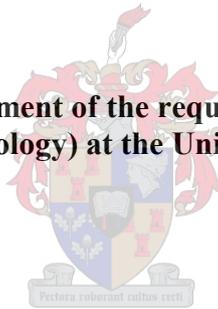


**DEPRESSED MOOD IN PREGNANCY:  
PREVALENCE AND SOCIAL FACTORS IN CAPE TOWN PERI-URBAN  
SETTLEMENTS**

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**Thesis presented in fulfilment of the requirements for the degree of  
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March 2011

**STATEMENT**

I, the undersigned, hereby declare that the work contained in this thesis is my own original work, and that I have not previously in its entirety or in part submitted it at any university for a degree.

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Signature

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## ABSTRACT

The purpose of this study was to determine the prevalence of antenatal distress in Cape Town peri-urban settlements, and the social factors associated with it in this population. Participants were 756 pregnant women from Khayelitsha and Mfuleni, Cape Town. Each women was interviewed in her home language using a structured questionnaire which included the Edinburgh Postnatal Depression Scale (EPDS), measures for social support and alcohol use, and questions concerning socio-demographics, intimate partner violence, and the current pregnancy. A threshold score of 14 and above on the EPDS was used to determine antenatal distress. Data were analysed using descriptive statistics and bivariate analysis initially, followed by multivariate logistical regression. Results indicated a prevalence of 46% for antenatal distress, which is substantially greater than the prevalence found in high income countries. Women in their first trimester of pregnancy were more likely to experience antenatal distress than were women in their second and third trimesters. The strongest predictors of antenatal distress were poor partner support, intimate partner violence and having a household income below R2000 per month. The high prevalence found in this study has harmful implications for infant health in South Africa, and is reason to suggest that early screening and intervention is crucial. More research is needed to develop and evaluate the effectiveness and scalability of community-based interventions for maternal depression in South African peri-urban settlements, as well as to establish the specific infant outcomes of antenatal distress in this population.

### **Keywords:**

Depressed mood; antenatal distress; pregnancy; antenatal depression; risk factors; social support

## OPSOMMING

Hierdie studie het ten doel om die voorkoms van voorgeboorteangs in buitestedelike nedersettings in Kaapstad te bepaal, sowel as die maatskaplike faktore wat met voorgeboorteangs by dié populasie verband hou. Die studiedeelnemers was 756 swanger vroue van Khayelitsha en Mfuleni, Kaapstad. 'n Gestruktureerde vraelys is gebruik om met elke vrou 'n onderhoud in haar huistaal te voer. Die vraelys het die Edinburg-nageboortedepressieskaal (EPDS), maatstawwe vir maatskaplike steun en alkoholgebruik, en vrae oor sosiodemografie, bedmaatgeweld en die vrou se huidige swangerskap ingesluit. 'n Drempeltelling van 14 en hoër op die EPDS is gebruik om voorgeboorteangs te bepaal. Die data is aanvanklik met behulp van beskrywende statistiek en tweeveranderlike analise ontleed, waarna dit aan meerveranderlike logistiese regressie onderwerp is. Studieresultate toon 'n 46%-voorkoms van voorgeboorteangs, wat beduidend hoër is as dié in hoëinkomstelende. Vroue in hul eerste trimester van swangerskap blyk meer geneig te wees om voorgeboorteangs te ervaar as vroue in hul tweede en derde trimester. Die sterkste voorspellers van voorgeboorteangs is swak ondersteuning van lewensmaats, bedmaatgeweld en 'n huishoudelike inkomste onder R2 000 per maand. Die hoë voorkomssyfer van voorgeboorteangs waarop die studie dui, het nadelige implikasies vir babagesondheid in Suid-Afrika, en maak vroeë toetsing en ingryping noodsaaklik. Verdere navorsing word vereis om die doeltreffendheid en skaleerbaarheid van gemeenskapsgegronde ingrypings vir moederdepressie in Suid-Afrikaanse buitestedelike nedersettings te ontwikkel en te beoordeel, sowel as om die bepaalde uitwerkings van voorgeboorteangs op pasgeborenes in dié populasie te bepaal.

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# CHAPTER 1

## Introduction

Depression is a leading cause of disability worldwide (WHO, 2004). However, despite its high prevalence and its known associations with correlates of poverty (Patel & Kleinman, 2003), it remains a low priority in the research and health care practices of most low and middle income (LAMI) countries (Rahman, 2005). Maternal depression, in particular, is of critical public health significance because of its intergenerational impact on infants and children. In both high and low income countries, postnatal depression negatively affects child development and the mother-infant relationship (Murray & Cooper, 2003; Cooper, Tomlinson, Swartz, Murray, & Molteno, 1999). In LAMI countries, it is also associated with poor child growth (Rahman, Iqbal, Bunn, Lovel & Harrington, 2004; Patel, DeSouza & Rodrigues, 2003); poor mental development (Patel et al., 2003); and higher risk for infant diarrhoea (Rahman et al., 2004). Postnatal depression is associated with maternal disability, which affects the care giving capacity of mothers for their infants (Patel, Rodrigues, & DeSouza, 2002). In addition, depression is a contributor to maternal mortality via suicide, which is a leading cause of maternal deaths (Oates, 2003).

As a result of the negative impact of postpartum depression on infant and child development, most research on maternal depression in LAMI countries has focussed on the postpartum period (Tomlinson, 2004; Cooper et al., 1999). However, evidence suggests that depression in pregnancy also adversely affects the unborn infant, with depressed mood in pregnancy associated with inadequate prenatal care, alcohol use, poorer weight gain in pregnancy (Zuckerman, Amaro, Bachner & Cabral, 1989); poor infant growth and higher risk for diarrhoea (Rahman et al., 2004).

Although prevalence rates for postpartum depression in South Africa are high (Cooper et al., 1999), little is known about the prevalence of depression during pregnancy. Because depression is reasonably easy to identify, and is linked with many negative child health outcomes, it could serve as an important risk indicator for infants in primary health care settings. Pregnancy is a time in many South African women's lives when they are most likely to access the health system by way of antenatal care. If rates of antenatal depression in South Africa are high, this may therefore be an effective time to implement screening and intervention, given the negative effect of antenatal depression on both mother and unborn child. Knowing the prevalence of depressed mood in pregnancy in South African peri-urban settlements is important for understanding the degree to which screening and treatment for it is necessary in antenatal care. In addition, understanding the factors which are associated with it is important for identifying high risk groups in this population.

## CHAPTER 2

### Background & Literature Review

#### 2.1. Depression in LAMI countries: A low priority

Depression affects 340 million people worldwide and is predicted to be the second largest cause of disease burden by 2020 (WHO, 2004). However, despite its high prevalence and its known associations with social correlates of poverty (Patel & Kleinman, 2003), research on depression remains a low priority in most LAMI countries (Patel, Araya & Bolton, 2004).

Patel et al. (2004) attribute this paucity in research to three widely believed misperceptions about depression. Firstly, despite evidence to the contrary, they argue that many people understand depression as a western diagnosis which lacks clinical relevance in other contexts (Patel et al., 2004). Considerable data have shown, however, that depression is both highly prevalent in LAMI countries, and associated with poverty and disability (WHO, 2001). Research shows that economically deprived populations have the greatest need for mental health care, yet the least access to it (Saxena, Thornicroft, Knapp & Whiteford, 2007). The second misperception is that depression is not believed to be a direct cause of mortality, causing it to be overlooked in favour of illnesses which are perceived to be more life threatening (Patel et al., 2004). This argument is unfounded because suicide is in fact a leading cause of maternal deaths (Oates, 2003). Thirdly, depression is believed to be difficult to treat effectively with the limited resources available in LAMI countries, so health authorities focus their attention on other areas instead (Patel et al., 2004). These misperceptions about depression, and the resulting paucity in research are problematic because they mask the severity of what is a leading cause of disability worldwide (WHO, 2004).

Research suggests that treatment for depression within low-income contexts is possible, even though more evidence is needed to establish the scalability of interventions (Patel et al., 2007). Economically deprived women suffering from depression in Chile have been found to respond well to a multi-component intervention including psychoeducational group work, monitoring of progress, and pharmacotherapy for patients with severe depression (Araya et al., 2003). Brief psychological interventions which focus on the day to day aspects of health and problem solving in low-income contexts have also been found to be effective for reducing symptoms of depression in Pakistan (Rahman, Malik, Sikander, Roberts & Creed, 2008; Ali, Rahbar, Naeem, Gul, Mubeen, & Iqbal, 2003) and Uganda (Bolton et al., 2003). It is noteworthy, however, that evidence from other LAMI countries suggests that psychological interventions alone might not be effective or as effective as those combined with a pharmacological component. Participants in a study in Goa, India, were found to respond well to antidepressants in the short term period, but not to psychological intervention (Patel et al., 2003). Antidepressants in this study were also more cost effective than placebos in the short and long term (Patel et al., 2003).

## **2.2. Maternal depression**

### **2.2.1. Postnatal depression and child outcomes**

Adverse child outcomes associated with postpartum depression are well documented. There is a strong association between postnatal depression and disability, with mothers who suffer from postpartum depression less likely to complete their daily tasks than non-depressed mothers (Patel et al., 2002). In LAMI countries, where circumstances such as overcrowding, food insecurity and poor sanitation are commonplace, this sub-optimal care from the mother has detrimental effects for the health of her child (Rahman, 2005). Postnatal depression is also associated with poor child growth (Rahman et al., 2004; Patel et al., 2003), poor mental development (Patel et al., 2003), and with higher risk for infant diarrhoea (Rahman et al., 2004). In South Africa, postnatal depression is

associated with disturbed mother-infant interactions (Cooper et al., 1999), which are associated with poor child cognitive and socio-emotional development (Cooper & Murray, 1998).

It is noteworthy that the majority of research linking maternal mental state with infant growth and nutritional status comes from South East Asia (Rahman et al., 2004; Patel et al., 2003). It is unclear as to whether or not this is also the case in other LAMI countries. In a community based study in four LAMI countries, Harpham, Huttly, De Silva and Abramsky (2005) examined the relationship between child growth outcomes and maternal Common Mental Disorders (CMD), which are characterised by depressive, anxious, panic and somatic symptoms. They found that while child nutritional status was affected by maternal CMD in India and Vietnam, that is was not the case in Peru or Ethiopia. Similarly, in examining the relationship between postpartum depression and infant growth in South Africa, Tomlinson, Cooper, Stein, Swartz and Molteno (2006) did not find a clear association between these variables. Further complicating the issue, research from rural Malawi has found that maternal CMD are significantly associated with length for age (Stewart et al., 2008).

### **2.2.2. Antenatal depression and child outcomes**

Though less well documented than postpartum depression, depression in pregnancy is also associated with adverse child outcomes. Antenatal depression places women at greater risk for inadequate prenatal care, alcohol use and poorer weight gain in pregnancy, all of which impact poorly on the unborn infant (Zuckerman et al., 1989). Depression in pregnancy is associated with spontaneous pre-term births (Orr, James & Blackmore Prince, 2002); slower foetal growth (Diego et al., 2008); increased incidence of depression in infants when they are adolescents (Pawlby, Hay, Sharp, Waters & O'Keane, 2009); and with depressed infant behaviour in general (Field et al., 1988). Antenatal depression is also a strong predictor of postnatal depression, with women who are depressed in pregnancy having a heightened risk of developing depression during the postpartum

period (Rahman & Creed, 2007; Wissart, Parshad & Kulkarni, 2005; Da Costa, Larouche, Dritsa, & Brender, 2000; Gotlib, Whiffen, Mount, Milne, & Cordy, 1989).

Research suggests that the impact of depression in pregnancy on physical infant outcomes is more detrimental in LAMI countries than it is in high-income contexts. For example, neonatal outcomes in Sweden do not differ between infants of anxious or depressed mothers, and infants of healthy mothers (Andersson, Sundström-Poromaa, Wulff, Åström, & Bixo, 2003). In rural Pakistan, however, depression in pregnancy predicts poor infant growth and high risk for diarrhoea (Rahman et al., 2004). In addition, research from Ethiopia has found CMD in pregnancy to be associated with prolonged labour (of more than 24 hours) and delayed initiation of breastfeeding, which is indicative of more diarrhoeal episodes (Hanlon et al., 2009). This might be attributable to the fact that the environments in richer contexts are characterised by less adversity, so mothers' agency in contending with food insecurity, limited access to water and other adverse circumstances is not as critical for the health and survival of the child, as it is in low income contexts.

### **2.2.3. Prevalence figures**

Women in their reproductive years are at greatest risk for developing depression (Hendrick, Altshiler, Cohen & Stowe, 1998). Rates of antenatal depression in high income countries range between 7.4% and 12.8% depending on the trimester of pregnancy (Bennett, Einarson, Taddio, Koren & Einarson, 2004a). However, studies from high income countries which have specifically sought out impoverished samples of women have found prevalence rates to be higher. For example, Hobfoll, Ritter, Lavin, Hulsizer & Cameron (1995) found rates of depression in pregnancy to be 24-27% for a sample of impoverished inner-city women in America, which is double the prevalence of middle class samples (Bennet et al., 2004a).

With the exception of Nigeria, where rates of antenatal depressed mood were 10.8% (Esimai, Fatoye, Quiah, Vidal & Momoh, 2008), prevalence rates of depressed mood in pregnancy are much higher in LAMI countries than they are in high income countries. In rural Pakistan, the prevalence for antenatal depression is 25% (Rahman, Iqbal & Harrington, 2003), in Brazil it is 20% (Lovisi, Lopez, Countinho & Patel, 2005), and in Jamaica, it is 56% (Wissart et al., 2005).

In South Africa, where there are large discrepancies in living standards between rich and poor, there are no prevalence data for antenatal depression. However, Cooper et al. (1999) found rates of postnatal depression in impoverished areas of South Africa to be as high as 34.7%, which is two to three times the expected rate internationally. A later study in South Africa by Ramchandani, Richter, Stein, and Norris (2009) examined postnatal depression in Soweto, finding 16.4% of probable cases of depression, which is much lower than that found 10 years earlier by Cooper et al. (1999). Part of the reason for this finding may be that women who dropped out of the study were those who were at greater risk for depression, potentially causing an underestimate of the real prevalence in this population (Ramchandani et al., 2009). As antenatal depression is one of the strongest predictors for postnatal depression (Leigh & Milgrom, 2008; Wissart et al. 2005; Da Costa et al., 2000), it is expected that its prevalence in South Africa is high.

#### **2.2.4. Social factors**

In research from LAMI countries, or from impoverished populations in high income countries, social factors associated with antenatal depression/distress include: being single (Adewuya, Ola, Aloba, Dada, & Fasoto, 2007; Lovisi et al., 2005; Wissart et al., 2005; Hobfoll et al., 1995); having poor family and social support (Esimai et al., 2008; Adewuya et al., 2007; Karac-am & Anc- el, 2007; Rahman et al., 2003; Zayas, McKee & Jankowski, 2002); receiving poor financial and emotional support from one's partner (Esimai et al., 2008); the infant being unwanted (Karac-am & Anc- el, 2007); being the victim of violence (Lovisi et al., 2005; Horrigan, Schroeder & Schaffer,

2000; Karac-am & Anc- el, 2007); substance abuse (Horrigan et al., 2000); having a low level of education (Lovisi et al., 2005); financial hardship (Lovisi et al., 2005); experiencing more threatening or negative life events (Rahman et al., 2003; Zayas et al., 2002); the loss of an intimate relationship (Lovisi et al., 2005); experiencing a previous stillbirth and polygamy (Adewuya et al., 2007). In addition, lower health related functioning has also been associated with antenatal depression (McKee, Cunningham, Jankowski & Zayas, 2001), as has being disabled (Rahman et al., 2003), and having a history of depression (Lovisi et al., 2005). Factors found to be protective include the presence of a grand parent and receiving help with childcare (Rahman et al., 2003). Many of these factors are also found to be associated with antenatal depression in high income countries, suggesting that at least in part, that there are a few common etiological factors across contexts.

The implication of a possible association between depression and substance abuse is particularly concerning in South Africa, given that we have the highest rate of Fetal Alcohol Spectrum Disorders (FASDs) in the world (May et al., 2009; May et al., 2008). It is well established that psychological distress is a significant contributing factor to high-risk drinking in non-pregnant women (Tsai, Floyd, O'Connor, & Velasques, 2009) and in pregnant women (O'Connor & Whaley, 2006). Furthermore, women with higher levels of depression often continue to use alcohol despite knowing they are pregnant and clinician advice against such use (O'Connor & Whaley, 2006). Importantly, co-morbid alcohol use and mental disorders have been shown to have negative consequences on infant outcomes in addition to FASDs (Kelly et al., 2002). For example, a retrospective report of over 500 000 women in California found that those women diagnosed with co-morbid substance use disorders and psychiatric disorders were more likely to deliver low birth weight and preterm infants than those with either of these conditions alone (Kelly et al., 2002).

In South Africa, no studies have investigated the social factors associated with depressed mood in pregnancy. However, factors associated with postpartum depression from South Africa and other LAMI countries include: marital violence (Patel et al., 2002); unplanned pregnancy (Tomlinson, Swartz, Cooper, & Molteno, 2004; Patel et al., 2002); lack of support from or problems with one's partner (Ramchandani et al., 2009; Tomlinson, et al., 2004); poor financial support from the child's father (Tomlinson, et al., 2004); the child's father having a negative attitude towards him/her (Tomlinson, et al., 2004); and being faced with extreme societal stressors such as witnessing violent crime or having one's life threatened (Ramchandani et al., 2009).

Evidence is less clear regarding the association between other socio-demographic variables and postpartum depression. Cooper et al. (1999) found age, parity, infant gender, educational history and marital status to be unrelated to postnatal depression. While Ramchandani et al. (2009) supported the majority of these findings, they found that maternal education was protective. Patel et al. (2002) also found that education was protective, and that employment was protective. One reason why socio-economic variables do not yield significant associations in these studies, might be due to insufficient variability in samples.

In a review of research investigating the relationship between poverty and mental health, Patel and Kleinman (2003) state that although mental health is not frequently associated with income levels per se, that it is associated with social correlates of poverty, such as the risk of violence and ill health, rapid social change and experiences of insecurity and hopelessness, which are embedded in poorer populations. More encompassing definitions of poverty would infer that these factors are not necessarily mediators of poverty, but facets of poverty itself (Corrigall, Lund, Patel, Plagerson & Funk, 2008). As such, it could be argued that their adverse influence on mental health outcomes could be reduced through poverty alleviation efforts (Corrigall et al., 2008). With this in mind, poverty remains an important consideration in public mental health debates (Corrigall et al., 2008).

## **2.3. Theoretical framework**

### **2.3.1. Brown and Harris's Model (1978)**

Based on a longitudinal study of women living in Camberwell, London, Brown and Harris (1978) developed a model for depression in women which takes into account the complex aetiological interactions of social, biographical and psychological variables. The current study is located within the framework of their model, although with several context specific variations which will be discussed later in this chapter.

Brown and Harris's (1978) model implicates two elements in the aetiology of depression – provoking agents and vulnerability factors. Provoking agents are either severe life events, or major difficulties. According to Brown and Harris (1978), a severe life event is one which is long-lasting and which is usually characterised by either loss or disappointment, or the threat of either. Loss is not limited to death and bereavement – it may be through unwanted separation from a person, but may equally be the loss of a role or an idea. Major difficulties on the other hand, refer to unpleasant life circumstances other than ill health which have lasted for a period of time and are not deemed to be temporary, such as poor housing conditions with no hope of change (Brown & Harris, 1978). These provoking agents are understood in the model to influence the timing of onset of depression, but are not deemed sufficient to cause depression in isolation.

Vulnerability factors, the second level of Brown and Harris's (1978) model, are factors which place one at greater risk for developing depression in the event of a provoking agent. Vulnerability factors in the London sample included: the absence of an intimate confidant (usually a husband or boyfriend); having three or more children under 14 years of age; being unemployed; and having lost one's mother to death before the age of 11. Women who have one or more of these vulnerability factors are expected in the model to be most at risk for developing depression in the

event that they are faced with a provoking agent as well. The mechanism by which this takes place is via the psychological processes of self-esteem and experiences of hopelessness (which are influenced by the vulnerability factors). For example, in the face of a severe loss or disappointment, or persistent major difficulties in living circumstances, women who have many children at home, who have no access to employment and who have no strong, supportive relationship are more likely to experience hopelessness and an inability to cope. Vulnerability factors, therefore, speak to the resources one has for coping with the provoking agents.

When considering the differences in the prevalence of depression across different class categories, Brown and Harris (1978) argue that working class women are more prone to depression than their middle class counterparts because they experience more provoking events and more vulnerability factors. When provoking agents and vulnerability factors were controlled for in the Camberwell study, class differences in the rates of depression disappeared (Brown & Harris, 1978).

It is interesting to note the comparative weight of the different vulnerability factors in Brown and Harris's (1978) model. Women in the study who had a supportive confidant or partner were significantly less likely to develop depression in the face of provoking agents, even if they were experiencing all of the other vulnerability factors. This emphasises the power of a supportive relationship in moderating depression, and is in line with previous research on depression in the period surrounding child birth, where social support and relationship quality have a significant association with depression (Ramchandani et al., 2009; Karac-am & Anc-el, 2007; Tomlinson et al., 2004; Rahman et al., 2003; Zayas et al., 2002).

Campbell, Cope & Teasdale (1983) replicated the Brown and Harris (1978) study and demonstrated broad support for the model, albeit with several variations. An increased number of vulnerability factors were associated with greater risk for depression in the face of a provoking agent (severe life

stress), but when vulnerability factors were considered independently, only the absence of a supportive relationship increased the risk for depressive disorder in the face of severe life stress. Other vulnerability factors (employment and having three children at home under the age of 14) were not associated with increased risk unless the presence or absence of a confiding relationship was also considered. Campbell et al. (1983) state that this does not disprove the Brown and Harris model in that it can not be expected that exactly the same social features should characterise risk for depression within different populations - especially when social class difference is associated with different stressors in different contexts (Brown & Harris, 1978).

### **2.3.2. Brown & Harris's (1978) model in the current study context**

Difficulties in living circumstances, such as housing, basic services and healthcare are common in Cape Town peri-urban settlements, with as much as 64.7% of the Khayelitsha population living in informal shacks with poor infrastructure (Information and Knowledge Management Department, 2005). Twenty-six percent of houses do not have access to any sanitation, and 24% have no electricity (Information and Knowledge Management Department, 2005). Approximately 72% of households in Khayelitsha have a total household income less than the household subsistence level (below R1600 per month), and at the last published census, female unemployment was 57.6% (Information and Knowledge Management Department, 2005). Violent crime is also concentrated around the poorest areas of the city, with Khayelitsha having the second highest rates of murder and rape in the Western Cape (City of Cape Town, 2007).

Severe life events and major difficulties in living circumstances are a part of everyday life in Cape Town peri-urban settlements. In terms of Brown and Harris's (1978) model, these are provoking agents for depression, which may or may not result in onset depending on the presence or absence of vulnerability factors. Because provoking agents are common in the current study context, it is the

vulnerability or social factors in Brown and Harris's (1978) model which are likely to be the most important for identifying high risk groups in Cape Town peri-urban settlements.

Brown and Harris's (1978) model applies to depression in women in general, and not specifically to women in the time surrounding pregnancy and childbirth. The model is also based on a sample of women from Camberwell, London, as opposed to South Africa. Therefore, it is important to consider several context specific variations for the current study. As Campbell et al. (1983) argue, it is expected that the vulnerability factors may differ between contexts, especially when social class difference is associated with different stressors in different environments. Therefore, while it is important to examine which of the vulnerability factors in the Brown and Harris (1978) model are applicable to South Africa, it is also important to consider other variables which might not have been vulnerability factors in Camberwell, but which may be in South Africa.

Being the victim of violence, for example, while not one of the vulnerability factors in Brown and Harris (1978) model, has been shown in several low income contexts to be associated with antenatal depressed mood (Lovisi et al., 2005; Horrigan et al., 2000; Karac-am & Anc- el, 2007). Because domestic violence against women is highly prevalent in South Africa (Abrahams, Jewkes, Hoffman, & Laubsher, 2004), it is possible that it might be a vulnerability factor for depression within the current study context. The same is true for other factors outside of the Brown and Harris (1978) model (such as education, alcohol use, unplanned pregnancy and financial hardship) which have been found to be related to depressed mood in other low income contexts, in the time surrounding pregnancy and childbirth.

With regards to the vulnerability factors which are in the Brown and Harris (1978) model, it is important to investigate which are applicable to South Africa as well as to Camberwell, for antenatal women specifically. The first vulnerability factor in the model, which is the lack of an

intimate confidant, is expected to be a vulnerability factor in South Africa as well, because poor support from one's partner has been reported to be associated with postpartum depression in South African peri-urban settlements (Ramchandani et al., 2009; Tomlinson, et al., 2004), as well as with depressed mood in pregnancy in Nigeria (Esimai et al., 2008).

Having three or more children under the age of 14 is the second vulnerability factor in the Brown and Harris (1978) model. Research suggests that parity is not associated with postpartum depression in Cape Town peri-urban settlements (Cooper et al., 1999), so it is uncertain if it will be a vulnerability factor for antenatal distress in this population.

It is also unclear if unemployment, the third vulnerability factor in the Brown and Harris (1978) model, will be a vulnerability factor for antenatal distress in the study population. Previous studies in South Africa have not examined the relationship between maternal depression and unemployment (Ramchandani et al., 2009; Tomlinson, et al., 2004), but unemployment has been found to be associated with postpartum depression in other LAMI countries such as India (Patel et al., 2002).

A limitation of the present study is that it did not investigate the fourth vulnerability factor in the Brown and Harris (1978) model, namely that of having lost one's mother to death before the age of 11, because it made use of data from a longitudinal study whose questionnaire did not include such a variable. It is, therefore, unfortunately unable to determine if this is a risk factor for antenatal distress in the South African context.

## 2.4. Problem statement and focus

Little is known about the prevalence of depression during pregnancy in South Africa. As antenatal distress is associated with negative child outcomes, this is an important area for research. If rates of depression in pregnancy are high, this may be cause to include screening and intervention for depression during routine antenatal care. In addition, little is known about the risk factors associated with depression in pregnancy within South Africa, which are important for identifying high risk groups.

The aims of the current study are as follows:

1. To determine the prevalence of distress/depressed mood<sup>1</sup> in pregnancy in Cape Town peri-urban settlements;
2. To identify risk factors associated with distress in this population.
3. To contribute to Brown and Harris's (1978) model by identifying vulnerability factors which influence depressed mood within the context of South African peri-urban settlements.

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<sup>1</sup> This study does not measure clinical depression. Using a screening tool for depression, it measures antenatal distress/depressed mood in pregnancy, but it does not intend to make statements about clinical depression. To draw conclusions about actual depression, a clinical interview would be needed, but the scope of this study does not allow for such methodology. What the study does intend to do, is to give an indication of prevalence rates of 'probable' depression, based on thresholds on the EPDS which have been validated in South Africa for pregnant women. It also aims to identify risk factors associated with these thresholds for distress.

## **CHAPTER 3**

### **Methodology**

#### **3.1. Design**

##### **3.1.1. The Philani Mentor Mothers Project**

The Philani Mentor Mothers Project (PMMP) is a community-based, cluster-randomized controlled trial which is located across two peri-urban settlements on the outskirts of Cape Town. It aims to evaluate the effectiveness of a home-based intervention for preventing and managing illnesses related to HIV, TB, alcohol use and malnutrition in pregnant mothers and their infants. The study follows a cohort of women from pregnancy until their infants are 18 months old, collecting baseline data in pregnancy, and follow up data when infants are six days, six months and 18 months old.

##### **3.1.2. The present study**

The present study used baseline data from the first 756 participants in the PMMP study. Its design is quantitative, descriptive and cross-sectional. Based on survey data collected through structured interviews, it investigated the prevalence of depressed mood in pregnancy, and the risk factors associated with it in this population.

#### **3.2. Sample and research setting**

##### **3.2.1. Sample**

Participants were 756 women living in the study areas. All mothers were at least 18 years of age, and pregnant at the time they participated.

### **3.2.2. Study neighbourhoods and sampling method**

The study setting comprised 24 neighbourhood clusters from two peri-urban settlements on the outskirts of Cape Town – Mfuleni and Khayelitsha. Each of the 24 clusters was made up of approximately 450 – 650 houses. Certain clusters have a mixture of formal and informal housing, and are serviced with basic infrastructure (tarred roads, water and sanitation on the premises, and electricity supply). Others have only informal housing with no tarred roads, only public water and sanitation facilities, and partial electricity supply. Neighbourhoods were matched into pairs based on equivalence of housing type in the neighbourhood, distance from a health clinic within 5 kilometers; number of bars/taverns/shebeens; and access/no access to water on living premises.

Neighbourhood recruiters (women living in the communities where the study took place) went door to door in each neighbourhood, introducing the study to all households, and asking about any pregnancies. When a pregnant woman over the age of 18 years was found, she was invited to participate in the study.

### **3.2.3. The research centre**

Interviews with each mother took place in a private office at a research base located in Section E of Khayelitsha, Cape Town.

## **3.3. Procedures**

### **3.3.1. Informed consent**

All pregnant women who were over the age of 18 years were collected from their homes and driven to the research centre. The informed consent process took place in a private room at the research centre before data collection began. For each participant, a data collector would read aloud the

informed consent form (see Appendix A & B) while the participant (if literate) followed reading silently. At the end of every section of the consent form, the data collector would pause, paraphrase the information they had just read, and then ask the participant if they had any questions. At the end of the informed consent form, the data collector would again ask for any questions and answer them. Then she would ask the woman a few questions about the procedures explained in the form to check her understanding. If the participant could not answer the questions or appeared to be confused, the data collector would review the section again. If the participant could not answer the questions at this time, she was excluded from the study and referred using the referral structures in place for PMMP. All participants were assured that their decision to participate was voluntary. Consent forms were available in English (Appendix A) and isiXhosa (Appendix B).

### **3.3.2. Data collection**

Following procedures of informed consent, each participant was interviewed using a structured survey questionnaire, which was pre-programmed into a mobile phone. The questionnaire was available in isiXhosa and English. Data collectors (all female and fluent in both languages) read the questions from the mobile phone, and participants' responses were then entered into the phones. The use of cellular technology in data collection allows for simple logic and range validation to be performed as questions are asked, which contributes to improved data quality. The software also automates the skip patterns embedded within the questionnaire. After the interview, participants were given a food voucher to the value of R80 as a participation incentive, and then driven home.

## **3.4. Ethics**

### **3.4.1. Ethical clearance**

Prior to participant recruitment, the research was approved by the Health Research Ethics Committee of Stellenbosch University (N08-08-218), and the Institutional Review Board at the University of California at Los Angeles (G07-02-033).

### **3.4.2. Human subjects training**

All data collectors and staff working on the study completed training in human subjects research and were equipped with referral resources in case these should be needed for participants. Any participant observed to be experiencing emotional distress during or after their interview was offered a referral to the appropriate facility nearest to her home.

### **3.4.3. Privacy and confidentiality**

Several procedures were used to contribute to maximum confidentiality of participant information. Each participant was assigned a unique identifier code which was the only link between them and their data. The cellular technology employed allows that information only be stored in the mobile phones for a minimal amount of time, because the data is uploaded to a central computer system (and automatically removed from the mobile phone) within moments of identifying mobile phone reception after the completion of each interview. All information captured into the mobile phones was also encrypted, and the servers receiving the information were protected by firewalls (Tomlinson et al., 2009). All informed consent forms were locked in a separate office at Stellenbosch University, under lock and key.

### **3.5. Survey questionnaire and measures**

A copy of the interview-administered survey which was pre-programmed to be read from the mobile phones is available in Appendix C (English) and Appendix D (isiXhosa).

#### **3.5.1. Demographic variables**

Socio-demographic variables in the survey included age, income, parity, education, marital status, relationship violence, if the baby was planned, financial support from the baby's father, smoking during pregnancy, and perceived social support (with regard to partner, mother and father). Social support questions were derived from methods used by Cooper et al. (1999).

#### **3.5.2. Edinburgh Postnatal Depression Scale (EPDS):**

The Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden & Sagovsky, 1987) is a screening tool which was initially developed for postnatal depression in community settings. It has since also been validated for use in pregnancy in both high income (Murray & Cox, 1990), and LAMI countries (Adewuya, Ola, Dada, & Fasoto, 2006; Rochat, Tomlinson, Newell & Stein, 2009). The scale consists of 10 items pertaining to the common mood characteristics of depression experienced in the past week. It takes approximately five minutes to administer, and each item is scored on a continuum of 0-3, allowing a total score between 0 and 30, where a higher score indicates greater distress. The EPDS screens effectively for depression in pregnancy and the postnatal period because it assesses only the mood characteristics of depression and not the somatic symptoms, therefore avoiding confounding due to normal physiological changes associated with pregnancy and the puerperium (Bennett, Einarson, Taddio, Koren, & Einarson, 2004b). However, it is a screening tool – not a basis for diagnosis of clinical depression.

Research supports the construct validity of an interviewer-administered isiXhosa version of the EPDS for use in an impoverished South African population, as it confirms the single factor structure of the scale, and therefore the appropriateness of summing the scores to total a score indicative of probable depression (De Bruin, Swartz, Tomlinson, Cooper & Molteno, 2004). When administered to 147 isiXhosa speaking women in the postnatal period from an impoverished peri-urban settlement on the outskirts of Cape Town, the EPDS also demonstrated satisfactory internal reliability - Cronbach alpha coefficient of 0.89 (De Bruin et al, 2004). It is noteworthy that these findings were from a similar population as the sample in the present study.

The EPDS is one of the most widely used screening tools for depression, but many studies have been criticised for using non-validated threshold scores for interpretation, or for using thresholds validated in a different population to their sample (Matthey, Henshaw, Elliott & Barnett, 2006). In South Africa, there have been two validation studies of the EPDS in community samples. The first of these validated the EPDS against the Diagnostic and Statistical Manual (DSM-IV) criteria for depression in a community sample of 103 women attending a postnatal clinic in Johannesburg, finding an optimal threshold of 11/12, or 12 and above (Lawrie, Hofmeyr, de Jager & Berk, 1998). In the second study, RoCHAT et al. (2009) (manuscript in preparation) validated the EPDS against the Structured Clinical Interview for Depression (SCID) on a rural community sample of pregnant women, finding that a threshold of 13/14 (scoring 14 or more) was optimal for classifying 'probable' cases of depression. The present study uses this threshold as a basis for interpretation.

### **3.5.3. Screening for alcohol use: Derived AUDIT-C**

To assess alcohol use in pregnancy, the survey included the Derived Alcohol Use Disorder Identification Test from the National Epidemiologic Survey on Alcohol and Related Conditions (Derived AUDIT-C; Dawson, Grant, & Stinson, 2005). The Derived AUDIT-C is a three-item questionnaire based upon the original 10-item AUDIT (Saunders, Aasland, Babor, de la Fuente &

Grant, 1993), which has been used extensively to assess alcohol use in both men and women in the Cape Town region of South Africa (Kalichman et al., 2008). The Derived AUDIT-C is highly correlated with the original AUDIT (Dawson et al., 2005) but includes modifications to the first three questions and is based solely on items reflecting alcohol consumption. The tool was developed to meet the challenge of brevity and ease of administration in busy clinics. The three questions on the screen include: (1) days of any alcohol use; (2) usual number of drinks per day; and (3) binge episodes of five or more drinks in a single day. For this study, question 3 was modified to define a binge episode as heavy episodic drinking of four or more drinks in a single day. Acknowledgment of any alcohol use post conception classified the woman as drinking during pregnancy.

### **3.6. Data analysis**

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 17.0, with alpha set to .05.

Descriptive data on the total sample were first examined, using frequencies, percentages and cumulative percentages to analyse the socio-demographic and pregnancy characteristics of the sample.

Next, the distribution of scores on the EPDS were plotted on a histogram, and cronbach's alpha coefficient was calculated to obtain a measure of internal reliability on the EPDS. Women were then classified as having depressed mood in pregnancy or not, based on a threshold score of 14 or more on the EPDS.

Comparison of groups was first performed using independent sample man-whitney tests and chi-square analyses. For each comparison, effect sizes were calculated and are reported in conjunction with their respective alpha values.

Following independent analysis, forced-entry logistical regression was used to model the relationship between depressed mood in pregnancy and each of the independent variables that had a pair wise relationship with the outcome variable. Model fit, effect sizes and proportions of variance explained were considered in conjunction with significance values. Regression diagnostics for outliers, error residuals and multicollinearity were computed and are reported on.

## **CHAPTER 4**

### **Results**

Results are presented in four sections: (1) sample characteristics; (2) prevalence of depressed mood in pregnancy; (3) bivariate analysis; and (4) multivariate analysis.

#### **4.1. Sample characteristics**

##### **4.1.1. Socio-demographic characteristics**

Of 758 women invited to participate in the study, two women refused, resulting in a total sample of 756 participants.

The socio-demographic characteristics of the sample are presented in table 1.

Table 1.

*Socio-demographic characteristics of the sample (n=756)*

	Frequency	Percentage %	Cumulative %
<b>Maternal age (M=26; SD=5.4)</b>			
<20 years	67	8.9	8.9
20–24 years	287	38.0	46.8
25-29 years	206	27.2	74.1
30-41 years	196	25.9	100.0
<b>Marital status</b>			
Single	332	43.9	43.9
Married/co-habiting	424	56.1	100.0
<b>Employment</b>			
Unemployed	617	81.6	81.6
Employed	139	18.4	100.0
<b>Household income</b>			
R0-R2000	443	58.6	58.6
R2000+	313	41.4	100.0
<b>Education (M= 10; SD=1.8)</b>			
Grade 0-7	67	8.9	8.9
Grade 8-11	489	64.7	73.5
Grade 12+	200	26.5	100.0
<b>Housing type</b>			
Informal	507	67.1	67.1
Formal	249	32.9	100.0
<b>*Services</b>			
0	70	9.3	9.3
1	259	34.3	43.5
2	27	3.6	47.1
3	400	52.9	100.0

\*Services = SUM Water on premises (0/1), electricity (0/1), flush toilet (0/1). For example, a person who has all three of these household services would score 3. A person with none of these services would score 0.

The mean age of women in the study was 26 years (SD=5.4). Fifty-six percent of the sample were married or cohabiting with a partner, and the remainder were single. The average level of education completed was grade 10, with 26.5% of the sample having completed all senior schooling, and 8.9% having completed no secondary schooling.

The socio-economic circumstances of women in the sample were poor. More than half of the sample reported a household income of below R2000 per month, and 81.6% of the participants

were unemployed. Two thirds of women lived in informal housing, and 43.5% of women in the study had access to either none or only one of the following services: water on the premises, a flush toilet on the premises, and electricity on the premises.

#### 4.1.2. Pregnancy characteristics

The pregnancy characteristics of the sample are presented in table 2.

Table 2.

*Pregnancy characteristics of the sample (n=756)*

	Frequency	Percentage %	Cumulative %
<b>Trimester</b>			
1 <sup>st</sup> Trimester	49	6.5	6.5
2 <sup>nd</sup> Trimester	344	45.5	52.0
3 <sup>rd</sup> Trimester	363	48.0	100.0
<b>Previous children</b>			
0	293	38.8	38.8
1	286	37.8	76.6
2	117	15.5	92.1
3	43	5.7	97.8
4	9	1.2	98.9
5	8	1.1	100.0
<b>Planned pregnancy</b>			
Unplanned	547	72.4	72.4
Planned	207	27.4	99.9
Refused	1	0.1	100.0

Most participants were in either their second or third trimester of pregnancy at the time they participated in the study. The large majority had given birth to two or less children previously, with 38.8% being primiparous at the time they participated in the study. More than two thirds of the sample reported that their pregnancy was unplanned.

### 4.1.3. Summary of sample characteristics

The circumstances of participants were characterised by high levels of socio-economic adversity. Physical living circumstances, income levels, employment rates and levels of education were poor for the majority participants, coupled with a great proportion of the pregnancies being unplanned.

## 4.2. Prevalence of depressed mood

Figure 1 illustrates the distribution of EPDS scores for all participants in the study, which has a mean of 12.7 and a standard deviation of 6.1.

Figure 1. Distribution of EPDS scores

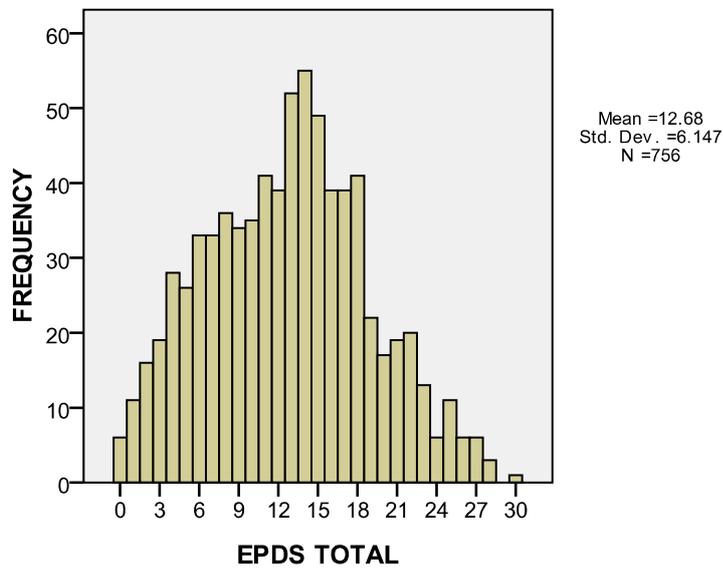


Table 3 presents the frequency of scores equal to and above 14 on the EPDS. As can be seen, 46% of the sample scored above this threshold, which is indicative of antenatal distress/depressed mood.

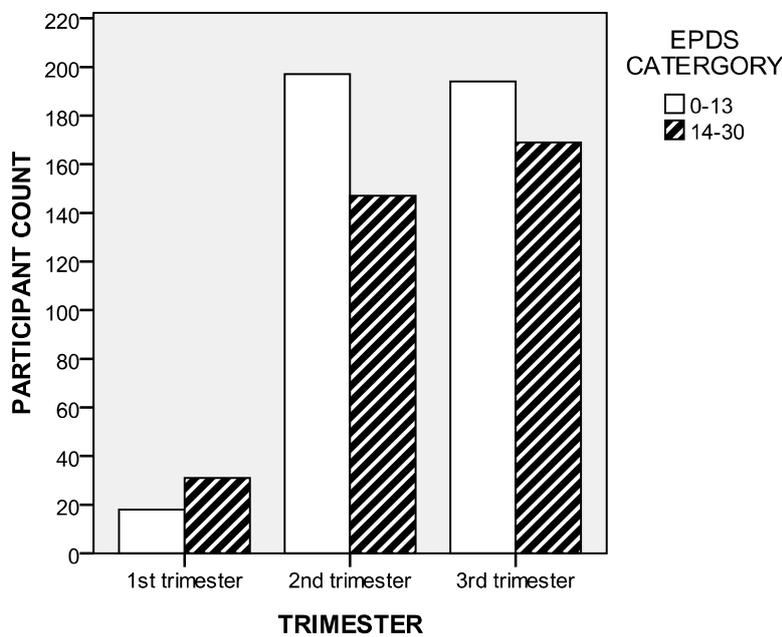
Table 3.

*Prevalence of EPDS scores equal to and above 14 (n=756)*

EPDS Score	Frequency	Percentage %	Cumulative %
0-13	409	54.1	54.1
14-30	347	45.9	100.0
Total	756	100.0	100.0

Figure 2 illustrates the distribution of depressed mood by trimester. The proportion of participants in their first trimester with depressed mood was significantly greater than the proportion who were in their second or third trimesters ( $\chi^2 = 7.4$ ,  $df = 2$ ,  $p=0.03$ ).

Figure 2. Depressed mood by trimester



The EPDS demonstrated good internal reliability, with a cronbach's alpha of .81.

### 4.3. Bivariate analysis

This section examines the relationship between antenatal distress and various social factors. Table 4 and 5 present comparisons for participants with and without depressed mood, on each independent variable.

Table 4

*Chi square comparisons (n=756)*

	EPDS 0-13 n (%)	EPDS 14-30 n (%)	$\chi^2$	OR (95% CI)	p
Marital Status					
Single	169 (41.3)	163 (47.0)	2.4	1.26 (0.94-1.68)	0.119
Married/cohabiting	240 (58.7)	184 (53.0)			
Housing type					
Informal	262 (64.1)	245 (70.6)	3.6	1.35 (0.99-1.83)	0.056
Formal	147 (35.9)	102 (29.4)			
Employment					
Unemployed	321 (78.5)	296 (85.3)	5.8	1.59 (1.09-2.33)	0.016*
Employed	88 (21.5)	51 (14.7)			
Household income					
R0-R2000	216 (52.8)	227 (65.4)	12.3	1.69 (1.26-2.30)	0.000**
R2001+	193 (47.2)	120 (34.6)			
Financial support baby father					
No	53 (13.0)	82 (23.7)	14.6	2.1 (1.42-3.04)	0.001**
Yes	355 (87.0)	264 (76.3)			
Smoking					
No	396 (96.8)	328 (94.5)			
Yes	13 (3.2)	19 (5.5)	2.4	1.76 (0.86-3.62)	0.118
Alcohol use					
No	312 (76.5)	228 (65.7)			
Yes	96 (23.5)	119 (34.3)	10.7	1.70 (1.23-2.33)	0.001**
Baby planned					
No	286 (70.1)	261 (75.4)	2.7	1.31 (0.95-1.81)	0.102
Yes	122 (29.9)	85 (24.6)			
Partner violence					
No	267 (65.3)	177 (51.0)			
Yes	142 (34.7)	170 (49.0)	15.8	1.8 (1.39-2.42)	0.000**

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

Table 5

*Man-whitney comparisons (n=756)*

	EPDS 0-13	EPDS 14-30	U	r	p
	M (SD)	M (SD)			
Age	26.4 (5.6)	25.8 (5.2)	67392.0	-0.04	0.232
Education	10.5 (1.8)	10.1 (1.9)	62184.0	-0.11	0.003**
Services	2.0 (1.1)	1.9 (1.1)	67480.0	-0.05	0.196
Partner Support	4.0 (1.7)	3.3 (1.9)	55966.0	-0.18	0.000**
Mother Support	3.8 (2.1)	3.5 (2.2)	65674.0	-0.07	0.071
Father Support	1.7 (1.9)	1.3 (1.8)	64403.0	-0.08	0.024*
Previous Children	1.0 (1.0)	0.9 (1.0)	68832.5	-0.02	0.449

\*p&lt;0.05, \*\*p&lt;0.01

Variables which were not significantly associated with depressed mood in pregnancy included age, marital status, parity, whether the pregnancy was planned or not, whether the mother smoked or not, and household servicing (water, sanitation and electricity supply). Also not significant were the degree of social support received from participants' mothers, and housing type as formal or informal, although these two variables approached significance (p=0.07 and p=0.06 respectively).

Factors which were significantly associated with depressed mood included unemployment, income, education level, alcohol use, intimate partner violence in the previous year, social support from one's partner and father, and receiving no financial support from the baby's father. However, while significant, the effect size of the association between depressed mood and each of support from one's father, and education were small. Partner support yielded a small to medium effect. Each of the variables experiencing violence in the previous year, using alcohol in pregnancy, and receiving no financial support from the baby's father approximately doubled the likelihood that a mother experienced depressed mood.

## 4.4. Multivariate analysis

### 4.4.1. Multivariate predictors of depressed mood

Variables which were independently associated with depressed mood in pregnancy were subsequently entered into a forced-entry logistical regression analysis. Results of the analysis are presented in table 6.

Table 6

*Logistic regression analysis : Predictors of depressed mood*

Variables	B (S.E.)	Wald (df)	p	Exp(B)	95% CI
Constant	0.63 (0.58)	1.19 (1)	0.276	1.89	
Education	-0.04(0.04)	0.87 (1)	0.352	0.96	0.88-1.05
<b>Partner support</b>	<b>-0.13 (0.05)</b>	<b>6.42 (1)</b>	<b>0.011</b>	<b>0.88</b>	<b>0.79-0.97*</b>
Mother support	-0.01 (0.04)	0.05 (1)	0.831	0.99	0.92-1.07
Father support	-0.07 (0.04)	2.67 (1)	0.102	0.93	0.86-1.02
Informal housing (0/1)	0.23 (0.17)	2.02 (1)	0.155	1.30	0.82-1.75
Unemployment (0/1)	0.33 (0.21)	2.45 (1)	0.117	1.34	0.93-2.09
<b>HH Income &lt; R2000 p/m (0/1)</b>	<b>0.33 (0.16)</b>	<b>4.07 (1)</b>	<b>0.044</b>	<b>1.39</b>	<b>1.01-1.90*</b>
No income baby father (0/1)	0.21 (0.25)	0.67 (1)	0.406	1.23	0.76-2.00
Alcohol use (0/1)	0.27 (0.18)	2.30 (1)	0.130	1.31	0.93-1.85
<b>Relationship violence (0/1)</b>	<b>0.39 (0.16)</b>	<b>5.98 (1)</b>	<b>0.014</b>	<b>1.48</b>	<b>1.08-2.03*</b>

\*p<0.05. Significant relationships in bold.

The association between depressed mood in pregnancy and each of the following variables was no longer significant when controlling for other variables: education, social support from parents, housing type as formal or informal, unemployment, financial support from the baby's father and alcohol use.

Social support from participants' partners remained the strongest predictor for depressed mood (OR=0.88, 95% CI = 0.79-0.97), followed by having experienced relationship violence in the previous year (OR=1.48, 95% CI = 1.08-2.03), and having a household income of below R2000 per month (OR=1.39, 95% CI = 1.01-1.90).

#### **4.4.2. Model fit, residuals and outliers**

The Hosmer and Lemeshow goodness of fit test for the regression model is non-significant ( $\chi^2=10.3$ ,  $df=8$ ,  $p=0.25$ ), indicating that the model does not differ significantly from the observed data, and therefore that the model fit is satisfactory. Analysis of residuals also indicates no individual cases that have a poor local fit with the model. All standardised residuals lie between +/- 2.58, and all but two cases have standardised residuals that lie between +/- 1.96. In addition, all Cook's distance and DFBeta values were below 1, indicating that there are no outliers which are exerting large influence on the model (Field, 2005). All leverage values are within the threshold of 3 times the average leverage (which is 0.015 in the present data), also suggesting little cause for concern with regards to outliers (Stevens, 1992). However, the model is only explaining 10% of variance of the outcome variable, indicating that there are likely many other factors involved in depressed mood in pregnancy, than the model is accounting for.

#### **4.4.3. Collinearity statistics**

Multicollinearity was not present. Tolerance values for all variables ranged between 0.64 and 0.97, none of them being close to below 0.1, and all VIF values ranged between 1.03 and 1.63 (none of them greater than 10).

#### **4.4.4. Confidence intervals**

For significant variables in the regression equation, confidence intervals do not cross 1, indicating that the direction of their associations with depressed mood are likely to be stable in the population.

## CHAPTER 5

### Discussion & Conclusion

#### 5.1. Sample characteristics

Several studies have reported demographic information for Khayelitsha and other peri-urban settlements surrounding Cape Town, but research on community-based, antenatal populations from these areas is limited. The socio-demographic characteristics of the participants in this study are, however, comparable to those found by Cooper et al. (1999) in a postnatal sample of women living in a nearby part of Khayelitsha ten years ago. In certain respects, the results of this study suggest that the standard of living of pregnant women in Khayelitsha has improved in the last decade, although it is evident that they are still characterised by high levels of socio-economic adversity.

Forty seven percent of the women in this study were under 25 years of age, compared to 40% in the Cooper et al. (1999) study. Being married or cohabiting with a partner was more common in the present study (56% compared to 37%), as was having an unplanned pregnancy (72% versus 52%). Parity was also lower in the present sample – only 1% of women in the present study had four or more previous children, compared with 16% in the postnatal study (Cooper et al., 1999).

At the last published census, female unemployment in Khayelitsha was 57.6%, and 72% of households fell below the national household subsistence level of R1600 per month (Information and Knowledge Management Department, 2005). In the current study, a household income below R2000 per month was reported by 59% of the sample, and unemployment among participants was high, at 82%. This is significantly higher than the unemployment rate reported for females in the general population in Khayelitsha (57.6%), suggesting that unemployment is more prevalent in antenatal samples than in the general female population. This might be because pregnancy could

worsen the likelihood of finding employment, but equally it might be that a mother who is pregnant for the second or third time is still unemployed as a result of her child care responsibilities for her previous young children.

The housing conditions and education levels of women in the present study were also higher than those reported by Cooper et al. (1999), but approximately equivalent to 2001 census data for Khayelitsha as a whole, which are still poor by comparison to rich populations. In the Cooper et al. (1999) study, only 5% of the sample lived in formal housing, whereas one third of women in the present study did, which is comparable to 35% in Khayelitsha as a whole (Information and Knowledge Management Department, 2005). More than half of the sample in the Cooper et al. (1999) study had not completed any secondary schooling, whereas this was only the case for 9% of women in the present study. This 9% is also comparable to the educational levels of women in Khayelitsha in the general population, where 8.1% of females have not had any secondary schooling (Information and Knowledge Management Department, 2005).

In summary, the living circumstances of the study population were characterised by high levels of socio-economic adversity. In light of this, it was expected that the prevalence of antenatal distress in this population would be high.

## **5.2. Prevalence of antenatal distress**

The results of this study endorse findings from other LAMI countries that the prevalence of antenatal distress is higher in economically deprived populations than it is in rich contexts. Antenatal distress was present for 46% of women in the present study. This is compared with the 7.4% to 12.8% which is found in high income countries, depending on the trimester of pregnancy (Bennett et al., 2004a). It is also higher than the prevalence found in Nigeria, Pakistan and Brazil,

where prevalence rates were 10.8% (Esimai et al., 2008), 25% (Rahman et al., 2003) and 20% (Lovisi et al., 2005) respectively. It is lower than the prevalence of 56% found in Jamaica (Wissart et al., 2005).

Cooper et al. (1999) reported a prevalence of 34.7% for postnatal depression in Cape Town peri-urban settlements. Their findings together with results from the current study suggest that the prevalence of distress throughout the time surrounding childbirth is high in peri-urban settlements surrounding Cape Town.

Antenatal distress was more prevalent in women who were in their first trimester of pregnancy, as opposed to women in their second or third trimesters. This is in contrast to research from many high income countries where depression in pregnancy is more prevalent in the second and third trimesters (Bennet et al., 2004a). In Nigeria, however, the prevalence for antenatal distress has been found to be higher in both the first and third trimester, as opposed to the second trimester (Esimai et al., 2008). As will be further discussed later in this chapter, the heightened risk for depression in the first trimester in South Africa is evidence that early screening and intervention is critical.

### **5.3. Correlates of antenatal distress**

#### **5.3.1. Partner support**

The level of perceived emotional support from women's partners in this study was the strongest predictor of antenatal distress. Women who reported a strong supportive relationship with their partners were less likely to have experienced depressed mood in pregnancy than women who did not. A lack of partner support, or experiencing relationship problems with one's partner is also associated with postnatal depression in South Africa (Ramchandani et al., 2009; Tomlinson, et al., 2004), suggesting that there might be commonalities in risk profiling for antenatal and postnatal depression in this population.

Findings are also consistent with research from high income countries, where partner support is associated with depression in pregnancy (Pajuloa, Savonlahtia, Sourandera, Heleniusb & Pihaa, 2001; Dimitrovsky, Perez-Hirshberg, & Itskowitz, 1987). In addition, it is in line with the views of mental health professionals in sub-Saharan Africa, that social support plays an important role in the development of mental disorders (Alem, Jacobsson & Hanlon, 2008).

In Brown and Harris's (1978) aetiological model of depression, a supportive confiding relationship is also the strongest vulnerability factor for depression. Results suggest that this aspect of the model is applicable in South Africa. Furthermore, the results of this study together with those from other contexts suggest that partner support is an influential and universal factor in maternal depression.

### **5.3.2. Relationship violence**

Relationship violence was the second strongest predictor of antenatal distress, with women who had experienced intimate partner violence in the previous year being more likely to have depressed mood in pregnancy than women who did not. Research from several LAMI countries finds violence to be associated with depressed mood both in pregnancy (Lovisi et al., 2005; Horrigan et al., 2000; Karac-am & Anc- el, 2007), and in the postnatal period (Patel et al., 2002). In South Africa, this association is concerning because sexual and domestic violence against women is highly prevalent (Abrahams et al., 2004), and especially so in populations where poverty is endemic (Jewkes, 2002). In light of the Brown and Harris (1978) model, relationship violence should be considered a vulnerability factor within the South African context, although it is not in the original model. The implications of this for future interventions are discussed later in this chapter.

### **5.3.3. Unplanned pregnancy and substance use**

Having an unplanned pregnancy was not associated with antenatal distress in the present study, although it has been found to be associated with postnatal depression (Tomlinson et al., 2004).

In terms of substance use, smoking in pregnancy and alcohol use were not associated with depressed mood in the multivariate model, although alcohol use did reach significance in the bivariate analysis. This is consistent with research from several countries, where an association between depression and substance abuse is well documented (Bennett et al., 2004a; Horrigan et al., 2000). The relationship between alcohol use and antenatal distress is important, as co-morbid alcohol use and mental disorders have been shown to have negative consequences for infant outcomes in addition to FASDs (Kelly et al., 2002). For example, a retrospective report of over 500 000 women in California found that those women diagnosed with co-morbid substance use disorders and psychiatric disorders were more likely to deliver low birth weight and preterm infants

than those with either of these conditions alone (Kelly et al., 2002). Furthermore, women with higher levels of depression often continue to use alcohol despite knowing they are pregnant and clinician advice against such use (O'Connor & Whaley, 2006), which has critical implications for infant health in South Africa where we already have the highest rate of FASDs in the world (May et al., 2009; May et al., 2008). These findings support the idea that effective treatment of co-occurring conditions should involve the integration of mental health and substance abuse treatment services in a cohesive and unitary system of care (Tsai et al., 2009).

#### **5.3.4. Socio-demographic and socio-economic factors**

With the exception of household income, the majority of demographic and socio-economic indicators examined in this study were not significantly associated with antenatal distress. Marital status, age, parity, housing type and household services such as electricity supply, water supply and sanitation all showed no significant association with depressed mood. Unemployment and education level were significant in the bivariate analysis, but the relationship disappeared when other variables were controlled for.

These findings are similar to those of previous research from South Africa. Cooper et al. (1999) and Ramchandani et al. (2009) also found that most of the indices of socio-economic disadvantage they examined did not yield any significant relationship with maternal depression. This appears surprising, given that rates of depression are higher in contexts characterised by high levels of poverty and social adversity. A possible explanation for this might be that when social adversity and economic disadvantage are endemic to the entire population, research is unable to usefully examine these variables (Cooper et al., 1999). Alternatively, it might be due to measurement error, as poverty is multifaceted and is a difficult construct to define and therefore to measure.

Brown and Harris's (1978) aetiological model includes both parity (having three or more children under the age of 14) and unemployment as vulnerability factors for depression in women. Results suggest that these variables might not be discriminating factors for antenatal populations in South Africa, although future research could investigate unemployment further because it did have a significant bivariate relationship with antenatal distress. The lack of a predictive association between parity and antenatal distress could be for several reasons. In South Africa, as elsewhere, a mother's ability to cope with a provoking agent or difficulties in living circumstances is likely to be impacted by the degree to which her energy and resources are consumed with child care responsibilities. However, it is noteworthy that a mother in peri-urban South Africa with less than three children might in many cases still carry the burden of more than three children, because many women care for children who might not be their own, but those of relatives or neighbours. Similarly, certain women with more than three children might be in a position of care for only one or two of her children, as many women in Cape Town peri-urban settlements send children to live in the Eastern Cape with relatives. In light of this, it is suggested that further research might examine the number of children in a woman's care in relation to antenatal distress, as opposed to only the number of children she has given birth to.

Literature is unclear as to whether or not education is a risk factor for maternal depression in LAMI contexts. In Brazil, Lovisi et al. (2005) found that education was a risk factor for depressed mood in pregnancy, and in Goa, India, Patel et al. (2002) found it to be associated with postnatal depression. In South Africa, where no studies have looked at the association between antenatal distress and education, there have been two studies of postnatal depression, each with different findings. Ramchandani et al. (2009) found that education was associated with postnatal distress, while Cooper et al. (1999) did not.

The one economic factor which did yield significance, both in the bivariate analysis and in the multivariate model, was having a total household income of below R2000 per month. It is noteworthy that in 2005 the household subsistence level in South Africa was R1600 per month (Information and Knowledge Management Department, 2005). Inflation over the past five years is likely to mean that the current level is now closer to R2000 per month. It is likely that being pregnant and living below the national household subsistence level is associated with depressed mood, when one considers the implications of raising a newborn child in a household which is already unable to sustain itself. Results suggest therefore, that a household income of below R2000 per month may be a discriminating vulnerability factor for antenatal distress in this population.

#### **5.4. Implications for intervention and health care**

The high prevalence of antenatal distress in Cape Town peri-urban settlements has implications for infant health. Although additional research is needed to determine the impact of antenatal depression on infant health in South Africa specifically, research from other LAMI countries shows that it is linked to multiple negative child health outcomes. In economically deprived populations, antenatal distress is associated with poor infant growth and high risk for diarrhoea (Rahman et al., 2004); prolonged labour and delayed initiation of breastfeeding (Hanlon et al., 2009); slower foetal growth (Diego et al., 2008); increased incidence of depression in infants when they are adolescents (Pawlby et al., 2009); and with depressed infant behaviour in general (Field et al., 1988).

Furthermore, antenatal depression is the strongest predictor of postnatal depression, (Rahman & Creed, 2007; Wissart, Parshad & Kulkarni, 2005; Da Costa et al., 2000; Gotlib et al., 1989), which has other implications for infant health and survival. Within developing contexts where food insecurity and overcrowding are high, and sanitation is poor, the debilitating nature of postnatal depression has detrimental health outcomes for infants. Mothers disabled by postnatal depression are less able to contend with environmental stressors, and therefore less able to provide the

necessary care for their infants, in an environment that is already not conducive to infant survival (Patel et al., 2002). In addition, postnatal depression is associated with disturbed mother-infant interactions (Cooper et al., 1999), and subsequent poor child cognitive and socio-emotional development (Cooper & Murray, 1998). As a result, antenatal distress is an important public health concern, in part because of the direct impact it has on infant health, but also because of the indirect impact it has through an increased likelihood of postnatal depression.

In most of Africa, psychotherapy in low-income settings is scarce and superficial – treatment of mental disorders with drugs and electro convulsive therapy (ECT) is far more common (Patel, 1998). This makes the question of treating depression in pregnancy difficult, because little is known about the effects of antidepressants on the foetus, with the result that drugs are often avoided unless the risk of not using them greatly outweighs the risk of treatment (Burt & Hendrick, 1997). In addition, the supply infrastructure in much of Africa and the cost of antidepressants make them unfeasible in many regions (Bolton et al., 2003).

Patel (1998) argues, however, that there is room in under-resourced health settings to feasibly adapt and evaluate brief psychological interventions for depression, particularly those which for example focus on the day to day aspects of health and problem solving within low-income contexts. One example of a successful intervention was implemented in an impoverished community sample in Pakistan, where a cognitive behavioural intervention was integrated into the routine work of community health workers (Rahman et al., 2008). This not only more than halved the rates of depression, but also proved to be effective in that the infants from the intervention group were less likely to have diarrhoea and more likely to have completed their immunization schedule (Rahman et al., 2008). Similarly, Bolton et al. (2003) have demonstrated that group interpersonal psychotherapy in rural Uganda was effective in reducing depression. In South Africa, while a community based mother-infant intervention was not found to reduce maternal depression, it was

effective in improving the adverse outcomes usually associated with it in this population, namely the quality of mother-infant engagement and subsequent infant attachment (Cooper, Landman, Tomlinson, Molteno, Swartz & Murray, 2002).

If depression is easy to identify, and possible to treat, then there is little reason to justify its exclusion from routine antenatal care. The WHO has long advised that health policy integrate mental health care into primary health care (Prince et al., 2007). Research on interventions for antenatal depression – their effectiveness as well as their cost and scalability - are a crucial step in the implementation of this process. The high prevalence of antenatal distress found in this study, combined with the fact that the risk for antenatal depression was greatest in the first trimester, is evidence of the need for early screening and intervention in South Africa.

Screening for antenatal depression in South Africa might benefit from observing partner support, intimate partner violence and household income in addition to symptoms of distress, as these factors characterise women at high risk in this population. Interventions with a family orientated approach to treatment and prevention might also be most effective, as partner support and intimate partner violence and are important elements to address along side depression, and especially as domestic violence in South Africa is extremely prevalent (Abrahams et al., 2004). In addition, findings support the idea of integrating mental health and substance abuse treatment services in a cohesive and unitary system of care (Tsai et al., 2009), as alcohol use in pregnancy was associated with antenatal distress, and as co-morbid alcohol use and mental disorders have been shown to have negative consequences for infant outcomes in addition to FASDs (Kelly et al., 2002).

### **5.5. Strengths and limitations**

This study is the first to examine the prevalence and correlates of antenatal distress for a general population sample in South African peri-urban settlements. Prevalence figures for South Africa are

important for understanding the degree to which screening and treatment for depression are necessary in antenatal care. Factors associated with antenatal distress are also important for identifying high risk groups, and for guiding future research and future intervention efforts.

The internal consistency on the EPDS in this study was high, and the sample was large and representative, so results are likely to be generalisable. However, there are several important limitations to be considered. As this study did not use a clinical interview to substantiate the EPDS screening, it can not make accurate claims about the prevalence and associated factors of clinical depression. Screening tools such as the EPDS are prone to inaccuracies because they are subject to result in at least some amount of false positives and false negatives, each of which will affect results and any subsequent conclusions that can be made. False negatives also have clinical implications because once a women who is suffering from depression is not screened as such, the opportunity for her diagnosis and possible treatment is lost (Wickberg and Hwang, 1996).

However, the EPDS is a well validated screening tool which has been used in many countries and languages all over the world, and shown to effectively screen for clinical depression in numerous settings. Because it is fast, cheap and easy to administer, it is valuable in settings where our knowledge of depression is superficial, as it provides a practical and cost effective means to gather what is likely to be a good indication/approximation of caseness for depression, for large samples of women where clinical interviews may be unfeasible.

This study made use of cross sectional data, so inferences about causality can not be made. With regards to the social correlates of antenatal distress, the independent variables in the multivariate analysis only explained 10% of the variance in this study. The predictive validity of the model is therefore limited, and it is likely that factors other than those considered here may be important correlates for antenatal distress as well. As previously mentioned, this study investigated three out

of the four vulnerability factors in the Brown and Harris (1978) model, because it used data from a longitudinal study whose questionnaire did not include a question about losing one's mother to death before the age of 11. It is therefore still unknown if this might be a vulnerability factor for antenatal distress in the South African context. This is a factor which might have helped to explain more of the variance. In addition, this study assumed that provoking agents from the Brown and Harris (1978) model would be present for all women in the study, because the population studied is so heavily impoverished and it is likely that 'major difficulties' in living circumstances were endemic. It is possible that more of the variance in antenatal distress would have been explained had provoking agents been more fully examined, by asking about life events in addition to difficulties in living circumstances.

## **5.6. Directions for future research**

Research examining the relationship between antenatal depression and child health in South Africa is needed. While maternal mental health is currently a low priority in the health care practises of most LAMI countries, it might be taken more seriously if shown to have a direct link to child health (Rahman, 2005).

Evidence suggests that management of depression in low income contexts is possible (Rahman et al., 2008; Bolton et al., 2003). Future research might better establish the effectiveness and scalability of interventions for depression in community contexts in South Africa, which is important for framing maternal mental health as part of primary care. The inclusion of mental health care into primary care in Africa is a goal that has long been proposed by the WHO, and one that has been endorsed by many experts and organisational health bodies (Prince et al., 2007). Research on interventions for antenatal depression – their effectiveness as well as their cost and scalability - are a crucial step in the implementation of this process.

More research into the prevalence and correlates of depression in pregnancy is needed in order to confirm and expand the findings of this study. Such research might include samples which are characterised by greater diversity in terms of socio-economic factors in order to more usefully examine these variables. Furthermore, research in rural settings is needed to more fully understand the nature of antenatal depression in South Africa as a whole.

Further research could also examine the association of threatening life events and extreme societal stressors with depression, which were not investigated in the current study, but have been found in other studies to influence maternal depression (Ramchandani et al., 2009; Rahman et al., 2003; Zayas et al., 2002; Brown & Harris, 1978). Future studies need to examine the fourth vulnerability

factor in the Brown and Harris (1978) model (having lost one's mother to death before the age of 11), which was omitted from the present study. The burden of childcare as a risk factor for depression might be more usefully examined if it were measured in terms of the number of children in a woman's care as opposed to the number of children that she has given birth to.

Finally, as cross sectional research is limited in its ability to ascertain causality, longitudinal prospective research is needed in South Africa to fully understand the nature of social factors in antenatal depression, and the impact of antenatal depression on maternal and child health in the short and long term.

### **5.7. Summary and conclusion**

The prevalence of antenatal distress in Cape Town peri-urban settlements is high. Poor partner support, intimate partner violence and having a household income below R2000 per month were the strongest predictors.

Maternal and child health are widely endorsed as critical public health areas in many countries' policies and in the Millennium Development Goals (United Nations, 2009), but despite this, the mental aspect of health has been ignored in most LAMI countries (Rahman, 2005). Research shows, however, that the mental and physical aspects of child and maternal health are interlinked, and that physical health cannot be achieved without consideration of mental health (Rahman, 2005).

The negative implications of postnatal depression for infant health are well documented (Stewart et al., 2008; Rahman et al., 2004; Patel et al., 2003; Patel et al., 2002; Cooper et al., 1999). There is also compelling evidence suggesting that antenatal distress is harmful for infant health (Diego et al., 2008; Pawlby et al., 2009; Field et al., 1988; Orr, James & Blackmore Prince, 2002; Zuckerman

et al., 1989). In light of this, the high prevalence found for antenatal distress in this study is cause for concern.

Because depressed mood is relatively easy to identify, and because there is compelling evidence that it is treatable within low income contexts, it could serve as an important risk indicator for infant health. More research is needed to establish the relationship between antenatal distress and infant health in South Africa, given the high prevalence found in this study. Prospective, longitudinal research is also needed to more fully understand the mechanisms through which social factors shape and are shaped by maternal depression.

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# Appendix A

## Informed Consent Form

### Home Visit Interventions in South African Townships: Prevention of HIV, Alcohol, & Child Malnutrition

#### WHAT THIS IS ABOUT

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the data collector any questions about any part of this project that you do not fully understand. Your participation in this study is **entirely voluntary**. This means you are free to decline to participate, or to withdraw from the study at any point. This will not affect you negatively in any way whatsoever.

This study has been approved by the Committee for Human Research at Stellenbosch University. It will be run following the rules of the Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

#### WHO ARE WE AND WHY ARE WE HERE?

We are from Philani Nutrition Centres and Stellenbosch University. We work with the Centre for Community Health at the University of California, Los Angeles. We will be doing a study here over the next few years. We will collect information about expecting and new mothers and their babies, from the time a mother is pregnant until her baby is 18 months old. The reason we are doing the study is because we want to develop an effective intervention program to support the health of pregnant mothers and their babies in this community.

The National Institute on Alcohol Abuse and Alcoholism in the United States is paying for the study.

Dr. Mary Jane Rotheram-Borus from the University of California, Los Angeles (UCLA) is the Principal Investigator for this study. Prof. Mark Tomlinson (Stellenbosch University), Dr. Ingrid le Roux (Philani) and Dr. Mary O'Connor (UCLA) are Co-Investigators of this study.

#### WHY WE WOULD LIKE YOU TO PARTICIPATE

You are being invited to be part of this research because:

- You are a pregnant mother in this neighborhood
- You are 18 years of age or older

#### WHAT IS INVOLVED?

If you volunteer to participate in this study, we would like you to do the following things:

##### Interviews

Today we would like to interview you about many different aspects of your life, including information about your family, your health, sexual behaviors, thoughts about HIV issues, your daily routines, alcohol, and drug use, as well as general knowledge about child care and infant feeding. Some questions may be personal or sensitive, but they are all entirely voluntary. Here are some sample questions you may be asked: “Do you drink alcohol?”, “How many children do you have?” and “How many sex partners have you had in the last year?” We will never ask your name during the interview.

Your answers will never be linked to your name or personal details. We think that the interview will last about 90 minutes.

If you still agree to be part of our study, you will also be asked questions 3 more times, when your baby is 6 days old, 6 months old, and 18 months old. At these interviews, the questions will be similar to those I will ask you today, and your baby will also be weighed and measured.

We will go to 26 different neighborhoods in Harare, Mfuleni, Ndlovini and Makaza, where we will ask other mothers like you to be involved in all our interviews as well. We will be asking approximately 1800 expecting mothers to participate in total.

### Intervention

There will be two neighbourhood groups of expecting mothers in this study. In some neighborhoods the mothers in our study will continue to receive the normal medical care you can get at the government clinics. Other neighbourhoods will also receive home visits from Philani Nutrition Centres. We will flip a coin to decide which group your neighborhood is in. If your house is in one of the neighbourhoods where there are Philani home visits being offered, you will be asked to let a trained Mentor Mother visit you several times during your pregnancy, and several times after your baby is born. The Mentor Mother's job is support you throughout your pregnancy, and she will talk with you about a range of different things, including things like your antenatal care, eating and drinking and taking the right medicines and vitamins when you are pregnant, feeding your baby, coping with or preventing HIV and TB, and taking care of your baby's health and happiness. On some visits, the Mentor Mother will bring someone else from the research team with them. The person they bring will be trained about home-visit topics and will be part of the research team.

Whether you have the home visits or not, you may still be asked to answer questions when your baby is one week old, and six and eighteen months old.

### Medical Record Review

We will look at your medical records and your baby's Road to Health Card. We will collect information from these records. This information includes:

- TB Record
- ART Results
- CD4 Counts
- Tobacco use
- Alcohol use
- Substance use
- Infant feeding option
- STI results
- Urine results (glucose)
- Blood tests (blood group, haemoglobin, ferritin)

After your baby's birth, we will collect this information:

- Birth weight
- Length
- Head circumference
- APGAR

- Immunizations record
- If baby is a twin
- If there was / is a TB contact in the home
- If any brothers and sisters of the baby are underweight
- If baby is bottle-fed at all
- Vitamin A supplementation
- Diagnosis and treatment of illnesses

We will never link this information to you or your baby.

### **LOCATOR FORM**

We need to be able to keep in touch with you while you are in the study. To help do this, we have a form we hope you will fill out. The form asks you to tell us the names and phone numbers of people who might know how to get in touch with you. We will only call those people if we cannot find you first. We will never say that you are in this study, or tell them anything about you. The information you give us on this form will be kept separate from any other information you give us.

### **PARTICIPATION AND WITHDRAWAL**

We would really like you to be in our study, but being in this study is **entirely voluntary**. You will NOT be penalized in ANY way if you decide you don't want to participate, or you want to stop your participation at any time.

Drs. Tomlinson and le Roux will answer questions about the study if you have any.

- ◆ Dr. Tomlinson's number is 021 808 3446.
- ◆ Dr. le Roux's number is 021 387-5124.
- ◆ If you still have questions or complaints which you feel were not answered properly by the above research members, you can call the Committee for Human Research. The telephone number is 021-938 9207.
- ◆ Dr. Rotheram-Borus' number is +310-794-8280. Her fax is +310-794-8297. Reverse-charges calls about the study will be accepted. Her address is:  
 UCLA Centre for Community Health  
 10920 Wilshire Blvd., Suite 350  
 Los Angeles, California, 90024, USA.

### **WHAT WILL HAPPEN TO THE INFORMATION COLLECTED?**

The information we collect will help us decide how to improve the support and health of expecting and new mothers in South Africa. We hope this information will be used to improve services and support.

### **POTENTIAL RISKS AND DISCOMFORTS**

Some of the questions we will ask may make you feel uneasy or upset. You do not need to answer any questions that you do not want to. If you become upset, we can also give you a list of people who are available to talk with you if and when you need it.

### **POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

You may not personally get any benefit from this study, though getting the home visits may help you directly if you are in a neighborhood where a Mentor Mother is working.

## **PAYMENT FOR PARTICIPATION**

You will not be paid to be in this study. You will be given a food voucher to the value of R80 if you decide to answer the questions today. You will receive a food voucher to the value of R80 if you decide to answer questions in the future.

## **PHOTOGRAPHS**

We would like to take a picture of you before the first interview in order to help us identify you when you arrive for future interviews after your baby is born. If you agree, we will keep the photograph on a computer which is locked so no one except research staff will be able to access it. The photograph will not be linked to any of your personal information from any of the interviews.

## **AUDIO TAPING**

Today's questions will be audio taped. We tape the questions to check that they are being asked correctly. Only research staff members will listen to the tapes. Your identity will not be revealed. The tapes will be locked up during the study. They will be destroyed after their use in this research project.

If you participate in future interviews, they also will be audio taped.

## **VIDEO RECORDINGS**

At the assessment when your baby is six months old, we would like to do two short exercises which will require us to video record you and your baby in addition to interviewing you. These are completely voluntary exercises. If you prefer only to do the interview and not to do the two exercises, this is completely up to you. In the one exercise, we would like to video record you and your baby while you are feeding him/her however you do at home. This will take five minutes. In the other exercise, we would like to record your baby for 10 minutes, while both you and our data collector interact with him or her. The reason we would like to do this is to learn how your baby interacts with you and with others. We are interested in things like his/her facial expressions and level of activity.

## **CONFIDENTIALITY**

The information collected in this study cannot be identified with you. It is confidential.

We will only use the information you give us for research. It will be stored on computers at a central location. It will be password protected. It will be kept in locked cupboards with limited access. Only the research staff can see the information you give us. The people who are paying for this research, the study monitors, auditors or Research Executive Committee (REC) members may need to inspect all study records at some point but nobody will be able to identify you personally. The results of the study might become public, but your information will remain confidential.

If you have any questions, you are welcome to contact the Ethics Committee at Stellenbosch University Office if you have questions. The address is:

Private Bag X1  
Matieland 7602  
021-938-9075.

**CONSENT TO PARTICIPATE**

I agree to participate in this research study. It will help develop a program to support expecting and new mothers and their children.

I will answer your questions. The questions are about my background, thoughts, feelings, situation, hardships, knowledge, and health. Research staff may conduct a review of my medical records.

If Mentor Mothers are assigned to my neighborhood, I will participate in their home visits.

I understand I am participating on an entirely voluntary bases, and that I can stop my participation at any point.

All of my questions about this research study and my participation in it have been answered.

I understand that this research may not benefit me personally.

I have received the telephone number of a person to contact if I need to speak about issues which may arise in during the questions.

I understand that this consent form will not be linked to my responses. My answers will remain confidential.

.....  
Signature of Participant

.....  
Name of participant

.....  
Date

**SIGNATURE OF INVESTIGATOR OR DESIGNEE**

In my judgment the subject is voluntarily and knowingly giving informed consent and possesses the legal capacity to give informed consent to participate in this research study.

.....  
Name of Investigator or Designee

.....  
Signature of Investigator or Designee

.....  
Date

## Appendix B

### IFom yeMvumo engeNgqiqo

#### **ULamlo lokuTyelela amaKhaya kwiiLokishi zoMzantsi-Afrika: UThintelo lwentsholongwane i-HIV, loTywala nokungoNdleki kwabaNtwana**

##### **OKU KUMALUNGA NANTONI?**

Uyamenywa ukuba uthathe inxaxheba kwiprojekti yophando. Nceda uzinike ithuba ufunde iinkcukacha ozinikwayo apha, zizo eziza kunika inkcazelo ngeenkcukacha zale projekti. Nceda ubuzise kumqokeleli weenkcukacha nayiphi na imibuzo, ngayo nayiphi na inxalenye yale projekti obonayo ukuba akuyiqondi ngokupheleleyo. Ukuthatha kwakho inxaxheba kwesi sifundo **ukwenza ngokuthanda kwakho**. Oko kuthetha ukuba usenokwala ukuze ungayithathi inxaxheba, okanye nangaliphi na ixesha usenakho ukurhoxa kwesi sifundo. Loo nto ayisayi kukuchaphazela kakubi nangayiphi na indlela.

Esi sifundo samkelwe yiKomiti yoPhando ngezoLuntu kwiDyunivesithi yaseStellenbosch. Siza kuqhutywa ngokulandela imiqathango yesiBhengezo seHelsinki, iziKhokelo zoMzantsi-Afrika zemiSebenzi emiHle yeeKlinikhi neyeQumrhu eliPhanda ngezoNyango, (MRC), nangeziKhokelo zokuziPhatha kwimicimbi yoPhando.

##### **SINGOBANI THINA, KUTHENI LE NTO SILAPHA?**

Siphuma kumaZiko esoNdlo sePhilani nakwiDyunivesithi yaseStellenbosch. Sisebenza neZiko elimele iMpilo yoLuntu kwiDyunivesithi yaseCalifornia, eLos Angeles. Ngoku siqalisa isifundo esiza kuqhutywa kude kube yiminyaka embalwa. Siza kuqokelela iinkcukacha ezimalunga nokukhulelwa koomama abasebatsha nangabantwana babo, ukususela kwixesha lokukhulelwa kukamama lude usana lwakhe lube ludala kangangeenyanga ezili-18. Isizathu sokuxakeka kwethu ngesi sifundo sesokuba sifuna ukuqulunqa inkqubo yolamlo olusebenzayo ukuze sixhase impilo yoomama abakhulelweyo neentsana zabo kule ngingqi.

I-National Institute on Alcohol Abuse and Alcoholism, oko kukuthi, iZiko likaZwelonke elijongene nokuSetyenziswa gwenxa koTywala, nokweNzakaliswa kweNtlalontle ngoTywala, elise-United States, lilo elisihlawulelayo esi sifundo.

UGqirha Mary Jane Rotheram-Borus weDyunivesithi yaseCalifornia, eLos Angeles (UCLA) nguye umPhandi oyiNtloko kwesi sifundo. UNjingalwazi Mark Tomlinson (weDyunivesithi yaseStellenbosch), uGqirha Ingrid le Roux (wePhilani) noGqirha Mary O'Connor (UCLA) nabo bakwangabaPhandi kwesi sifundo.

##### **ISIZATHU SOKUFUNA KWETHU UKUBA WENA UTHATHE INXAXHEBA**

**Uyamenywa ukuba ube yinxalenye yolu phando ngenxa yokuba:**

- Kule ngingqi ungumama okhulelweyo.
- Iminyaka yobudala bakho ili-18 okanye umdala ngaphezu koko.

##### **KOKUPHI OKUFUNEKAYO?**

Ukuba ulivolonti elithatha inxaxheba kwesi sifundo, singathanda ukuba wenze ezi zinto zilandelayo:

## Udliwanondlebe

Singathanda ukudlana iindlebe nawe ngemibandela emininzi neyahlukeneyo engobomi bakho, oko kubandakanya iinkcukacha ezimalunga nabantu bakowenu, ezingempilo yakho, ezingokuziphatha kwakho kungca wesondo, ezingeengcinga onazo ngemibandela yentsholongwane i-HIV, ngokwenzayo imihla ngemihla, ngotywala, ngokusetyenziswa kweziyobisi, kunye nolwazi ngokubanzi ngokunonophelwa kwabantwana nangokondliwa kweentsana.. Eminye imibuzo ingangqala ngqo emicimbini yakho yabucala kunjalo ikutsarhe, kodwa konke oko ukwenza ngokuthanda kwakho. Nantsi eminye imizekelo yemibuzo onokuyibuzwa: “Uyabusela utywala?”, “Bangaphi abantwana onabo?” kwakhona “Kunyaka ophelileyo mangaphi amaqabane obudibana nawo ngomcimbi wesondo?” Xa ukulo udliwano-ndlebe soze silibuze igama lakho. Iimpendulo zakho soze zidityaniswe egameni lakho okanye kwiinkcukacha eziyongene nesiqu sakho. Siyaqonda ukuba udliwano-ndlebe lungathatha malunga nemizuzu engama-90.

Ukuba usavuma ukuba yinxalenye yesi sifundo, usaza kubuzwa imibuzo kangangezihlandlo ezi-3 ukusuka kwesi, xa usana lwakho luludala ngeentsuku ezi-6, xa luludala ngeenyanga ezi-6 naxa luludala kangangeenyanga ezili-18. Kwezi zihlandlo zodliwano-ndlebe, imibuzo iza kufana nale ndiza kukubuza yona namhlanje, yaye usana lwakho luza kubekwa esikalini kujongwe ubunzima balo, nobude bosana buza kuqwalaselwa.

Siza kuya ezindaweni ezahlukeneyo ezizezi: eHarare, eMfuleni, eNdlovini naseMakaza, kulapho siza kucela oomama abafana nawe ukuba bazibandakanye kulo lonke udliwanondlebe. Siza kucela oomama abakhulelweyo abamalunga ne-1800 bephelele ukuba mabathathe inxaxheba.

## Ulamlo

Kwesi sifundo kuza kufakwa amaqela angoomama abakhulelweyo abavela kwiindawo ezimbini. Kwindawo enye oomama abasesifundweni sethu baza kuqhuba ngokufumana ukunonophelwa kwicala lonyango ngale ndlela bekuza kwenziwa ngayo nakwiiklinikhi zikarhulumente. Abantu abavela kumaZiko eSondlo sakwaPhilani baza kutyelela abanye abakwezinye iindawo kumakhaya abo. Xa sifuna ukwenza izigqibo zokuba indawo yakho izakuba phi na, siza kuncedisa ngemali. Ukuba iqela lakho lelinye lalawo aza kutyelelwa kumakhaya abo yiPhilani, uza kucelwa ukuba wena uvumele uMama oQeqeshiweyo nokwangumcebisi ukuba makasoloko ekutyelwa amaxesha amaninzi ngeli xesha usakhulelweyo, aphinde asoloko ekutyelwa xa seluzelwe usana lwakho. Umsebenzi womcebisi ngowokuba makakuxhase ngeli xesha lonke usakhulelweyo, uza kuthetha nawe ngezinto ezininzi ezahlukeneyo, oko kuquka indlela akunonophelo ngayo phambi kokufumana kwakho usana, ukutya, ukusela, ukusebenzisa amayeza akufaneleyo kunye neevithamini ngoku usakhulelweyo, ukondliwa kosana lwakho, ukukwazi ukumelana okanye ukuyithintela intsholongwane i-HIV kunye nesiFo sePhepha, ukunonophelwa kwempilo yosana lwakho nokulonwabisa. Ngamanye amaxesha otyelelo umcebisi uza kufika nomnye umntu ozakube ehamba neqela eliphandayo. Lo mntu kuziwe naye liqela uza kuqeqeshelwa imixholo emalunga nokutyelwa amakhaya yaye uzakube eyinxalenye yeli qela liphandayo.

Nokuba kuyatyelwa na kwikhaya lakho okanye akutyelwa, usenokucelwa ukuba uphendule imibuzo xa usana lwakho seluneveki enye luzelwe, xa luludala kangangeenyanga ezintandathu okanye ezilishumi elinesibhozo.

## UHlolo lweRekhodi yoNyango

Siza kujonga kwiirekhodi zonyango lwakho nakwiKhadi loSana lwakho elimalunga neNdlela ebheka eMpilweni. Siza kuqokelela iinkcukacha kwezo rekhodi. Ezi nkcukacha zibandakanya:

- IRekhodi yeTB
- Iziphumo ze-ART

- Ii-CD4 Counts
- Ukusetyenziswa kwecuba
- Ukusetyenziswa koTywala
- Ukusetyenziswa kweziyobisi
- Ezinye iindlela zokondliwa kosana
- Iziphumo zokuXilongelwa izifo onokuzifumana ngomgca weSondo (iziFo eziFika ngoSulelo kumgca weSondo)
- Iziphumo zomchamo (i-glucose)
- Ingxilongo yeGazi (udidi lwegazi, isibomvisigazi /ihimoglobin, ne-ferritin)

Emva kokuba luzelwe usana lwakho, siza kuziqokelela ezi nkcukacha:

- Ubunzima bosana ekuzalweni kwalo
- Ubude balo
- Ubungakanani besazinge sentloko yosana
- I-APGAR
- Irekhodi yokugonywa
- Olu sana luliwele na.
- Ingaba kweli khaya wakha wakhona umntu one-TB okanye osenayo nangoku?
- Oodade okanye oobhuti bolu sana ubunzima babo bungaphantsi na kobu bolu sana?
- Ingaba usana olu luyayincanca na ibhotile?
- Usana lunaso isongezelelo esinguVitamin A?
- Ingxilongo yezifo nonyango lwazo

Ezi nkcukacha soze sizidibanise nawe okanye nosana lwakho.

### **IFOM EZA KUSINCELA UKUZE SIKUFUMANE**

Kufuneka sisoloko siqhagamshelana nawe ngeli xesha ukwesi sifundo. Uncedo lokuba oko kwenzeka, thina sinefom esinethemba lokuba uza kuyizalisa ngeenkcukacha. Ifom le iyakucela ukuba ubhale amagama neenombolo zeemfonomfono zabantu abanakho ukuxela ukuba umntu angaqhagamshelana njani nawe. Abo bantu sakubafowunela kuphela xa inguwe ongafumanekiyo kuqala. Soze sitsho ukuba wena uyabandakanyeka kwesi sifundo, okanye soze sibaxelele nto ngawe. Iinkcukacha osinika zona ezikule fom zakugcinwa kwindawo engadibenanga nezinye iinkcukacha osinika zona.

### **UKUTHATHA INXAXHEBA NOKURHOXA**

Ngokwenene singathanda ukuba ubekhona kwesi sifundo sethu, kodwa ukubandakanyeka kwakho kuso kwenzeka **ngokuzithandela kwakho**. Soze wohlwaywe NANGALUPHI NA UHLOBO xa uziqondayo ukuba akufuni kuthatha nxaxheba, okanye xa ufuna ukurhoxa ungabi saqhuba ngokuthatha inxaxheba.

Aba Gqirha: uTomlinson no-le Roux baza kuphendula imibuzo emalunga nesi sifundo xa uthanda ukubuzisa kubo.

- ◆ UGqirha Tomlinson nantsi inombolo yakhe: 021 808 3446.
- ◆ UGqirha le Roux nantsi inombolo yakhe: 021 387-5124.
- ◆ Ukuba usenayo eminye imibuzo okanye uezikhalazo ngemibuzo engaphendulwanga kakuhle ngala malungu angentla aphantayo, ungatsalela umnxeba kwiKomiti ePhanda ngezoLuntu. Nantsi inombolo yemfono-mfono: 021-938 9207.
- ◆ UGqirha Rotheram-Borus nantsi inombolo yakhe: +310-794-8280. Nantsi eyefeksi yakhe: +310-794-8297. Xa ufuna ibengabo abahlawulela ukubafowunela kwakho, loo nto ivumelekile. Nantsi idilesi yakhe:

UCLA Centre for Community Health  
10920 Wilshire Blvd., Suite 350  
Los Angeles, California, 90024, USA.

### **KUZA KWENZEKA NTONI NGEENKCUKACHA EZIQOKELELWEYO?**

Iinkcukacha eziqokelelweyo ziza kusinceda senze izigqibo ngendlela yokuphucula inkxaso nempilo yabaqalayo ukuba ngoomama nabakhulelweyo boMzantsi-Afrika. Sinethemba lokuba ezi nkcukacha zakusetyenziselwa ukuphucula iinkonzo nenkxaso.

### **IMINGCIPHEKO ESENOKUVELA NOKUNGWABI**

Eminye yemibuzo esiza kuyibuza ingakwenza ungonwabi okanye uxakaniseke. Akukho mfuneko yokuba uphendule nawuphi na umbuzo xa ungafuniyo. Xa ufikelwa kukuxakaniseka, singakunika uluhlu lwabantu abafumanekayo nabangathethayo nawe, xa ufuna ngolo hlobo okanye naxesha liphi na xa ufuna.

### **ABAYIPHENDULEYO IMIBUZO KUNYE NABAHLALI BAFUMANA NTONI APHA?**

Wena usenokungalufumani uncedo kwesi sifundo, noxa kunjalo ukusoloko utyelelwa kwikhaya lakho kungakunceda ngokuthe ngqo xa ukhoyo apha ekuhlaleni nalapho kusebenza khona ooMama abangabaCebisi.

### **INTLAWULO YOKUTHATHA INXAXHEBA**

Akuzokuhlulwa ngokubakho kwesi sifundo. Uza kufumana ivawutsha / iphepha elichaza imali onokuthenga ngayo, iya kufikelela kwi-R80 xa unakho ukuyiphendula imibuzo namhlanje. Ivawutsha yokutya uza kuyifumana xa ufikelele kwizigqibo zokuyiphendula imibuzo kwixesha elizayo.

### **IIFOTO**

Singathanda ukukufota phambi kodliwano-ndlebe lokuqala ukuze sinedakale ngokukwazi size sikuchonge xa ufika ngexesha lodliwano-ndlebe lwexesha elizayo emva kokuzalwa kosana lwakho. Ukuba uyavuma le foto yakho sakuyigcina kwikhompyutha etshixiweyo ukuze kungabikho mntu ufikelelayo kwiinkcukacha ngaphandle kwabo bantu baphandayo. Ifoto yakho ayisayi kudityaniswa neenkukacha zakho ubuqu ukuqalela kulo naluphi na udliwano-ndlebe.

### **UKUSHICILELWA KWAMAZWI UKUZE AVAKALE**

Imibuzo yanamhlanje iza kushicilelwa kumatshini wesandi. Imibuzo siyayishicilela ukuze siqonde ukuba kubuziswe ngokuchanekileyo na. Ngabantu abasebenza kolu phando kuphela abavumelekileyo ukuba bamamele olu shicilelo lwamazwi. Akusayi kuxelwa ukuba ngubani na lo uthethayo. Nolo shicilelo lwamazwi luza kutshixelwa ngexesha lesifundo. Kwakube kugqityiwe ukusetyenzwa ngale projekti, yonke loo nto iza kutshatyalaliswa.

Ukuba uyithathile inxaxheba kudliwano-ndlebe lwexesha elizayo, nangelo xesha amazwi aza kushicilelwa.

### **IFOTO YEVIDO**

Xa usana lwakho luzokuhlulwa luneenyanga ezintandathu ubudala, singathanda ukwenza imidlalo emifutshane emibini ezakufunisa ukuba sithathe ifoto yakho nosana lwakho ukongezelela kudliwanondlebe. Le midlalwano ixhomekeke ekuzithandeleni kwakho. Ukuba ungathanda ukwenza udliwano-ndlebe lodwa ungayenzi imidlalwana emibini, oku kuxhomekeke ekuzithandeleni kwakho. Kwenye yemidlalwana singathanda ukuthatha ifoto yevidyo yakho kunye nosana lwakho xa umtyisa ngale ndlela wenza ngayo ekhaya. Le nto iza kuthatha imizuzu emihlanu, komnye umdlalo sizakufota ngevidyo umntana wakho imizuzu elishumi xa enxibelelana nomphathi ndliwano-ndlebe. Isizathu sokwenza oku sifuna ukufunda indlela usana lwakho elinxibelelana ngayo nawe kunye nabanye

abantu. Sinomdla kwizinto ezifana nendlela abonisa ngayo iimvakalelo zakhe ngobuso kunye nezinga lokudlala kwakhe.

## **IMFIHLELO**

Iinkcukacha eziqokelelweyo kwesi sifundo azinakudityaniswa nawe. Konke oku kuyimfihlelo.

Kuphela ezi nkcukacha usinike zona sakuzisebenzisela uphando. Zakugcinwa kwiikhompyutha kwindawo ekhuselekileyo. Zakukhuselwa nge-password, oko kukuthi, ngendlela ethile yokutyhila ukwazi ukusebenzisa ikhompyutha. Zakugcinwa ezikhabhathini ezitshixwayo, bambalwa abavumelekileyo ukuba bafikelele kuzo. Kuphela ngabantu abakhoyo kuphando abanokuzibona bazifunde iinkcukacha osinike zona. Abantu abahlawulela olu phando, abaphononongi besifundo, abaphicothi-zincwadi okanye iKomiti yabaziiNtloko kwezoPhando (REC) kungafuneka baziphonononge zonke iirekhodi zesifundo kwilixa elithile, noxa kunjalo akukho mntu unakho ukukuchonga wena. Iziphumo zesi sifundo zingaziwa nguwonke-wonke, kodwa iinkcukacha ezijongene nesiqu sakho zakuhlala ziyimfihlelo.

Ukuba kukho imibuzo onayo wamkelekile ukuba uqhagamshelane neKomiti yemiKhwa esesikweni ye-Ofisi ekwiDyunivesithi yaseStellenbosch. Nantsi idilesi:

Private Bag X1  
Matieland 7602  
021-938-9075.

**IMVUMO YOKUTHATHA INXAXHEBA**

Ndiyavuma ukuthatha inxaxheba kwesi sifundo sophando. Oko kuza kunceda ekuqulunqeni inkqubo yokuxhasa amakhosikazi akhulelweyo, oomama abaqalayo ukukhulelwa, nabantwana balo.

Ndakuyiphendula imibuzo yenu. Imibuzo leyo imalunga nemvelaphi yam, ngeengcinga, ngovakalelo, ngegemo, ngobunzima, ngolwazi nangempilo. Abasebenzayo ngophando bangazihlola iirekhodi zonyango lwam.

Xa kukho ooMama abangabaCebisi abathunyelweyo ukuba basebenze kwingingqi yam, ndakuthatha inxaxheba xa betyelela amakhaya.

Ndiyaqonda ukuba ndithatha inxaxheba ngokuthanda kwam, yaye ndingayeka ukuthatha inxaxheba nanini na.

Iphendulwe yonke imibuzo yam emalunga nesi sifundo sophando nokuthatha kwam inxaxheba kuso.

Ndiyayiqonda into yokuba ndisenokungancedakali mna ubuqu kolu phando.

Ndiyifumene inombolo yemfono-mfono yomntu xa ndifuna ukuthetha ngemibandela enokuvela ngexesha lemibuzo.

Ndiyayiqonda into yokuba le fom yemvumo ayisayi kudityaniswa nendlela endiphendule ngayo. Iimpindulo zam zakuhlala ziyimfihlelo.

.....  
Ukusayina komthathi-nxaxheba:

.....  
Igama lomthathi-nxaxheba:

.....  
Umhla:

**UKUSAYINA KOMPHANDI OKANYE KOMYILI:**

Kwezam iimbono lo mbandela wenzeka ngokuthanda komntu ozaziyo ukuba uyinikezele ngengqiqo invumo, ukwanawo namandla asemthethweni okunikezela ngemvumo eqiqa ukuze ayithathe inxaxheba kwesi sifundo sophando.

.....  
Igama lomPhandi okanye lomYili:

.....  
Ukusayina komPhandi okanye komYili:

.....  
Umhla:

# Appendix C

## English Questionnaire

Maternal Questionnaire  
Items loaded into mobile phone

<b>Section 1: Interview Identification [INTERVIEWER ONLY]</b>	
<b>1.1. Interviewer code</b> Please enter your interviewer code:	<input type="text"/> <input type="text"/>
<b>1.2. Neighbourhood code</b> Please enter the neighbourhood code:	<input type="text"/> <input type="text"/> <input type="text"/>
<b>1.3. Date of Interview</b> Please confirm the date of this interview:	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> dd / mm / yyyy
<b>1.4. Time of Interview</b> Please confirm the time of this interview:	<input type="text"/> <input type="text"/> : <input type="text"/> <input type="text"/>
<b>1.5. Participant ID</b> Please enter the participant's unique identifier code:	<input type="text"/>

<b>Section 2: Informed Consent [INTERVIEWER ONLY]</b>	
<b>2.1. Informed consent granted</b> Was the informed consent form explained and accepted?	
<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>[IF NO, SKIP TO END]</b>	

<b>Section 3: Socio-demographic Information</b>	
<b>Prompt:</b> Thank you for participating in this interview. I will start by asking you some general questions about yourself.	
<b>3.1. Mother's age</b> How old are you (in completed years)?	
<input type="text"/> <input type="text"/> <input type="text"/> Age in years	
<b>3.2. Mother's date of birth</b> What is your date of birth?	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> dd / mm / yyyy	

**3.3. Mother's home language**

What is your home language?

- English
- IsiZulu
- IsiXhosa
- Other
- Decline to answer

**3.4. Participant education**

What is the highest level of education you have completed?

- No schooling
- Grade 1 / Sub A
- Grade 2 / Sub B
- Grade 3 / Std 1
- Grade 4 / Std 2
- Grade 5 / Std 3
- Grade 6 / Std 4
- Grade 7 / Std 5
- Grade 8 / Std 6
- Grade 9 / Std 7
- Grade 10 / Std 8
- Grade 11 / Std 9
- Grade 12 / Matric
- Post Matric Certificate / Diploma
- Degree
- Decline to answer

**3.5. Marital status**

Are you currently single or married (in any form)?

- Single
- Married
- Not married but living together
- Decline to answer

**Prompt:** In this next section, the questions are about the house where you live.

**3.6. Housing description**

What best describes your housing?

- Formal brick structure on a separate yard
- Pre-fab dwelling/wendy house in back yard
- Informal dwelling/Shack in backyard
- Informal dwelling/Shack not in backyard, e.g. in an informal/squatter settlement
- Hostel
- Decline to answer

**3.7. Water source**

What is the main source of drinking water?

- Water in the home
- Water on the premises
- Water from a community tap / public tank
- Water from a river
- Decline to answer

**3.8. Electricity**  
Do you have electricity in your household?

Yes  
 No  
 Decline to answer

**Prompt:** Now I would like to ask you a few questions about employment and income.

**3.9. Participant employed**  
Are you employed?

Part time  
 Full time  
 Temporary  
 No  
 Decline to answer

**3.10. Household monthly income**  
What is the average household monthly income?

0-499 Rand  
 500-1000  
 1001 – 2000  
 2001 – 5000  
 5001 – 8000  
 8000 and above  
 Don't know  
 Decline to answer

**3.11. Father's financial support**  
Is the father of this baby supporting you financially?

Yes  
 No  
 Decline to answer

**Section 4: This Pregnancy**

**Prompt:** Now I have a few short questions about your future baby.

**4.1. Baby due date**  
What is the due date for your baby?

/ /   
dd / mm / yyyy

**4.2. Weeks pregnant**  
How many weeks pregnant are you?

Weeks

**4.3. Baby planned**  
Was the baby planned? (Note: planned is defined as intending or planning on her own or with partner to have a child.)

Yes  
 No  
 Decline to answer

## Section 5: EPDS

**Prompt:** Now I have some questions to ask about your feelings over the last week. Please state the answer which comes closest to how you have felt IN THE PAST 7 DAYS, not just how you feel today.

### 5.1. Laugh

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

### 5.2. Enjoyment

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

### 5.3. Self Blame

I have blamed myself unnecessarily when things went wrong.

- Yes, most of the time
- Yes, some of the time
- Not very often
- No, never

### 5.4. Anxious/worry

I have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

### 5.5. Panicky

I have felt scared or panicky for not very good reason.

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

### 5.6. Things piled up

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, I have been coping as well as ever

### 5.7. Difficulty sleeping

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

<p><b>5.8. Sad/miserable</b> I have felt sad or miserable.</p> <p><input type="checkbox"/> Yes, most of the time  <input type="checkbox"/> Yes, sometimes  <input type="checkbox"/> Not very often  <input type="checkbox"/> No, not at all</p>
<p><b>5.9. Crying</b> I have been so unhappy that I have been crying.</p> <p><input type="checkbox"/> Yes, most of the time  <input type="checkbox"/> Yes, quite often  <input type="checkbox"/> Only occasionally  <input type="checkbox"/> No, never</p>
<p><b>5.10. Self harm</b> The thought of harming myself has occurred to me.</p> <p><input type="checkbox"/> Yes, quite often  <input type="checkbox"/> Sometimes  <input type="checkbox"/> Hardly ever  <input type="checkbox"/> Never</p>

**Section 6: Social Support**

**Prompt:** Next are some questions about friends and relatives who are available to you for support.

<p><b>6.1. Current partner</b> Do you have a current partner?</p> <p><input type="checkbox"/> Yes  <input type="checkbox"/> No  <input type="checkbox"/> Decline to answer</p>
<p><b>6.2. Trust and share with partner</b> Can you trust, talk to and share your feelings with your husband/partner?</p> <p><input type="checkbox"/> Never  <input type="checkbox"/> Sometimes  <input type="checkbox"/> Always  <input type="checkbox"/> Decline to answer</p>
<p><b>6.3. Turn to partner in difficulty</b> Can you lean on and turn to your husband/partner in times of difficulty?</p> <p><input type="checkbox"/> Never  <input type="checkbox"/> Sometimes  <input type="checkbox"/> Always  <input type="checkbox"/> Decline to answer</p>
<p><b>6.4. Partner practical help</b> Does he give you practical help?</p> <p><input type="checkbox"/> Never  <input type="checkbox"/> Sometimes  <input type="checkbox"/> Always  <input type="checkbox"/> Decline to answer</p>

<p><b>6.5. Trust, talk to Mother</b> Can you trust, talk frankly and share your feelings with your mother?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Mother is deceased <input type="checkbox"/> Decline to answer</p>
<p><b>6.6. Turn to mother in difficulty</b> Can you lean on and turn to your mother in times of difficulty?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Mother is deceased <input type="checkbox"/> Decline to answer</p>
<p><b>6.7. Mother practical help</b> Does your mother give you practical help?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Mother is deceased <input type="checkbox"/> Decline to answer</p>
<p><b>6.8. Trust, talk to father</b> Can you trust, talk frankly and share your feelings with your father?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Father is deceased <input type="checkbox"/> Decline to answer</p>
<p><b>6.9. Turn to father in difficulty</b> Can you lean on and turn to your father in times of difficulty?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Father is deceased <input type="checkbox"/> Decline to answer</p>
<p><b>6.10. Father practical help</b> Does your father give you practical help?</p> <p><input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Always <input type="checkbox"/> Father is deceased <input type="checkbox"/> Decline to answer</p>

## Section 7: Use of Tobacco & Alcohol

**Prompt:** The next few questions are about smoking.

### 7.1. Use of Tobacco

Do you use tobacco?

- Yes
- No
- Decline to answer

### 7.2. Tobacco Frequency

In the past 3 months, on how many days did you use tobacco?

- 

**Prompt:** Now I'd like to ask you a few more questions about drinking alcohol. I know that sometimes these can be sensitive questions, but please remember that your answers will be kept secret and no one will know that these answers belong to you. Your name will not appear on any research forms and we will not share your answers with the anyone other than research staff. We are asking many women these important questions and thank you for doing your best to answer them all honestly.

### 7.3. Weeks pregnant when found out about pregnancy

How many weeks pregnant were you when you found out you were pregnant?

- 

# weeks

### 7.4. Alcohol in pregnancy before knowledge of pregnancy

How often did you use alcohol in the month before you found out you were pregnant?  
[INTERVIEWER WILL USE A LOCAL TYPICAL CUP TO VISUALLY SHOW SIZE OF 1 DRINK]

- Never
- Less than once a month
- Once a month
- 2 to 3 times a month
- Once a week
- 2 times a week
- 3 to 4 times a week
- Nearly every day
- Every day
- Decline to answer

[IF NEVER, SKIP TO 7.7]

### 7.5. Alcohol per day on days when used alcohol before knowledge of pregnancy

During the month before you found out you were pregnant, counting all types of alcohol combined, how many drinks did you USUALLY have on days when you drank alcohol?

- 1 or 2
- 3 or 4
- 5 or 6
- 7, 8, or 9
- 10 or more
- Decline to answer

**7.6. Frequency of four or more drinks per day before knowledge of pregnancy**

During the month before you found out you were pregnant, about how often did you drink FIVE or MORE drinks in a single day?

- Never
- Less than once a month
- Once a month
- 2 to 3 times a month
- Once a week
- 2 times a week
- 3 to 4 times a week
- Nearly every day
- Every day
- Decline to answer

**7.7. Alcohol during pregnancy after learning of pregnancy.**

Now that you know you are pregnant, about how often do you drink ANY alcoholic beverage?

- Never
- Less than once a month
- Once a month
- 2 to 3 times a month
- Once a week
- 2 times a week
- 3 to 4 times a week
- Nearly every day
- Every day
- Decline to answer

**[IF NEVER, SKIP TO SECTION 8]**

**7.8. Alcohol per day on days when used alcohol after knowledge of pregnancy**

Now that you know you are pregnant, counting all types of alcohol combined, how many drinks do you USUALLY have on days when you drink alcohol?

- 1 or 2
- 3 or 4
- 5 or 6
- 7, 8, or 9
- 10 or more
- Decline to answer

**7.9. Frequency of four or more drinks per day after knowledge of pregnancy**

Now that you know you are pregnant, about how often do you drink FOUR or MORE drinks in a single day?

- Never
- Less than once a month
- Once a month
- 2 to 3 times a month
- Once a week
- 2 times a week
- 3 to 4 times a week
- Nearly every day
- Every day
- Decline to answer

## Section 8: Reproductive Health

**Prompt:** Thank you. The next few questions are about any previous pregnancies and children you might have had.

### 8.1. Total number pregnancies

How many times have you been pregnant, including this pregnancy?

# pregnancies

### 8.2. Number live births

How many live babies have you given birth to?

# live births

## Section 9: Relationships and violence

**Prompt:** The next few questions are about your current relationship with your partner.

### 9.1. Frequency quarrels

In your current relationship how often would you say that you have quarrelled?  
Would you say never, rarely, sometimes or often?

- Never
- Rarely
- Sometimes
- Often

### 9.2. Talk about relationship to friend

Do you talk to a friend or relative about problems in your relationship?

- Yes
- No

### 9.3. Quality current relationship

Would you say your relationship is it excellent, iright, nje/just or ayiko right?

- Excellent
- Alright
- Just ok
- Not alright

**Prompt:** Men often fight with their girlfriends and often these fights get physical. I am going to ask some questions about this because we want to learn more about what women experience in their lives. I want you to speak freely and remember that everything you say will be confidential.

### 9.4. Slap

In the past 12 months, did your current partner or any other boyfriend slap you or throw something at you which could hurt you? Did this happen many times, a few times, once or did it not happen?

- Never
- Once
- Few
- Many

**9.5. Shove**

In the past 12 months, did your current partner or any other boyfriend push or shove you? Did this happen many times, a few times, once or did it not happen?

- Never
- Once
- Few
- Many

**9.6. Punch**

In the past 12 months, did your current partner or any other boyfriend hit you with a fist or with something else which could hurt you? Did this happen many times, a few times, once or did it not happen?

- Never
- Once
- Few
- Many

**9.7. Weapon**

In the past 12 months, did your current partner or any other boyfriend threaten to use or actually use a gun, knife or other weapon against you? Did this happen many times, a few times, once or did it not happen?

- Never
- Once
- Few
- Many

**THANK YOU!**

## Appendix D

### Xhosa Questionnaire

**Maternal Questionnaire**  
Items loaded to mobile phone

<b>Section 1: Interview Identification [INTERVIEWER ONLY]</b>	
<b>1.1. Interviewer code</b>	Nceda ubhale ikhowudi yomPhathi wodliwano-ndlebe. <input type="checkbox"/> <input type="checkbox"/>
<b>1.2 Neighbourhood code</b>	Nceda ubhale ikhowudi yengingqi yakho. <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>1.3. Date of Interview</b>	Nceda uqinisekise ngomhla wolu dliwano-ndlebe. <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> dd / mm / yyyy
<b>1.4. Time of Interview</b>	Nceda uqinisekise ngexesha lolu dliwano-ndlebe. <input type="checkbox"/> <input type="checkbox"/> : <input type="checkbox"/> <input type="checkbox"/>
<b>1.5. Participant ID</b>	Nceda ubhale ikhowudi yomthathi-nxaxheba, leyo imchongayo njengowahlukileyo nofana yedwa. <input type="checkbox"/>

<b>Section 2: Informed Consent [INTERVIEWER ONLY]</b>	
<b>2.1. Informed consent granted</b>	Ifomu yemvumo engengqiqo ichaziwe yaza yamkeleka?  <input type="checkbox"/> Ewe <input type="checkbox"/> Hayi  <b>[IF NO, SKIP TO END]</b>

<b>Section 3: Socio-demographic Information</b>	
<b>Prompt:</b> Siyabulela ngokuthatha kwakho inxaxheba kolu dliwano-ndlebe. Ndiza kuqalisa ngokukubuza imibuzo eqhelekileyo ngesiqu sakho.	
<b>3.1. Mother's age</b>	Umdala kangakanani (ngokweminyaka epheleleyo yakho)?  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Age in years
<b>3.2. Mother's date of birth</b>	Wazalwa ngowuphi umhla, inyanga nonyaka?  <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> / <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> dd / mm / yyyy

**3.3. Mother's home language**

Uthetha oluphi ulwimi lweenkobe?

- isiNgesi
- IsiZulu
- IsiXhosa
- Enye
- Ndiyala ukuphendula

**3.4. Participant education**

Leliphi elona nqanaba lemfundo liphezulu oligqibileyo?

- Andifundanga
- Greyidi 1
- Greyidi 2
- Greyidi 3
- Greyidi 4
- Greyidi 5
- Greyidi 6
- Greyidi 7
- Greyidi 8
- Greyidi 9
- Greyidi 10
- Greyidi 11
- Greyidi 12 / iMatriki
- ISatifikethi emva kweMatriki / iDiploma
- Imfundo enomsila
- Ndiyala ukuphendula

**3.5. Marital status**

Akukatshati okanye utshatile (nokuba kungayiphi na indlela)?

- Anditshatanga
- Nditshatile
- Anditshatanga, ndihlala neqabane
- Ndiyala ukuphendula

**Prompt:** Kweli candela lilandelayo imibuzo imalunga nendawo ohlala kuyo.

**3.6. Housing description**

Indlu yakowenu iloluphi uhlobo?

- Sisakhiwo sezitena esizeni esisodwa
- Yindlwana egxunyekiweyo esemva kwendlu enkulu esizeni
- Lityotyombe elisemva kwendlu enkulu esizeni
- Lityotyombe elizimeleyo esizeni. Umzekelo: Kwindawo yamatyotyombe
- Yihosteli, apho abaqeshwa behlala beyintlanganisela
- Ndiyala ukuphendula

**3.7. Water source**

Amanzi eniwaselayo niwafumana kowuphi umthombo?

- Amanzi akhoyo endlwini
- Amanzi akhoyo apha esizeni
- Amanzi aphuma kumpompi / kwitanki esetyenziswa nguwonke-wonke
- Amanzi omlambo
- Ndiyala ukuphendula

**3.8. Electricity**  
Ninawo umbane kule ndlu yenu?

Ewe  
 Hayi  
 Ndiyala ukuphendula

**Prompt:** Ngoku ndithanda ukukubuza imibuzo embalwa ngomsebenzi wakho nemali oyizuzayo.

**3.9. Participant employed**  
Uqeshiwe?

Ukusebenza okanye ukwenza into ngamaxesha athile xa kufuneka  
 Ukusebenza isigxina  
 Umntu ongxungxayo / ubizelwa uhlobo oluthile lomsebenzi  
 Hayi  
 Ukuziqesha uzenzele imali  
 Ndiyala ukuphendula

**3.10. Household monthly income**  
Endlwini yakho yimalini efumanekayo ngenyanga ngokomndilili?

Into engekho kude kufikwe kuma-R499  
 I-R500 kude kufikwe kwi-R1000  
 I-R1001 ukuya kwi-R2000  
 I-R2001 ukuya kwi-R5000  
 I-R5001 ukuya kwi-R8000  
 I-R8000 nangaphezu kwaleyo  
 Andazi  
 Ndiyala ukuphendula

**3.11. Father's financial support**  
Uyise wolu sana uyakuxhasa na ngezimali?

Ewe  
 Hayi  
 Ndiyala ukuphendula

**Section 4: This Pregnancy**

**Prompt:** Ngoku ndinemibuzo embalwa nemifutshane ngosana osaza kulufumana.

**4.1. Baby due date**  
Usana lwakho uya kuluzala ngowuphi umhla?

/   /      
 dd / mm / yyyy

**4.2. Weeks pregnant**  
Zingaphi iiveki zokukhulelwa kwakho?

Weeks

**4.3. Baby planned**

Olu sana ubulucwangcisele? (Qaphela: ukucwangciselwa kuthetha ukuzifunela ngokwakho okanye wena neqabane lakho benimfuna umntwana).

- Ewe
- Hayi
- Ndiyala ukuphendula

**Section 5: EPDS**

**Prompt:** Ngoku ndinemibuzo ekufuneka ndikubuze yona ngovakalelo lwakho lweveki ephelileyo. Nceda undinike impendulo esondele kakhulu kwindlela ozive ngayo EZINTSUKWINI EZISI-7 EZIGQITHILEYO, andilufuni uvakalelo lwakho lwanamhlanje.

**5.1. Laugh**

Ndikwazile ukuhleka, ndakubona nokumangalisayo ezintweni.

- Kangangoko bendikwenza ngaphambili
- Hayi kangako, okwangoku
- Ngokuqinisekileyo ayikho kangako okwangoku
- Akunjalo

**5.2. Enjoyment**

Ndikhe ndajonga phambili ndisonwatyiswa zizinto.

- Kangangoko bendinokwenza
- Kungaphantsi kunoko bendisenza
- Ngokuqinisekileyo kungaphantsi kunoko bendisenza
- Akwenzeki kwaphela

**5.3. Self Blame**

Ndizigxekile ngokungekho mfuneko xa izinto bezingahambi kakuhle.

- Ewe, kumaxesha amaninzi
- Ewe, ngamanye amaxesha
- Akusoloko kusenzeka qho
- Hayi, zange kwenzeke

**5.4. Anxious/worry**

Bendinexhala okanye ndikhathazekile kungekho sizathu.

- Hayi, akunjalo
- Zange kwenzeke
- Ewe, ngamanye amaxesha
- Ewe, kwenzeka qho

**5.5. Panicky**

Ndizive ndibuhlungu okanye ndisoyika kungekho sizathu.

- Ewe, kwenzeka kakhulu
- Ewe, ngamanye amaxesha
- Hayi, akwenzeki ngamandla
- Hayi, akunjalo

<p><b>5.6. Things piled up</b> Imeko ibindongamele.</p> <p><input type="checkbox"/> Ewe, kumaxesha amaninzi bendingakwazi kumelana naloo nto</p> <p><input type="checkbox"/> Ewe, ngamanye amaxesha bendingakwazi ukumelana naloo nto njengesiqhelo</p> <p><input type="checkbox"/> Hayi, kumaxesha amaninzi bendimelana kakuhle naloo nto</p> <p><input type="checkbox"/> Hayi, bendisoloko ndikwazi ukumelana naloo nto njengakuqala</p>
<p><b>5.7. Difficulty sleeping</b> Bendingonwabanga kunzima nokuba ndilale.</p> <p><input type="checkbox"/> Ewe, kumaxesha amaninzi</p> <p><input type="checkbox"/> Ewe, ngamanye amaxesha</p> <p><input type="checkbox"/> Bekungenzeki qho</p> <p><input type="checkbox"/> Hayi, akunjalo</p>
<p><b>5.8. Sad/miserable</b> Bendilusizi okanye bendixakanisekile.</p> <p><input type="checkbox"/> Ewe, kumaxesha amaninzi</p> <p><input type="checkbox"/> Ewe, ngamanye amaxesha</p> <p><input type="checkbox"/> Bekungenzeki qho</p> <p><input type="checkbox"/> Hayi, akunjalo</p>
<p><b>5.9. Crying</b> Bendingonwabanga ndada ndamana ndilala.</p> <p><input type="checkbox"/> Ewe, kumaxesha amaninzi</p> <p><input type="checkbox"/> Ewe, bekusoloko kusenzeka</p> <p><input type="checkbox"/> Bekusenzeka kuphela ngamaxesha athile</p> <p><input type="checkbox"/> Hayi, zange kwenzeke</p>
<p><b>5.10. Self harm</b> Ikhe yandifikela ingcinga yokuba mandizenzakalise.</p> <p><input type="checkbox"/> Ewe, bekusenzeka qho</p> <p><input type="checkbox"/> Ngamanye amaxesha</p> <p><input type="checkbox"/> Zange kwenzeke</p> <p><input type="checkbox"/> Zange</p>

<p><b>Section 6: Social Support</b></p>
<p><b>Prompt:</b> Elandelayo yimibuzo emalunga nabahlobo kunye nezalamane zakho ezisoloko zikuxhasa.</p>
<p><b>6.1. Current partner</b> Khona ngoku unalo iqabane?</p> <p><input type="checkbox"/> Ewe</p> <p><input type="checkbox"/> Hayi</p> <p><input type="checkbox"/> Ndiyala ukuphendula</p>
<p><b>6.2. Trust and share with partner</b> Umyeni wakho / iqabane lakho ungalithemba, ungathetha nalo ukuze nabelane ngovakalelo?</p> <p><input type="checkbox"/> Zanga</p> <p><input type="checkbox"/> Ngamanye amaxesha</p> <p><input type="checkbox"/> Qho</p> <p><input type="checkbox"/> Ndiyala ukuphendula</p>

**6.3. Turn to partner in difficulty**  
Umyeni wakho okanye iqabane lakho ungayama kulo ucele noncedo ngamaxesha obunzima?

- Zanga
- Ngamanye amaxesha
- Qho
- Ndiyala ukuphendula

**6.4. Partner practical help**  
Lukhona uncedo akunika lona lweemfuno ezimandla?

- Zanga
- Ngamanye amaxesha
- Qho
- Ndiyala ukuphendula

**6.5. Trust, talk to Mother**  
Umama wakho ungamthemba, ungathetha naye ngokungafihlisiyo, ungabelana naye ngezimvo zakho?

- Zanga
- Ngamanye amaxesha
- Qho
- Umama wabhubha
- Ndiyala ukuphendula

**6.6. Turn to mother in difficulty**  
Ngamaxesha obunzima ungaya ujike ucele uncedo kumama wakho?

- Zanga
- Ngamanye amaxesha
- Qho
- Umama wabhubha
- Ndiyala ukuphendula

**6.7. Mother practical help**  
Lukhona uncedo olumandla olufumanayo kumama wakho?

- Zanga
- Ngamanye amaxesha
- Qho
- Umama wabhubha
- Ndiyala ukuphendula

**6.8. Trust, talk to father**  
Utata wakho ungamthemba, ungathetha naye ngokukhululekileyo wabelane naye ngeengcamango zakho?

- Zanga
- Ngamanye amaxesha
- Qho
- Utata wabhubha
- Ndiyala ukuphendula

**6.9. Turn to father in difficulty**  
 Ngamaxesha obunzima ungakwazi ukwayama ujike ucele uncedo kutata wakho?

Zanga  
 Ngamanye amaxesha  
 Qho  
 Utata wabhubha  
 Ndiyala ukuphendula

**6.10. Father practical help**  
 Uyalufumana uncedo lomsebenzi okanye lwento oyifunayo kutata wakho?

Zanga  
 Ngamanye amaxesha  
 Qho  
 Utata wabhubha  
 Ndiyala ukuphendula

**Section 7: Use of Tobacco & Alcohol**

**Prompt:** Imibuzo emitsha imalunga nokutshaya.

**7.1. Use of Tobacco**  
 Uyalisebenzisa icuba?

Ewe  
 Hayi  
 Ndiyala ukuphendula

**7.2. Tobacco Frequency**  
 Kwiinyanga ezi-3 ezidlulileyo, icuba ulisebenzise kangangeentsuku ezingaphi?

**Prompt:** Ngoku ndingathanda ukukubuza eminye imibuzo embalwa ngokusela utywala. Ndiyazi ukuba ngamanye amaxesha le mibuzo ingakuxakanisa, kodwa khumbula ukuba iimpendulo zakho zakugcinwa ziyimfihlelo yaye akakho onokwazi ukuba ezo ziimpendulo zakho. Igama lakho alizokucela kuzo naziphi na iifom zophando yaye iimpendulo zakho asizokwabelana ngazo naye nabani na, ngaphandle kwabasebenzi aba bophando. Le mibuzo ibalulekileyo siyibuza kwabaninzi abantu ababhinquleyo, yaye siyabulela kuwe ngokuzama kangango ekubeni uyiphendule unyanisekile.

**7.3. Weeks pregnant when found out about pregnancy**  
 Uziqonde sekuziiveki ezingaphi ukuba wena ukhulelwe?

# weeks

**7.4. Alcohol in pregnancy before knowledge of pregnancy**

Utywala ubusebenzise rhoqo kangakanani enyangeni phambi kokuba uzifumanise ukhulelwe?

[UMPHATHI WODLIWANO-NDLEBE UZA KUSEBENZISA IKOMITYANA EQHELEKILEYO NEBONAKALA INGUMLINGANISELO WESISELO ESINYE].

- Zange
- Kungaphantsi kwexesha lakanye ngenyanga
- Kanye ngenyanga
- Kabini okanye kathathu ngenyanga
- Kanye ngeveki
- Amaxesha ama -2 ngeveki
- Amaxesha ama -3 nalawo ama -4 ngeveki
- Phantse yonke imihla
- Yonke imihla
- Ndiyala ukuphendula

[IF NEVER, SKIP TO 7.7]

**7.5. Alcohol per day on days when used alcohol before knowledge of pregnancy**

Ngalaa nyanga ephambi kokuzibhaqa kwakho ukuba ukhulelwe, xa ubala zonke iintlobo zotywala zidibene, zingaphi iziselo OBUDLA ngokuzisela ngeentsuku zokusela kwakho utywala?

- 1 okanye 2
- 3 okanye 4
- 5 okanye 6
- 7, 8, okanye 9
- Ali -10 nangaphezu koko
- Ndiyala ukuphendula

**7.6. Frequency of four or more drinks per day before knowledge of pregnancy**

During the month before you found out you were pregnant, about how often did you drink FIVE or MORE drinks in a single day?

- Zange
- Kungaphantsi kwexesha lakanye ngenyanga
- Kanye ngenyanga
- Kabini okanye kathathu ngenyanga
- Kanye ngeveki
- Amaxesha ama -2 ngeveki
- Amaxesha ama -3 nalawo ama -4 ngeveki
- Phantse yonke imihla
- Yonke imihla
- Ndiyala ukuphendula

**7.7. Alcohol during pregnancy after learning of pregnancy.**  
Njengokuba sowusazi ukuba ukhulelwe, kukaninzi kangakanani usela NALUPHI NA uhlobo lotywala?

- Zange
- Kungaphantsi kwexesha lakanye ngenyanga
- Kanye ngenyanga
- Kabini okanye kathathu ngenyanga
- Kanye ngeveki
- Amaxesha ama -2 ngeveki
- Amaxesha ama -3 nalawo ama -4 ngeveki
- Phantse yonke imihla
- Yonke imihla
- Ndiyala ukuphendula

**[IF NEVER, SKIP TO SECTION 8]**

**7.8. Alcohol per day on days when used alcohol after knowledge of pregnancy**  
Njengokuba sowusazi ukuba ukhulelwe, xa ubala zonke iindidi zotywala zidibene, zingaphi iziselo ODLA ngokuzifumana ngeentsuku zokusela kwakho utywala?

- 1 okanye 2
- 3 okanye 4
- 5 okanye 6
- 7, 8, okanye 9
- Ali -10 nangaphezu koko
- Ndiyala ukuphendula

**7.9. Frequency of four or more drinks per day after knowledge of pregnancy**  
Njengokuba sowusazi ukuba ukhulelwe, kukaninzi kangakanani uufumana iziselo EZINE okanye NGAPHEZU KOKO ngosuku?

- Zange
- Kungaphantsi kwexesha lakanye ngenyanga
- Kanye ngenyanga
- Kabini okanye kathathu ngenyanga
- Kanye ngeveki
- Amaxesha ama -2 ngeveki
- Amaxesha ama -3 nalawo ama -4 ngeveki
- Phantse yonke imihla
- Yonke imihla
- Ndiyala ukuphendula

## **Section 8: Reproductive Health**

**Prompt:** Enkosi. Imibuzo embalwa elandelayo imalunga nexesha eligqithileyo owawukhulelwe ngalo nangabantwana onokuba ubunabo.

**8.1. Total number pregnancies**  
Ukhe wakhulelwa kangaphi, xa udibanisa neli ixesha ukhulelwe ngalo?

# pregnancies

**8.2. Number live births**  
Uzele iintsana ezingaphi eziphilileyo?

# live births

## Section 9: Relationships and violence

**Prompt:** Imibuzo embalwa elandelayo imalunga nobudlelwane osenabo neqabane lakho.

### 9.1. Frequency quarrels

Kobu budlelwane usenabo, kukaninzi kangakanani unokutsho ukuba senikhe naxabana? Ungathi zange nixabane, kunqabile ukuxabana kwenu, ngamanye amaxesha niyaxabana okanye nixabana qho?

- Zange
- Kunqabile oko.
- Ngamanye amaxesha
- Yenzeka qho

### 9.2. Talk about relationship to friend

Uyathetha nomhlobo wakho okanye nesalamane sakho ngeengxaki zobudlelwane bakho

- Ewe
- Hayi

### 9.3. Quality current relationship

Ungatsho ukuba ubudlelwane bakho buqaqambile, bulungile, buhle nje, okanye bonakele?

- Ngokuqaqambileyo
- Kakuhle
- Kulungile
- Akulunganga

**Prompt:** Amadoda alwa qho nezithandwa zawo eziziintombi, le milo iba kukubethwa emzimbeni kumaxesha amaninzi. Ndiza kubuza imibuzo ngale nto ngoba sifuna ulwazi olulolunye ngamava abantu ababhinqileyo ebomini babo. Ndifuna uthethe ngokukhululekileyo, yaye ukhumbule ukuba yonke into oyithethayo izakuba yimfihlelo.

### 9.4. Slap

Kwiinyanga ezili-12 ezigqithileyo, iqabane onalo ngoku okanye nasiphi na isithandwa sikubethile na ngempama okanye sikugibisele ngento enokukwenzakalisa? Le nto yenzeke amaxesha amaninzi, amaxesha ambalwa, yenzeke kanye okanye khange yenzeke?

- Zange
- Kanye
- Amaxesha ambalwa
- Kaninzi / amaxesha amaninzi

### 9.5. Shove

Kwiinyanga ezili-12 ezigqithileyo, iqabane onalo ngoku okanye nayiphi na indoda ikhe yakutyhala na okanye yakusunduza? Le nto yenzeke amaxesha amaninzi, amaxesha ambalwa, yenzeke kanye okanye khange yenzeke?

- Zange
- Kanye
- Amaxesha ambalwa
- Kaninzi / amaxesha amaninzi

**9.6. Punch**

Kwiinyanga ezili-12 ezigqithileyo, iqabane onalo ngoku okanye nayiphi na indoda, ikhe yakubetha ngenqindi okanye ngenye into enokukwenzakalisa? Le nto yenzeke amaxesha amaninzi, amaxesha ambalwa, yenzeke kanye okanye khange yenzeke?

- Zange
- Kanye
- Amaxesha ambalwa
- Kaninzi / amaxesha amaninzi

**9.7. Weapon**

Kwiinyanga ezili-12 ezigqithileyo, iqabane onalo ngoku okanye nayiphi na indoda, ibikhe yakoyikisa na ngokuthi iza kusebenzisa umpu, imela okanye isixhobo esinokukwenzakalisa? Le nto yenzeke amaxesha amaninzi, amaxesha ambalwa, yenzeke kanye okanye khange yenzeke?

- Zange
- Kanye
- Amaxesha ambalwa
- Kaninzi / amaxesha amaninzi

**ENKOSI!**