the limitations of existing research on this topic, and suggest recommendations for more rigorous study of this clinically relevant population.

Method

Data Sources

Articles included in this review were identified through electronic searching of the following databases: Medline, CINAHL, EMBASE, PsychINFO and the Cochrane Library. Each database was searched from its start date through to January 2009 using combinations of the following key words: postpartum, postnatal, pregnan*, perinatal, childbirth, obstetr*, labor, puerperal, parturition, parity, maternal, depress*, mental health, mental illness, mood disorder, affective disorder, emotion, baby blues, marital status, widowhood, single

person, single parent, divorce, spouseless, unmarried, living alone and lone parent.

Study Selection

Published peer-reviewed articles available in English, French or Spanish were considered for this review. Studies were included if they met the following criteria: a) reported an assessment of depression after at least two weeks postpartum (to avoid assessment of postpartum blues) but within the first postpartum year; b) reported scores on a standardized assessment of depression (self-report or observer-rated) or clinical diagnosis; c) reported either the prevalence of PPD in single mothers or a statistical comparison of depression scores between single mothers and an appropriate comparison group. Abstracts of peer-reviewed journal articles were electronically identified in the initial stage of the search process, and potentially relevant articles were retrieved for further review to determine inclusion suitability. The main reasons articles were excluded were assessments occurred before 2 weeks or after 52 weeks postpartum, or the relationship between marital status and depression was not reported in the analyses.

Results

A total of 999 citations were identified in the initial keyword search. Of these, 61 abstracts were retrieved for further review. Twenty-six articles published between 1980 and 2008 ultimately met inclusion criteria and were included in this review.

Study Descriptions

Tables 1 and 2 summarize the major characteristics of each study alphabetically by author. The majority of studies were from the U.S (27%) and the U.K (19%) followed by Africa (15.4%), Europe, Australia and New Zealand (each country representing 11.5% of the included studies equally). Most studies did not provide complete data for the age, socio-economic status or race/ethnicity of the sample. Fifty-eight percent of the studies in this review reported point prevalence estimates of depression based on a single assessment. These assessments most frequently occurred at approximately 6-weeks postpartum (N = 5; 19% of studies), with a range of 4 weeks to 12 months. Twenty-two out of the 26 included studies used a self-report screening instrument to establish prevalence of depression; most often (N= 12; 44%) the Edinburgh Postnatal Depression Scale (EPDS; Cox et al, 1987). Only 3 studies used a clinical interview as a diagnostic measure of depression based on DSM-IV criteria (Bryan et al, 1999; Nakku et al, 2006; Vesga-Lopez et al 2008).

Single Marital Status a Significant Predictor of PPD

Seventeen of the 26 studies included in this review (65%) reported a statistically significant association between single marital status and PPD risk. Details of these studies are provided in Table 1. Sample sizes ranged from 73 to 18741 (median = 763). Eleven of these studies reported on the prevalence of PPD in single mothers, with estimates ranging from 11% to 50% (mean = 26%) for single mothers compared to 2.4% to 33% (mean = 11%) for partnered mothers. These data were based on EPDS scores in 8 out of 10 studies (80%).

The statistical relationship between single marital status and increased risk for PPD was reported in 8 studies; odds ratios ranged from 1.5 (95% CI= 1.3-1.7) to 4.5 (95% CI not reported, p=0.02).

Single Marital Status not a Significant Predictor of PPD

Nine of the 26 included studies (35%) found no significant relationship between single marital status and PPD. These studies are presented in Table 2. Sample sizes ranged from 95 to 525 (median = 161). Odds ratios were reported in only one study (Cryan et al, 2001), and prevalence data were reported in five studies (Cryan et al, 2001; Danilewitz and Skuy, 1990; McCoy et al, 2006; McCoy et al, 2008; Vininamaki et al, 1994).

In 3 of these 5 studies, rates of PPD were high (i.e., >25%) in both single and partnered comparison groups (Cryan et al, 2001; McCoy et al, 2006; Viinamaki et al, 1994). For example, in an Irish study, 35.6% of single mothers scored greater than 12 on the EPDS at 6 to 12 weeks postpartum compared to 25.4% of married mothers (Cryan et al, 2001). The relationship between marital status and EPDS scores was not statistically significant (OR = 0.59, CI = 0.28-1.23). Similarly, a 2006 U.S study reported that 41% of single women versus 33% of married mothers in their sample met criteria for PPD (McCoy et al, 2006) (p =0.28). In the third such study Viinamaki et al, (1994) found no significant differences in GHQ scores at 1 to 2 months postpartum based on marital status; 33% of single women versus 27.8% of partnered women scored greater than 2.

In direct contrast to the above studies that reported high prevalence rates, one study of White South African women reported very low rates of PPD (Danilewitz and Skuy, 1990). Only 3% of single mothers in this sample scored as moderately to severely depressed on the Beck Depression Inventory (BDI) at 6 months postpartum compared to 2% of married mothers.

The final study to report prevalence rates in which no significant association between single marital status and PPD was found, reported rates for both groups similar to average rates found in studies of postpartum women in general (i.e., 10-15%; O'Hara and Swain 1996). Ten percent of single women versus 12% of married women in this sample scored greater than 13 on the EPDS ($p = 0.59$) (McCoy et al. 2008).

Discussion

Based on the results of this review, the evidence suggests that single mothers are at an increased risk for PPD. However, the precise magnitude of risk remains unclear, since the reported prevalence rates and odds ratios were highly variable between studies. Methodological differences between studies may contribute to this variability, since the included studies had diverse assessment periods, measurements and sample sizes. Despite these limitations, the majority of studies found higher risk for PPD among single mothers compared to married mothers; findings that are consistent with prior meta-analyses (Beck, 2001; O'Hara and Swain, 1996).

Studies included in this review in which a statistically significant association was found between marital status and PPD report prevalence rates

that would be expected in the general population if the assumption holds true that single mothers are indeed at an increased risk for depression in the postpartum period. That is, prevalence rates for married mothers for the most part, reflect average rates of 10%-15%, whereas prevalence rates for single mothers are significantly higher (see Table 1).

Three studies reported prevalence rates for both single and married comparison groups that were considerably higher than what is reflected in the general literature on PPD (Cryan et al, 2001; McCoy et al, 2006; Viinamaki et al, 1994). However, it is notable that in 2 of these studies, the sample of women had an overall greater level of social disadvantage, which could explain why no association was found between marital status and PPD (Cryan et al, 2001; McCoy et al, 2006). The baseline risk for depression would have already been higher, hence, the percentage of women meeting criteria for depression would expectedly be greater. Consequently, it may be difficult to parse out significant differences in prevalence rates for single mothers who are drawn from a sample of women already marginalized in other ways.

Furthermore, one of the studies was conducted within a health care setting in which universal screening for PPD was in effect approximately only 20% of the time. It is possible that referral bias might have contributed to the overall elevated prevalence rates because health service providers were most likely screening already depressed women. This study was replicated in 2008 when a universal screening process was used approximately 50% of the time and reported prevalence rates were much lower than previously; rates that

more closely approximated average rates (McCoy et al, 2008). A statistically significant association between marital status and PPD was still not found; however, only 9% of the overall sample met criteria for depression.

In direct contrast to the above studies, a study of white South African women found considerably lower rates of depression for both subgroups; 2% of married women met criteria for depression compared to 3% of single women (Danilewitz and Skuy, 1990). One factor that could have contributed to such low prevalence rates and might explain why no group differences in depression scores were observed is that a floor effect could have been operating. Participants were screened using the BDI (Beck et al, 1961), which may not have been sensitive enough in a postnatal population to detect a clinically significant group difference. In addition, the study sample overall reported having a substantial support network. The majority of single mothers indicated they were greatly supported by their parents and/or boyfriends, and married mothers were supported by their husbands and maids. Few studies included in this review provided detailed information about relationship status. In the majority of studies, comparison groups were classified as either single or married, without an operational definition of the term 'single'. It is not clear in all cases whether single participants were completely without a partner or whether women who were cohabitating but not married, or partnered but not cohabitating, were also categorized as single. In some cases, "single" participants were differentiated in terms of never being married, or were included in some combination along with separated, divorced and or widowed

women. This distinction is critical when considering potential mediating factors that could place a single mother at risk for PPD such as lack of social support, low socio-economic status, unwanted or unplanned pregnancy (Beck 2001). In some cases, a young mother who has never been in a consistent relationship may not receive the same amount of practical or financial support as a separated or divorced woman might, and may experience a greater level of stress as a result. On the other hand, separated/divorced or widowed mothers may be experiencing grief or loss that could contribute to their depression. Vesga-Lopez et al, (2008) found a significantly higher prevalence of major depressive disorder in widowed/separated/divorced mothers compared to married mothers, however, there was no increased risk in single (never married) mothers compared to married mothers (Vesga-Lopez et al, 2008). Categorizing diverse single mothers as a homogeneous could therefore mask potentially important differences in PPD risk (O'Hara, 1986).

Limitations

Sample Size

Studies that reported prevalence of PPD often had samples of single mothers too small for reliable subgroup analyses, which could have resulted in under-estimates or over-estimates of prevalence rates. For example, in a study of 738 Australian women, single mothers accounted for less than 2% of the total sample (n = 10), and only 3 single mothers in total were included in a Nigerian study (Hiscock and Wake, 2001; Ukpong and Owolabi, 2006). As previously noted, Viinamaki et al, (1994) reported no significant differences in

GHQ scores based on marital status, however, there were only 6 single mothers in this study. Similarly, in a U.S. study, only 8 women in total met criteria for depression (Ugarriza 1995). These small samples sizes would have limited the power to detect statistically significant differences in rates of PPD. This could explain why no statistically significant associations between PPD and marital status were found in some studies.

Screening Instruments

The reliability of depression assessments based solely on self-report screens has been questioned because of the risk for over-estimation of prevalence (Gavin et al, 2005). Only 3 studies included in this review used a diagnostic assessment. Also, the type of self-report measure used to assess depression is important. For example, the use of the BDI (Beck et al, 1961) to diagnose PPD has been criticized because it includes somatic factors such as sleep disturbances and fatigue, which are common features of new motherhood (Astbury et al, 1994). The EPDS (Cox et al, 1987) has a higher specificity and sensitivity because it has been designed to avoid common loading of self-report scales with somatic factors like the BDI (Harris 1989). Comparatively speaking, studies included in this review that used the EPDS to assess depression may be more reliable, however, studies that used a cut-off score lower than 12/13 may have allowed for inclusion of minor depressive symptoms.

Conclusion

Although hampered by the limitations described above, the available evidence to date suggests that this subgroup of childbearing women may well be at an increased risk for depression. Why is this relationship important? With respect to clinical implications, marital status is routinely collected as part of a patient history, and so may prove to be a cost-effective tool for identification of women at risk—particularly relative to other key risk factors, such as social support, which are more expensive to measure. Marital status may signal a potential intervention point with respect to targeted screening, such that single mothers could be monitored more closely in the postpartum period. Unique interventions appropriate for single mothers could be developed or existing programs could be modified. For example, groups that include partner support may not be appropriate for this population.

Although marital status is easily identified from a clinical perspective, it may be confounded by level of support or socio-economic status, so the theoretical basis for the relationship between marital status and postpartum depression remains unclear. The inability to parse out the effects of these variables is a limitation of the studies in this review.

It is clear that larger, properly controlled, population based studies, including psychometrically sound measurements of social support and socioeconomic status, are needed to confirm and extend the findings of this review. Future studies that specifically examine single mothers as a main

population of interest and provide appropriate comparison groups (i.e., married mothers and single non-childbearing women of similar age) using more precise screening and diagnostic measurements may lead to more reliable prevalence rates, and may ultimately provide evidence for establishing targeted clinical interventions for the prevention and treatment of PPD among this vulnerable population.

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Table 1. Single Mothers and Postpartum Depression Prevalence

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Adewuya, Fatoye, Ola et al. (2005)	-876 Nigerian women (232 English speaking/644 Yoruba) -547 married (monogamous) (62.4%) -231 married (polygamous) (26.4%) -98 single (11.2%)	6 weeks	-English or Yoruba version of EPDS (cut-off > 9)	Prevalence of EPDS score >9 = 32 (33%) for single vs. 64 (12%) in married women -Depression more common in single women (OR 3.44, CI 2.15-5.53) -In multivariate analysis, marital status was a significant predictor of EPDS scores, $p < 0.05$
Astbury, Brown, Lumley et al. (1994)	-771 Australian women -732 married (95%) -39 single (5%)	8-9 months postpartum	EPDS (cut-off > 13)	Prevalence of EPDS > 13 = 13 (33%) for single women vs. 98 (14%) for married women ($p < 0.05$) -Single women had increased odds of depression compared to married women (OR 3.04, CI 1.42-6.41)
Beeghly, Olson, Weinberg et al. (2003)	163 Black U.S. women - 67 single (41.7%)	2,3,6,12,18 months postpartum	CES-D (cut-off score ≥16)	15 (22%) of single women vs. 8 (8%) of married women had CES-D scores > 16 at 2 month intake ($\chi^2 = 6.08$, $p < 0.01$) -Single women had significantly higher mean CES-D scores at all assessments (all $p < 0.05$)
Bryan, Georgiopoulos, Harms et al. (1999)	Case control study of 403 U.S women (Olmstead County) -339 married (84.1%) -64 (15.9%) single women Predominantly White with socio-economic and education levels above U.S. average	First year postpartum	Medical record review (clinical diagnoses and depressive symptomology reports Documentation sufficient to meet DSM-IV criteria for major depression	Prevalence of PPD diagnosis in single women = 11% vs. married women = 2.36%, p<0.001. Single marital status was also a significant predictor of PPD in logistic regression analysis (OR = 4.49, CI not reported, p=. 0205)

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Feggetter, Cooper, & Gath (1981)	Case control study of 820 British women -39 (4.8%) single -30 (3.7%) divorced/separated Sub sample: -71 probable cases -71 non-probable cases Number of single women not reported in sub sample	Screened at 1year postpartum	GHQ (no cut-off reported)	Significantly greater proportion of GHQ probable cases were unmarried compared with probable non-cases ($p < 0.001$). No prevalence data reported.
Hiscock & Wake (2001)	738 Australian women -720 (97.5%) married/defacto -10 (1.4%) single -8 (1.1%) divorced/separated	6- 12 months postpartum	-EPDS (cut-off >12)	4 (50%) of divorced women and 3 (30%) of single women vs. 92 (13%) of married/defacto women had EPDS scores >12 ($\chi^2 = 17.65$, $p = 0.007$). In multivariate analyses, marital status was no longer a statistically significant predictor of EPDS scores in a model including history of depression, maternal report of sleep problem and partner born overseas.
Jadresic & Araya (1995)	542 Chilean women -482 (89%) married -60 (11%) single	2-3 months postpartum	EPDS (cut-off >10)	Twenty-seven (45.9%) of single women vs. 159 (33.1%) of married women had EPDS scores >10, $p = 0.01$ Single women (unmarried, widowed, separated/divorced) were more than twice as likely to be probable cases of PPD (OR = 2.13; 95% CI = 1.1-4.1)
Kiernan & Pickett (2006)	-18741 UK women -10501 (60%) Married -4418 (25) Cohabitating -1739 (7%) Solo but involved with father - 1783 (8%) Solo *not* in relationship with father	9-11 months postpartum	Positive endorsement of single item "since baby was born has there ever been a time lasting 2 weeks or more when you felt low or sad?"	-Solo mothers closely involved with fathers were 1.5 times more likely to report having been depressed compared to married mothers (OR = 1.47; 95% CI = 1.3-1.7) -Solo mothers not in a relationship were 1.7 times more likely to report being depressed compared to married mothers (OR = 1.67; CI = 1.4-1.9). -Difference between both groups of solo mothers not significantly different but test for trend of increasing depression with lower bonding was significant ($p < 0.01$)

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Mancini, Carlson & Albers (2007)	755 US women -559 married/living with partner (74%) - 196 single/divorced/widowed (26%)	6 weeks	PDSS: normal adjustment (≤ 59), potential symptoms present (60-79), positive screen for major depression (≥ 80	-Women who had a positive screen (≥ 80) for PPD were significantly more likely to be unpartnered: 40 (21%) of single women vs. 8 (15%) partnered, $p < 0.01$.
Nakku, Nakasi & Mirembe (2006)	-523 Ugandan Women -466 (89.3%) married -56 (10.3%) single -1 (0.2%) separated/divorced -1 (0.2%) widowed	6 weeks postpartum	-Mini International Neuro-psychiatric Interview (MINI)	8 (14.3%) of probable cases of depression were single women vs. 23 (5.5%) married/cohabitating women (OR =2.53; 95% CI = 1.00-6.19)
Nielson Forman, Videbech, Hedegaard et al. (2000)	5091 Danish speaking women -4956 (97.4%) married 135 (2.6%) single	4 months postpartum	EPDS (cut off > 12/13)	15 (11%) of single women vs. 266 (5.4%) of married women scored > 13 on EPDS (OR =2.2; 95% CI = 1.2-3.9)
Ukpong & Owolabi (2006)	-47 consecutive Nigerian woman who had C-sections 44 (94%) married 3 (6%) single -47 Nigerian women with vaginal deliveries Number of single participants not reported in sub sample	6-8 weeks postpartum	-GHQ-30 (cut off >5)	-Single women had significantly higher mean GHQ scores, $M = 14.67$ ($SD = 12.74$) vs. married women, $M = 5.52$ ($SD = 6.52$); $p = 0.032$

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Vesga-Lopez, Blanco, Keyes et al. (2008)	-15543 US women -994 postpartum women -749 (75.4%) married/cohabitating -59 (5.9%) widowed/separated/divorced -186 (18.7%) single -13025 Comparison group; non-pregnant women & 1524 past year pregnant women (includes currently pregnant women)	Did not obtain time elapsed since delivery	DSM-IV Version (AUDADIS-IV)	Prevalence of major depressive disorder was significantly higher for widowed/separated/divorced postpartum women compared to married postpartum women; OR = 3.28 (1.75-6.17). NS for single postpartum women compared to married postpartum women; OR = 1.18 (0.75-1.87). -Prevalence estimates not reported
Warner, Appleby, Whitton et al. (1996)	-2375 U.K women -352 (14.8%) single	6-8 weeks postpartum	EPDS (cut off > 12/13)	Significant association between high EPDS scores and single status, OR 2.14 (95% CI =1.59-2.89)
Webster, Thompson, Mitchell et al. (1994)	206 New Zealand women -180 (87.4%) married -26 (12.7%) single	4 weeks postpartum	EPDS (cut-offs > 9 & 12)	Proportion of women with EPDS score > 12 = 3 (11.5%) single vs. 13 (7.3%) married; NS Proportion of women with EPDS score > 9 = 10 (38.5%) single vs. 34(19 %) married, p = 0.025
Wickberg & Hwang (1997)	1584 Swedish women 127 (8%) single	8 weeks and 12 weeks postpartum	EPDS (cut-off >12)	Single mothers more likely to be depressed than married/cohabitating mothers at both 8 weeks and 12 weeks postpartum (p< 0.001) Also true for period prevalence, p = 0.001. Prevalence rates not provided
Wissart, Parshad & Kulkarni (2005)	73 healthy Afro-Jamaican women -23 (31.5%) married 50 (68.5%) single	6 weeks postpartum	Zung Self-rating Depression Scale (SDS) cut-off > 50	17 (34%) of single women depressed both during pregnancy and postpartum vs. 1 (4.3%) of married women 5 (10%) of single women vs. 2 (8.7%) of married women were depressed in the postpartum period only

Table 2. Single Mothers and Postpartum Depression Prevalence (Single *not* predictor)

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Cryan, Keogh, Connolly et al. (2001)	-361 women from a disadvantaged area of Dublin Ireland -252 (69.8%) married -109 (30.2%) single	6-12 weeks postpartum	EPDS cut-off >12 (assessment period extended to 2 weeks)	39 (35.6%) of single women scored >12 on the EPDS compared to 64 (25.4%) of married women In logistic regression analysis marital status was not a significant predictor of EPDS scores > 12 (OR = 0.59, CI = 0.28-1.23)
Danilewitz & Skuy (1990)	-161 White South African women -73 (45%) married -88 (55%) single	6 months postpartum	BDI (no cut-off reported)	3 (3%) of single women scored moderately to severely depressed on the BDI compared to 2 (2%) of married women (NS)
Greene, Nugent, Wieczorek-Deering et al. (1991)	118 primiparous Irish women 76 (64%) married 42 (36%) single	3 weeks & 18 months postpartum	CES-D (cut-off >16) No cut-off data reported	No significant differences in mean CES-D scores between single women and married women at 3 weeks or 18 months postpartum; 3 weeks: 11.33 (8.70) single vs. 12.37 (9.79) married ($t = 3.50$; $df = 116$; $p. < .001$) 18 months: 11.74 (8.17) single vs. 11.50 (7.47) married ($t = 3.87$; $df = 116$; $p. <.001$).
Hayworth, Little, Bonham Carter et al. (1980)	-127 British women Percentage of single not reported	6 weeks postpartum	Zung Self-rating Depression Scale (SDS) cut-off >47	No significant differences in mean SDS scores based on marital status. Prevalence data not provided.

Study	Participants	Assessment Time(s)*	Outcome Measure	Results
Limlongwongse & Liabsuetrakul (2006)	-525 Thai women 468 (89.1%) married 57 (10.9%) single	6-8 weeks postpartum	EPDS cut-off >10	No significant differences in EPDS scores based on marital status. Prevalence data not provided.
McCoy, Beal, Shipman et al. (2006)	-209 U.S women 64 (31%) married 145 (69%) single	4 weeks postpartum	EPDS cut-off >13	60 (41%) of single women vs. 21 (33%) of married women scored greater than 13 on EPDS ($p = 0.28$).
McCoy, Beal, Saunders et al. (2008)	-496 U.S women 123 (25%) married 373 (75%) single	4 weeks postpartum	EPDS cut-off > 13	39 (10%) of single women vs. 15 (12%) of married women scored greater than 13 on EPDS ($p = 0.59$).
Ugarriza (1995M)	95 U.S women Percentage of single not reported	2-4 weeks & 4-6 weeks postpartum	BDI cut-off >17	No significant differences in BDI scores based on marital status (X^2=.08, p =.78). (Note: only 8 women (8.4%) in total met criteria for depression).
Viinamaki, Rastas, Tukeva et al. (1994)	157 Finnish women 151 (92.6%) married 6 (3.82%) single	1-2 months postpartum	GHQ, cut-off >2 Zung Self-rating Depression Scale (SDS) 20-item D- scale	2 (33%) of single women vs. 42 (27.8%) of married women scored greater than 2 on GHQ

* = Number of weeks postpartum

Abbreviations: EPDS = Edinburgh Postnatal Depression Scale; CES-D = The Center for Epidemiologic Studies- Depression; GHQ= General Health Questionnaire; PDSS = Postpartum Depression Screening Scale; AUDADIS-IV = The Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version; Zung SDS = Self-rating Depression Scale.

Appendix B

Telephone Script

To be read by research coordinator at the 6-8 week follow-up for the Social Locations Study.

Introduction of PPD Study:

I would like to briefly tell you about a research study that you may be interested in that graduate student Tracy Woodford is conducting in conjunction with Lakehead University and the Centre for Addiction and Mental Health. Tracy is interested in hearing single mothers' personal stories about their experiences with postpartum depression. The interview will take place in your home or a mutually agreed upon location, and will be digitally recorded, if that is acceptable to you, and will last approximately 45-minutes to an hour. Your participation is voluntary and you will be compensated with a $25 gift certificate. If you think you might be interested in hearing more about this study, do I have your permission for Tracy to contact you to further explain the study?

If No: thank you.
If Yes: What is the most convenient time for Tracy to contact you? Can she leave you a message with her contact information if she is unable to reach you?

Appendix C

Telephone Script-Investigator

To be read by investigator during initial contact.

Recruitment Script of PPD Study:

Hello, my name is Tracy Woodford. I am a graduate student in the Public Health Department at Lakehead University. I am calling you about a research study I am conducting in conjunction with Lakehead and the Centre for Addiction and Mental Health. I am interested in hearing about single mothers' experiences with postpartum depression. You had discussed your interest in the study with Laura Villegas, the research coordinator for the Social Locations study you are enrolled in. I am calling you now to give you some more information about the study and to arrange a convenient time to meet with you if you are still interested. Is this a good time for you or would you like me to call you back at another time?

If yes: As I mentioned, I am interested in hearing about single mothers' personal experiences with PPD. The questions I will be asking you are open-ended and will relate to how you perceive your experience of PPD. The interview will be digitally recorded and will last approximately 45-minutes to an hour. The interview will take place in your home or another mutually agreed upon location at a time that is most convenient for you. All information you provide will remain confidential to the extent allowed by law.

Your participation is voluntary and you will be compensated with a $25 gift certificate to Shoppers Drug Mart as a thank you. Do you think you might be interested in participating? If so, would you like to arrange a time to meet now? Now that I have this information, I would like to confirm your address so that I can mail out the consent form to you. The consent form contains more information about the study and what is being asked of you as a volunteer. That way you will have plenty of time to decide if you are still interested in participating before we meet. We will go over the consent form together right before the interview and if you still have any questions or concerns about the study we can go over them at that time.

If Yes: What is the most convenient time for me to meet with you?

If No: I would like to thank you very much for your time. If you change your mind, please feel free to contact me at this number (416) 535-8501, ext. 7386.

Appendix D

Flyer

Single Mothers & Postpartum Depression

Are you a single mom interested in talking about your experience of motherhood?
Would you like to participate in a new study on postpartum depression?
Participation involves a <u>one-time</u> interview

You may be eligible if you are:

- 18 years of age or older
- Currently not living with a partner
- Have given birth within the last 3 months

For more information please call Tracy:
416 535-8501, ext. 7386

COMPENSATION IS PROVIDED

All information will remain confidential

Appendix E

Telephone Script-Community Recruitment

To be read by investigator when contacted through flyer advertisement:

Community Recruitment Script of PPD Study:

Hello, my name is Tracy Woodford. I am a graduate student in the Public Health Department at Lakehead University. I am calling you about a research study I am conducting in conjunction with Lakehead and the Centre for Addiction and Mental Health on single mothers' experiences with postpartum depression. You contacted our study phone line to indicate your interest in the study. I am calling you now to give you some more information about the study and to get some information from you. Is this a good time for you or would you like me to call you back at another time?

If yes: As I mentioned, I am interested in hearing about single mothers' personal experiences with PPD. Your participation would involve an interview where I will be asking you open-ended questions relating to how you perceive your experience of PPD. The interview will be digitally recorded and will last approximately 45-minutes to an hour. The interview will take place in your home or another mutually agreed upon location at a time that is most convenient for you. Alternatively we can arrange to do the interview over the phone if meeting in person is not a viable option. All information you provide will remain confidential to the extent allowed by law. Your participation is voluntary and you will be compensated with a $25 gift certificate to Shoppers Drug Mart as a thank you. Do you think you might be interested in participating? If so, I would like to ask you a few questions right now to determine your eligibility for the study. This should only take a few minutes.

Administer EPDS

If eligible: Do you have any questions? Now that I have this information from you I would like to arrange a convenient time to meet with you if you are still interested.

If Yes: What is the most convenient time for me to meet with you?

If No: I would like to thank you very much for your time. If you change your mind, please feel free to contact me at this number (416) 535-8501, ext. 7386.

I would like to confirm your address so that I can mail out the consent form to you. The consent form contains more information about the study and what is being asked of you as a volunteer. That way you will have plenty of time to decide if you are still interested in participating before we meet. We will go over the consent form together right before the interview and if you still have any questions or concerns about the study we can go over them at that time.

Appendix F

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

The EPDS was developed for screening postpartum women in outpatient, home visiting settings, or at the 6 –8 week postpartum examination. It has been utilized among numerous populations including U.S. women and Spanish speaking women in other countries. The EPDS consists of 10 questions. The test can usually be completed in less than 5 minutes. Responses are scored 0, 1, 2, or 3 according to increased severity of the symptom. Items marked with an asterisk (*) are reverse scored (i.e., 3, 2, 1, and 0). The total score is determined by adding together the scores for each of the 10 items. Validation studies have utilized various threshold scores in determining which women were positive and in need of referral. Cut-off scores ranged from 9 to 13 points. Therefore, to err on safety's side, a woman scoring 9 or more points or indicating any suicidal ideation – that is she scores 1 or higher on question #10 – should be referred immediately for follow-up. Even if a woman scores less than 9, if the clinician feels the client is suffering from depression, an appropriate referral should be made. The EPDS is only a screening tool. It does not diagnose depression – that is done by appropriately licensed health care personnel. Users may reproduce the scale without permission providing the copyright is respected by quoting the names of the authors, title and the source of the paper in all reproduced copies.

Instructions for Users

1. The mother is asked to underline 1 of 4 possible responses that comes the closest to how she has been feeling the previous 7 days.
2. All 10 items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others.
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS) cont.

Name: **Date:**
Address: **Baby's Age:**

As you have recently had a baby, we would like to know how you are feeling. Please UNDERLINE the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

Here is an example, already completed.

I have felt happy:
Yes, all the time
Yes, most of the time
No, not very often
No, not at all

This would mean: "I have felt happy most of the time" during the past week.
Please complete the other questions in the same way.

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - As much as I always could
   - Not quite so much now
   - Definitely not so much now
   - Not at all

2. I have looked forward with enjoyment to things
   - As much as I ever did
   - Rather less than I used to
   - Definitely less than I used to
   - Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - Yes, most of the time
   - Yes, some of the time
   - Not very often
   - No, never

4. I have been anxious or worried for no good reason
   - No, not at all
   - Hardly ever
   - Yes, sometimes
   - Yes, very often

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS) cont.

*5. I have felt scared or panicky for no very good reason
- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

*6. Things have been getting on top of me
- Yes, most of the time I haven't been able to cope at all
- Yes, sometimes I haven't been coping as well as usual
- No, most of the time I have coped quite well
- No, have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping
- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

*8. I have felt sad or miserable
- Yes, most of the time
- Yes, quite often
- Not very often
- No, not at all

*9. I have been so unhappy that I have been crying
- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

*10.The thought of harming myself has occurred to me
- Yes, quite often
- Sometimes
- Hardly ever
- Never

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)
J. L. Cox, J.M. Holden, R. Sagovsky
From: British Journal of Psychiatry (1987), 150, 782-786.

Centre for Addiction and Mental Health
Centre de toxicomanie et de santé mentale

Lakehead
UNIVERSITY

Appendix G

Consent to Participate in a Research Study

Study Title: **Why are they at Risk? Single Mothers' Perceptions of Postpartum Depression**

Principal Investigator:
Tracy Woodford, MPH Candidate — Lakehead University, Public Health Program

Co-Investigators:
Lori Ross, PhD (Project Supervisor) — University of Toronto, Department of Psychiatry; Centre for Addiction and Mental Health

Karen Poole, MEd, MA (Nursing) (Project Co-Supervisor) — Lakehead University, Core Faculty, MPH Program Director and Associate Professor, School of Nursing

Introduction

Potential Participant:

- You are being invited to participate in a research study on single mothers' perceptions of postpartum depression as part of a graduate thesis project. This consent form provides all of the information we think you will need to know about this research project in order to decide whether or not you wish to participate.
- Before agreeing to participate in this research study, it is very important that you read and understand all of the information on this form. If you have any questions after you have read the form, you will be given as

much time as you like to discuss them with the study investigator. You should not sign this form until you are sure that you understand and agree to all of the information about the research it provides. You may also wish to discuss your participation in this study with your family doctor, a family member, or a close friend.

Purpose of this Research

Although there has been much research done on postpartum depression (PPD) as a significant health problem for women and their families, research examining issues specific to single women is limited. The available research suggests that single women face greater risk of PPD, but it remains unclear why this is so. Some theories suggest it is due to a lack of support. Other theories maintain age or economic status as important determinants.

The goal of the present study is to determine 1) whether single mothers perceive themselves to be at risk for PPD and 2) if so, why they feel they are at risk.

Description of the Research

Who will be participating in this study?

- A total of 11single mothers from the Social Locations, Social Connectedness and Postpartum Depression study or from within the community, 8 of which indicate they are experiencing postpartum depression and 3 who are not.

If I choose to participate, what will I be asked to do?

1. Carefully read and sign this consent form. Once you have read and signed the consent form, you can return it to the interviewer. You will be given a copy to keep.

2. Take part in a 45 minute-one-hour interview in which you will be asked to tell your story of postpartum depression.

    - The interview will be digitally recorded.

    - During the interview you will be asked to provide details about what your experience has been like, and how you feel being a single mother may or may not have contributed to your overall well-being since giving birth.

- The total interview should not take more than 1hour. You can take a break from the interview any time you like, and if you are unable to finish the interview at the scheduled time, your interviewer will offer to schedule another time to finish the interview with you.

Eligibility:

Single mothers 18 years of age or older who are participating in the Social Locations, Social Connectedness and Postpartum Depression study or recruited through flyers within the community are able to participate.

Potential Harms (Injury, Discomforts or Inconvenience)

- There are no known harms associated with participation in this study.
- It is possible that some of the questions you are asked may cause you to feel upset. If you feel upset, the interviewer can provide you with contact information for community mental health agencies that may be able to help you. You will also be encouraged to discuss any concerns you have with your obstetrician or other health service provider. If you are uncomfortable with any of the questions or want to stop at any time during the interview, let the interviewer know.

Potential Benefits

- You will not directly benefit from participating in this research study.

Confidentiality and Privacy

- Your participation in this research is confidential. Your responses to the questions in the interview will be available only to the study investigators listed at the top of this consent form, and trained volunteers who will be required to sign a confidentiality form.
- No information that reveals your identity will be released or published without your consent, unless required by law. Study investigators are required to report to the authorities if it is clear that you or someone else is at risk of immediate danger, or if they have any reasonable suspicions of neglect and/or physical or sexual abuse of a person less than 18 years of age. Other than legal exceptions, your responses to the interview questions will not be available to any individuals or organizations outside of the research team, including the police or child welfare agencies.

- The results of this study may be submitted for publication in journals or presented at conferences. In which case, your name or anything else that identifies you will not be used in any reports or publications describing the results; a pseudonym will be selected in place of your name so that your data are not individually identifiable. Only the principal investigator and the supervisor will have access to the voice recordings and information that identifies you. Other members of the research team, those listed at the top of this consent form and trained volunteers, will have access to the information you provide in the interviews but they will not know your name.

- All data will be stored in locked cabinets and held at the Centre for Addiction and Mental Health. Copies of the data will also be stored at Lakehead University. Data will be destroyed at both institutions after 5 years. Voice recordings will also be saved as password protected files on the CAMH server. Data from voice recordings will be transcribed to paper within 3 months of participation after which time the voice recordings will be destroyed.

- As part of continuing review of the research, your study records may be assessed on behalf of the Research Ethics Board. A person from the research ethics team may contact you to ask you questions about the research study and your consent to participate. The person assessing your file or contacting you must maintain your confidentiality to the extent permitted by law.

Compensation

- You will receive no financial compensation for participating in this study. You will receive a $25.00 gift certificate to thank you for your participation.

Voluntary Participation

- This interview is completely voluntary. You can choose not to participate in any part of this research study, and you can choose not to answer any questions you are asked or choose to have the voice recording of the interview stopped at any time.

- Withdrawal from this study will in no way affect any health services you are receiving, nor will it affect your participation in the Social Locations, Social Connectedness and Postpartum Depression study (if you are a participant).

- In addition, you do not lose any of your legal rights by signing this consent form.

- If you would like to receive a copy of the results of this study a 1-page summary will be mailed out to you at the end of the study.

Contact Information

- If you have any questions about your rights as a research participant in this study, please contact the Lakehead University Research Ethics Board at (807) 343-8283 or Dr. Padraig Darby, Chair, Research Ethics Board, Centre for Addiction and Mental Health (416) 535-8501, ext. 6876.

- If you have any questions about this research or your participation in this study, please contact Project Supervisor, Dr. Lori Ross, at (416) 535-8501 ext. 7383 or Project Co-Supervisor, Karen Poole at (807) 343-8439.

Your Consent

By signing this consent form, I acknowledge that the research study described above has been explained to me and that any questions I have asked have been answered to my satisfaction. I have been informed that I have the right not to participate in this study, and the right to withdraw from the study at any time. As well, the potential risks, harms, and discomforts have been explained to me.

I understand that I have not waived my legal rights, nor released the investigators or involved institutions from their legal and professional duties. I have been assured that records relating to me and my care will be kept confidential and that no information will be released or printed that would disclose my personal identity without my permission unless required by law.

I hereby consent to participate, and have been given a copy of this consent form.

---------------------------- ------------

Participant Signature *Date*

---------------------------- ------------

Investigator Signature *Date*

Appendix H

Socio-demographic Questionnaire

Single Mothers and Postpartum Depression Study

Pseudonym: _______________

Where did you hear about this study?:____________

1) What is your age? _________________

2) How do you define your racial/ethnic or cultural identity/Identities?
____

3) What is the highest level of education you have achieved?

- ☐ High school incomplete
- ☐ High school completed
- ☐ Community college completed
- ☐ Bachelor's degree completed
- ☐ Master's degree completed
- ☐ Ph.D. / M.D. / other professional degree
- ☐ Other: Please specify ___________________________

4) What is your current employment status? Please answer before taking maternity leave, if that applies to you:

- ☐ Full-time (paid work)
- ☐ Part-time (paid work)
- ☐ Homemaker / caring for my child(ren) at home
- ☐ Not employed
- ☐ On maternity leave
- ☐ Student
- ☐ Self Employed
- ☐ Other: Please specify: _____________________

Single Mothers and Postpartum Depression Study cont.

Pseudonym: _______________

5) If you are currently or have recently worked outside of home, what is your occupation? ________________________

6) What was your combined household income before taxes last year, including student loans, welfare payments, etc.?

- ☐ Less than $10,000
- ☐ $10,000 - $19,999
- ☐ $20,000 - $29,999
- ☐ $30,000 - $39,999
- ☐ $40,000 - $59,000
- ☐ $60,000 - $79,999
- ☐ $80,000 - $100,000
- ☐ Greater than $100,000

7) How many people do you support on your current income? _________

8) How do you manage on your current family income?

- ☐ It is difficult all the time
- ☐ It is difficult some of the time
- ☐ It is not too bad
- ☐ It is easy

9) How many children have you given birth to (including your new baby)? _________

Single Mothers and Postpartum Depression Study, cont.

Pseudonym: _______________

10) How many children are you currently parenting? _____________________

11) What is your current relationship status: (Please check as many as apply to you)

- ☐ Single
- ☐ Common law/ living with a partner
- ☐ Legally married
- ☐ Separated
- ☐ Divorced
- ☐ Other Please specify: ______________________

12) If you are currently in a relationship with a partner, do you and your partner live together?

- ☐ Yes
- ☐ No
- ☐ Not applicable

13) If you are not currently living with your partner, on average, approximately how many hours per week do you and your partner spend together?

- ☐ None
- ☐ 1-10
- ☐ 11-20
- ☐ 20-30
- ☐ 30+

14) Do you think of yourself as:

- ☐ Heterosexual
- ☐ Lesbian
- ☐ Bisexual
- ☐ Two-spirited
- ☐ Identify in another way Please specify: ___________________

Appendix I

Interview Guide

Thank you so much for volunteering to be interviewed today. The questions I will be asking you are open-ended so please feel free to take as little or as long as you need. I anticipate that this interview will take anywhere from 45 minutes to an hour. We can take a break any time you like, so please feel free to ask for one at any time. As we have discussed, I am going to record our conversation today. If you have any questions, or if you would like me to repeat any of the questions please let me know. Also, if you are uncomfortable answering any of the questions you do not have to answer them. If you would like me to stop recording at any time, or if you would like to stop the interview entirely at any point, please feel free to do so. Do you have any questions/concerns?

As you may already be aware, PPD is now recognized as a significant health concern for women, their children and families. It affects 13% of mothers on average and if left untreated can cause significant physical, mental and emotional problems. The good news is that PPD is treatable and we are continuously learning more about it in terms of detection, prevention and treatment through evidence-based research. Your story today is invaluable in helping us to better understand women's personal experiences with PPD.

ICE BREAKER: Can you tell me a little bit about yourself and your new baby before we start?

1. As a single mother, do you perceive yourself to be at greater risk for PPD then mothers who have a partner?

Probe: Why or why not?
Prompt: Do you feel there is something different or unique about your particular experience compared to other mothers that makes you at risk?

2. Since the birth of your child, do you feel you have been receiving enough support with your child and parenting?

Probe: Family, friends, health care workers, others? Why, why not?
Prompt: What type: emotional, practical, financial?
Prompt: Is the support offered automatically or do you feel you need to ask for support from others?
Prompt: Is there other support you wish you had?
Prompt: Do you feel this support (or lack of support) has had any effect on your experience: with PPD (*Healthy Comparators*: as a new mother)?

3. Do you feel that you are accepted as a mother or do you feel that you fit in with a community of mothers?

Probe: Why or why not?
Prompt: Have you been to any events or joined any groups for new mothers (e.g., Early Years Centre) and felt like you belonged there, or did you feel like you could relate to other mothers in your group?
Prompt: How was your experience of being part of this group?
Prompt: Do you know other moms and if so, do you feel like you are able to connect with them?
Prompt, Do you feel that you are perceived differently because you are a single mom?
Prompt: Do you believe this has had any effect on your experience with PPD?

4. Do you feel your income level has had any impact on your experience of being a single mother?

Probe: Why or why not?
Prompt: Have you experienced more financial strain, less financial strain or have things been about the same financially as before having your child?
Prompt: Do you feel this has had any effect on your PPD?

5. Do you feel your age has had any affect (positive or negative) on your experience as a single mother?

Probe: Why or why not?
Prompt: Do you think if you were older or younger than you are that your experience of: PPD (*Healthy Comparators*: being a new mother) might be different? Why, why not?

6. Have other aspects of your identity such as social class, ethnic or cultural background, religion or sexual orientation come into your experience of being a mother?

Probe: Why or why not?
Prompt: Do you feel that your identity/identities have had an affect (positive or negative) on being a single mother?
Prompt: Do you think your identity has had an impact on your experience of PPD?

CLOSING

- Is there anything else you would like to talk about; anything I didn't ask but that you would like to share?
- Is there anything that you would like people to know about your experience or about PPD in general?
- Can you tell me what you like to see come out of this research?

This completes our interview. Thank you so much for taking the time to speak with me today. I realize your time is very limited right now. Your participation in this study is invaluable and my hope is that hearing your story along with other women's stories will help us to better understand PPD from the perspective of those affected by it.

Appendix J

Code Book

CODE BOOK SOURCE OF SUPPORT		
NAME OF NODE:	**DEFINITION:**	**EXAMPLE:**
Family Support (1.1)	Discussions about relationships with family members *Include:* "in-laws" *Include:* step family *Do not include:* partner support (1.4)	I have 2 sisters. I'm living with one of them but both of them normally help (I4).
Peer Support (1.2)	Discussions about relationships with friends *Include:* peers from support group	I'm really the only single mom of my friends, but I have that support, but it's like I can't really talk to them about everything (I1).
Professional Support (1.3)	Discussions with professionals *Include:* doctors, nurses, other health care practitioners and community resources	I have to say that my health nurse has been awesome. She's getting everything together that I need (I3)
Partner Support (1.4)	Discussions about relationship with partner. *Do not include:* family support (1.1)	No, if my (ex) husband's not too busy, he'll watch them sometimes, but sometimes he can't... (I8)
Other Support (1.5)	Discussions about relationships or interactions with people that are less intimate *Include*: neighbours or strangers *Include*: biological father	And each day like one of my neighbours, he'd stay with her and I would come home take him, sleep for a couple hours and get back up again. (I2)

CODE BOOK TYPE OF SUPPORT		
NAME OF NODE:	**DEFINITION:**	**EXAMPLE:**
Emotional Support (2.1)	Discussions about expression of feelings, concerns or worries, feelings of isolation; demonstration of sympathy, approval, caring and acceptance by others *Include:* positive, negative, limited or lack of emotional support	There's someone I can talk to about what I am going through, what I'm feeling (I1)
Instrumental Support (2.2)	Discussions about support that is of a practical nature such as childcare, domestic help, room and board, transportation, education and financial assistance *Include*: positive, negative, limited or lack of support	I had somebody stay with me for a week after I had my son, and like she couldn't feed him, she couldn't rock him, she couldn't do nothing, so it defeated the purpose of her being there (I2)
Informational Support (2.3)	Discussions that involve advice or guidance or provide information for problem solving regarding community resources, education, financial, legal or social assistance issues *Include*: positive, negative, limited or lack of support	They teach you how to cook meals on a budget, like you know, practical meals (I2)
Validation (2.4)	Discussions that involve information about prevalence of PPD, normalization, validation or acceptance of participants' thoughts, feelings and behaviours, providing favourable comparisons *Include*: positive, negative, limited or lack of support	So their feelings are the same as mine – the depression, the crying all the time, the wanting to hurt your child or hurt yourself - those are identical (I3)