

# Domestic violence, food insecurity and mental health of pregnant women in the COVID-19 lockdown in Cape Town, South Africa

Zulfa Abrahams (✉ [zulfa.abrahams@uct.ac.za](mailto:zulfa.abrahams@uct.ac.za))

University of Cape Town <https://orcid.org/0000-0002-7336-6009>

**Sonet Boisits**

University of Cape Town

**Marguerite Schneider**

University of Cape Town

**Martin Prince**

King's College London

**Crick Lund**

University of Cape Town

---

## Research Article

**Keywords:** mental health, COVID-19, depression, perinatal, food insecurity

**Posted Date:** November 5th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-102205/v1>

**License:**  This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

---

# Abstract

**Introduction** Common mental disorders (CMD) such as depression and anxiety are associated with low household income, food insecurity and intimate partner violence in perinatal women. The national COVID-19 lockdown in South Africa resulted in increased levels of poverty and food insecurity. We aimed to explore the relationship between CMDs, food insecurity and experiences of violence among pregnant women during the COVID-19 lockdown.

**Methods** Perinatal women, attending 14 healthcare facilities in Cape Town, were enrolled in the study during baseline data collection before the COVID-19 lockdown. During the lockdown period, fieldworkers telephonically contacted the perinatal women who were enrolled in the study and had provided contact details. The following data was collected from those who consented to the study: socio-demographic information, mental health assessment, food insecurity status and experiences of abuse. Poisson regression was used to model the associations of a number of risk factors with the occurrence of CMDs.

**Results** Of the 2149 women enrolled in the ASSET study, 885 consented to the telephonic interviews. We found that 12.5% of women had probable CMDs and 43% were severely food insecure. Psychological distress increased significantly during the lockdown period, compared to before the COVID-19 outbreak. The strength of the association between key risk factors measured during the lockdown and psychological distress increased during the COVID-19 lockdown. Using multivariate Poisson regression modelling, we showed that the risk of CMDs was almost three times more likely in women who were severely food insecure or who experienced psychological or sexual abuse.

**Conclusions** This study provides evidence of the effect of the COVID-19 lockdown on the mental health status of perinatal women living in low resource settings in Cape Town, and highlights how a crisis such as the COVID-19 lockdown amplifies the psycho-social risk factors associated with CMDs in perinatal women.

## Introduction

Common mental disorders (CMDs) such as depression and anxiety are highly prevalent during the perinatal period, especially in low- and middle-income countries where approximately 19% of perinatal women develop depression,<sup>1</sup> and approximately 34% develop anxiety.<sup>2</sup> In South Africa the prevalence is particularly high, with several studies reporting that one in every three pregnant women develop symptoms of depression,<sup>3-7</sup> and one in every four pregnant women develop symptoms of anxiety.<sup>3 8</sup> However, studies have also shown that the majority of women who experience mild to moderate symptoms of depression during their first and second trimester of pregnancy, show an improvement in symptoms during the remainder of the perinatal period, even without intervention.<sup>7 9-11</sup> Studies in Cape Town, South Africa have identified several psycho-social risk factors for CMDs which include food insecurity, intimate partner violence, and lack of social support.<sup>4 7 12</sup>

The Coronavirus (COVID-19) outbreak was declared a global pandemic by the World Health Organisation on 11 March 2020.<sup>13</sup> A few days later the President of South Africa announced that urgent and drastic measures were needed to manage the disease.<sup>14</sup> This included a travel ban, increased screening and testing and the closure of all schools. Two weeks later, a 35-day national lockdown came into effect.<sup>15 16</sup> This initial lockdown period became known as the Alert Level-5 and required South Africans to stay home except for essential purposes. All non-essential activities were suspended until the end of April 2020, and included the sale of alcohol.<sup>17</sup> During May 2020, South Africa moved to Alert Level-4, which resulted in a slight easing of restrictions. However, South Africans remained confined to their place of residence, except for those performing essential services.<sup>18</sup> On 1 June 2020, Alert Level-3 came into effect, further easing restrictions, which included unbanning the sale of alcohol and the opening of schools and some places of employment.<sup>19</sup>

According to the World Health Organisation,<sup>20</sup> experiencing fear, worry and distress is an understandable and normal response in the context of the COVID-19 pandemic. The South Africa Depression and Anxiety Group (SADAG) reported that the COVID-19 lockdown in South Africa resulted in an increase in the number of calls from people feeling overwhelmed, anxious, worried and depressed. In an online survey completed between 2-15 April 2020, SADAG found that 65% of respondents were feeling stressed during the lockdown.<sup>21</sup>

South Africa is a country characterised by high levels of inequality and poverty.<sup>22</sup> The majority of South Africans (55%) live below the upper bound poverty line,<sup>23</sup> with many living in overcrowded shacks with intergenerational families. Intimate partner violence rates are high and is thought to be associated with poverty and food insecurity.<sup>24</sup> The lockdown has been especially difficult for the already vulnerable groups living in poverty, as it has resulted in increased levels of unemployment, food insecurity<sup>25</sup> and domestic violence.<sup>26</sup> However, little is known about the specific effects of the COVID-19 crisis on the mental health of vulnerable groups such as antenatal women in South Africa. As unemployment, food insecurity and domestic abuse is associated with CMDs, this study aims to explore the relationship between CMDs, food insecurity and experiences of violence among pregnant women attending midwife obstetric units (MOUs) in Cape Town during the COVID-19 lockdown.

## Methods

### Setting

This quantitative study was initially conducted in 14 randomly selected midwife obstetric units (MOUs) or basic antenatal care (BANC) clinics in the Cape Metropolitan Health District in Cape Town. MOUs and BANC clinics are public sector antenatal and obstetric care facilities managed by the Western Cape Department of Health. The facilities are free at the point of contact and attended predominately by women living in low socio-economic status communities. This study forms part of the bigger Health Systems Strengthening in sub-Saharan Africa (ASSET) study<sup>27</sup> – which includes a cluster randomised

control trial (ISRTC41483663) to evaluate an intervention to strengthen detection, referral and care for antenatal women with depression, anxiety and experiences of domestic violence in Cape Town.

In February and March 2020 (as part of baseline data collection) 2149 perinatal women were enrolled in the study, which included a file review of their current Maternity Case Records (MCR) - the national stationery used to record all aspects of the pregnancy.<sup>28</sup> Women who were pregnant (irrespective of gestation period) or had given birth in the past three months were included. Information collected included contact details, gestational and medical history, and results of a 3-question mental health screening questionnaire used to assess psychological distress,<sup>29</sup> routinely administered by health professionals during patients' first antenatal visit. As a result of the COVID-19 pandemic, data collection was suspended after completion of the baseline data collection, but before the intervention could begin. During the period when face-to-face data collection was not permitted, the study was opportunistically pivoted to focus on the impact of the COVID-19 lockdown on women already enrolled in the ASSET study.

## Testing procedures

During June and July 2020 (Alert Level-3 lockdown), fieldworkers telephonically contacted the perinatal women who were enrolled in the ASSET study and had provided contact details and invited them to participate in a telephonic survey. Questionnaires were telephonically administered to perinatal women who consented to the study. Questionnaires were available in English, Afrikaans or IsiXhosa, and included (1) a socio-demographic questionnaire that was used to collect data on participants' age, obstetric information, relationship status, income status, and effect of the COVID-19 lockdown, (2) a 3-question mental health screening questionnaire,<sup>29</sup> (3) the Edinburgh Postnatal Depression Scale (EPDS),<sup>30</sup> (4) the Household Food Insecurity and Access Scale (HFIAS),<sup>31</sup> and (5) the short form of the Composite Abuse Scale (CAS-SF).<sup>32</sup>

The EPDS is commonly used as a screening tool in research settings and has been validated against the Diagnostic and Statistical Manual (DSM-IV)<sup>33 34</sup> for depression and anxiety in a sample of postnatal women in South Africa<sup>30 35</sup> with a cut-off of  $\geq 13$  indicating a probable CMD. The questionnaire consists of 10 items with a seven-day recall period. The 3-question mental health screening questionnaire (the same questionnaire routinely administered by health professionals during patients first antenatal visit to healthcare facilities) has been validated against the EPDS.<sup>29</sup> Using a cut-point of  $\geq 2$ , this screening tool is able to identify perinatal women with psychological distress (sensitivity=85.7%; specificity=92.9%). The HFIAS was used to assess household food insecurity and hunger.<sup>31</sup> This 9-item scale measures the household's frequency of running out of food or eating inadequate amounts of food during the past 30 days. The CAS-SF<sup>32</sup> is a 15-item instrument that captures women's self-reported experience of physical, sexual and psychological abuse.

## Data analysis

Data analysis was carried out using STATA/SE statistical software package version 15.1 (StataCorp., College Station, TX, USA). Variables were described using frequency and percentages, and associations measured using Chi-square tests.

Logistic regression was used to model the associations of socio-demographic risk factors with the occurrence of CMDs. Household food security status was calculated<sup>36</sup> by using the HFIAS to categorise households into four levels of household food insecurity experienced during the past 30 days: food secure, mildly food insecure, moderately food insecure and severely food insecure. The CAS-SF was used to categorise experiences of domestic violence during the past 12 months into physical, sexual and psychological abuse.<sup>32</sup>

Purposeful selection<sup>37</sup> was used to build the Poisson regression model.<sup>38</sup> Unadjusted associations between variables and the outcome (probable CMDs) were explored using univariate analysis. During the multivariate model building process, partial likelihood ratio tests were used to compare the models.

## Ethical approval

Ethical approval for the study was obtained from the Human Research Ethics Committee at the Faculty of Health Sciences, University of Cape Town (Ref No: 139/2018) and the Psychiatry, Nursing and Midwifery Research Ethics Subcommittee at Kings College London (Ref No: 17/18-7807). In addition, the Western Cape Department of Health approved the use of the research sites (Ref No: WC\_201807\_008). Consent forms were available in English, Afrikaans and isiXhosa. Participants provided informed consent after the procedure had been verbally explained to them. All participants were informed that they were free to withdraw from the study at any time without consequences. No financial incentives were provided for participating in the study.

## Results

Data from MCRs were available for 2149 perinatal women (**Supplementary table**). More than half the women (n=1248; 58%) who were initially enrolled in the ASSET study, were not contactable due to missing or incorrect contact details. An additional 16 women declined to participate when contacted. In total, 1264 women were lost-to-follow-up. Gravidity (p=0.672), pregnancy status (p=0.097) and the results of a routinely administered mental health screening questionnaire (p=0.199) were similar for those included in the study and those who were lost to follow-up. Significantly more young women aged 15 to 24 years were lost-to-follow-up (p=0.047).

Bivariate associations between CMD and the socio-demographic and psychological characteristics of participants are presented in **Table 1**. The study sample consisted of 885 participants, of whom 110 (12.4%) were classified as having a probable CMD and 775 (87.6%) were not. Almost half the women were severely food insecure (n=378), while more than half were unemployed (n=475). The proportion of women with CMD significantly increased with increasing number of pregnancies (p=0.017) and severity

of food insecurity ( $p < 0.001$ ). Significantly fewer women who had experienced their first pregnancy (20.9 vs. 30.2%;  $p = 0.045$ ) and had already given birth at follow-up had a probable CMD (63.6 vs. 74.1%;  $p < 0.022$ ).

Significantly more women with probable CMD had experienced a previous miscarriage or stillbirth (5.5 vs. 0.9%;  $p < 0.001$ ), did not have a partner (18.4 vs. 11.4%;  $p = 0.037$ ), experienced psychological distress at the first clinic visit (9.1 vs. 2.5%;  $p = 0.007$ ), had experienced anxiety about being infected with the COVID-19 virus (90.9 vs. 83.1%;  $p = 0.037$ ), had experienced an increase in crime in their community (33.6 vs. 22.5%;  $p = 0.010$ ) and a decrease in food available in the household (89.1 vs. 71.6%;  $p < 0.001$ ) during the lockdown, were severely food insecure (67.6 vs. 39.7%;  $p < 0.001$ ) and had experienced psychological (34.3 vs. 13.4%;  $p < 0.001$ ), physical (31.1 vs. 11.7%;  $p < 0.001$ ) or sexual abuse (7.5 vs. 0.8%;  $P < 0.001$ ), compared to women without CMD.

A comparison of the results of the routinely administered mental health screening tool is presented in **Table 2**. Five hundred and fifty-five participants completed the screening questionnaire at their first clinic visit and during the lockdown. During the lockdown, the proportion of women who felt unable to stop worrying or thinking too much increased more than three-fold (12% to 40%), while the number of women who felt down, depressed or hopeless increased by six times (5% to 30%). Significantly more women experienced psychological distress during the lockdown, compared to their first clinic visit (3.1 vs. 26.2%;  $p < 0.001$ ).

Univariate logistic regression of risk factors against the outcome, psychological distress at the first clinic visit and during the lockdown is presented in **Table 3**. Only experiences of psychological abuse were significantly associated with psychological distress at the first clinic visit (Odds ratio (OR)=3.65; 95% Confidence interval (CI): 1.26-10.55). The odds of experiencing psychological distress during the lockdown were higher for women who had: more than four previous pregnancies (OR=1.74; 95%CI: 1.04-2.93); experienced a previous miscarriage or stillbirth (OR=9.72; 95%CI: 2.65-35.66); no partner (OR=2.23; 95%CI: 1.47-3.40); experienced an increase in crime in their community (OR=2.01; 95%CI: 1.43-2.80); less income during the lockdown (OR=1.68; 95%CI: 1.20-2.35); less food in the household during the lockdown (OR=2.24; 95%CI: 1.52-3.31); experienced severe food insecurity during the lockdown (OR=2.39; 95%CI: 1.76-3.25); experienced psychological (OR=3.05; 95%CI: 2.09-4.46) physical (OR=2.77; 95%CI: 1.86-4.11) or sexual (OR=7.30; 95%CI: 2.27-23.53) abuse in the past 12 months.

The relative risk of experiencing a probable CMD is shown in **Table 4**. In the univariate model, having already given birth (Risk ratio (RR)=0.66; 95%CI: 0.44-0.97) was negatively associated with experiencing a probable CMD, while having had a previous miscarriage or stillbirth (RR=3.83; 95%CI: 1.68-8.73), experiencing increased crime in the community (RR=1.62; 95%CI: 1.09-2.40), experiencing psychological distress at the first clinic visit (RR=3.09; 95%CI: 1.23-7.76), being severely food insecure (RR=2.75; 95%CI: 1.84-4.11) or experiencing physical (RR=2.76; 95%CI: 1.83-4.16), psychological (RR=2.75; 95%CI: 1.84-4.11) or sexual (RR=4.96; 95%CI: 2.41-10.20) abuse was associated with a probable CMD.

In the multivariate model, after controlling for experiencing psychological distress at the first clinic visit, women were at increased risk of a probable CMD if they had a previous miscarriage or stillbirth (RR=4.37; 95%CI: 1.52-12.56), experienced severe food insecurity (RR=2.79; 95%CI: 1.51-5.14), or experienced psychological abuse (RR=2.50; 95%CI: 1.32-4.72) or sexual abuse (RR=2.70; 95%CI: 1.07-6.80).

## Discussion

In this study we explored the relationship between the mental health status of perinatal women, and their experiences of food insecurity and domestic violence during the COVID-19 lockdown. We found that 12% of women had probable CMDs and 43% were severely food insecure. Levels of psychological distress increased significantly during the lockdown period, compared to before the COVID-19 outbreak in South Africa. While we did not find an increase in women who felt suicidal, significantly more women reported feeling anxious and depressed. Using multivariate Poisson regression modelling, we showed that the risk of CMD was almost three times greater in women who were severely food insecure, or who experienced psychological or sexual abuse. Importantly, the strength of the association between key risk factors (having more than four pregnancies or a previous miscarriage or stillbirth, experiencing increased crime in the community, decreased income or less food in the household, severe food insecurity, or any form of abuse) and psychological distress increased during the COVID-19 lockdown.

Compared to other studies in South Africa,<sup>3 4 7 12</sup> our study found a relatively low prevalence of CMDs (12.5%) in pregnant women during the COVID-19 lockdown, given that more than 80% of those interviewed reported feeling anxious about getting infected, more than 60% were unemployed and fewer than 20% of households were food secure. This is contrary to a recent review assessing the psychological impact of the lockdown, which found that being quarantined resulted in a higher prevalence of psychological problems such as depression and anxiety.<sup>39</sup>

We found that the proportion of women experiencing psychological distress during the lockdown was significantly more than those who were distressed at their first clinic visit. Yet, we did not observe a change in the number or proportion of women who felt suicidal. This is not out of keeping with other research; when examining studies reporting on suicidal thoughts and behaviour during pregnancy and the postpartum period, several studies have reported a decreased risk.<sup>40-42</sup>

In LMIC, poverty is a well-documented risk factor for CMDs, especially during the perinatal period.<sup>43 44</sup> The relationship is considered to be complex and bidirectional with several social issues interacting.<sup>45 46</sup> Similar strong associations between food insecurity and CMDs have been consistently reported.<sup>4 47 48</sup> In a particularly low-resource setting in Cape Town, the odds of depression was five times greater in perinatal women who were food insecure compared to those who were food secure, while the odds of experiencing food insecurity was four times greater in women who were depressed compared to those who were not.<sup>4</sup> Our study found that being severely food insecure doubled the odds of CMDs during the COVID-19 lockdown, and that 80% of participants reported experiencing various levels of food insecurity. The high prevalence of food insecurity can be attributed to the COVID-19 lockdown. During April and May

2020, when South Africa was at Alert Level-4 and Level-5 of the lockdown, all non-essential services were halted. This resulted in high levels of unemployment, affecting the most vulnerable workers, who were low-skilled and less educated, the most.<sup>49</sup> Six weeks into the lockdown, Statistics South Africa, using an online survey, found that 4.3% of respondents reported experiencing hunger during the month prior to the lockdown, while 7% experienced hunger during the lockdown.<sup>50</sup> This is likely being underreported as those living in poverty and experiencing hunger would be unlikely to have access to a web-based survey. In our already vulnerable group of perinatal women living in low-resource settings in Cape Town, we found that more than 40% were severely food insecure. This translates to 40% of perinatal women living in households where they were eating fewer meals than needed, lacked the resources to acquire more food, went to sleep hungry or went a whole day and night without eating.<sup>36</sup>

We found that the risk of CMDs was almost three times greater in women experiencing psychological or sexual abuse. However, we found quite a low prevalence of domestic abuse in our study compared to findings in a similar population.<sup>51</sup> While we found that 15% of participants reported experiencing psychological abuse and less than 2% reported experiencing sexual abuse, Malan *et al.*<sup>51</sup> reported that more than 40% of perinatal women experienced psychological abuse and 25% experienced sexual abuse. The low prevalence in our study is possibly due to the alcohol ban, implemented during Alert Level-4 and Level-5,<sup>18</sup> which resulted in a 69% drop in the number of domestic violence cases being reported during that period.<sup>52</sup> Several studies have demonstrated that alcohol abuse increases the risk of intimate partner violence (IPV),<sup>53-55</sup> and that IPV increases the risk of CMDs.<sup>56 57</sup>

Our study has a number of limitations. More than half the women were not contactable. While levels of psychological distress before the lockdown were similar in those who were and were not contactable, it is possible that those who were not contactable could not afford a cellular phone. This study could therefore have underreported the level of unemployment and food insecurity. We used only quantitative questionnaires which did not allow us to fully explore the perceived causes of CMDs, food insecurity and experiences of violence. We were only able to compare psychological distress as measured by a brief screening tool across the two time points, instead of using a validated tool such as the EPDS. In addition, the first screening was done at healthcare facilities by healthcare workers, while the second screening was telephonically administered by fieldworkers. We started data collection on the same day that the alcohol ban was lifted, which did not give us enough time to measure the impact of alcohol sales on domestic violence.

Further research is needed (1) to understand the coping mechanisms used by perinatal women to mitigate the stress of living in households with high levels of unemployment, food insecurity and domestic violence; (2) to investigate the effect that lifting the alcohol ban has had on domestic violence; and (3) to examine longer term trends in mental health, domestic abuse and food insecurity among perinatal women during the COVID-19 lockdown.

## Conclusion

This study provides evidence of the effect of the COVID-19 lockdown on the mental health status of perinatal women living in low resource settings in Cape Town. While the COVID-19 lockdown triggered high levels of unemployment and increased the prevalence of food insecurity and CMDs, the accompanying alcohol ban appears to have protected women from experiences of domestic violence during a period when living in close proximity with an abuser was unavoidable. Our findings highlight how a crisis such as the COVID-19 lockdown amplified the psycho-social risk factors associated with CMDs in perinatal women.

## Declarations

**Acknowledgments** We are grateful to the women who participated in the study for generously giving their time and energy to complete interviews.

**Contributions** ZA and CL proposed the study. All authors provided input in the design of the study. ZA performed the data analysis and prepared the first draft of the manuscript. All authors reviewed the manuscript and providing input. All authors approved the final version of the manuscript.

**Financial support** The ASSET study is funded by the National Institute for Health Research (NIHR) Global Health Research Unit on Health System Strengthening in Sub-Saharan Africa, King's College London (GHRU 16/136/54).

**Competing interests** The authors have no competing interests to declare.

**Patient and public involvement** No patients or members of the public were directly involved in the design, recruitment, conduct, reporting or dissemination plans for this study

**Ethical standards** Ethical approval for the study was obtained from the Human Research Ethics Committee at the Faculty of Health Sciences, University of Cape Town (139/2018) and the Psychiatry, Nursing and Midwifery Research Ethics Subcommittee at Kings College London (17/18-7807). In addition, the Western Cape Department of Health approved the use of the research sites (WC\_201807\_008). Participants provided informed consent after the procedure had been verbally explained to them.

**Availability of data and materials** The dataset included for the analyses within this manuscript can be obtained on request from the corresponding author.

## References

1. Woody C, Ferrari A, Siskind D, et al. A systematic review and meta-regression of the prevalence and incidence of perinatal depression. *J Affect Disord* 2017;219:86-92.
2. Dennis C, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: systematic review and meta-analysis. *Br J Psychiatry* 2017;210:315-23.

3. Redinger S, Norris S, Pearson R, et al. First trimester antenatal depression and anxiety: prevalence and associated factors in an urban population in Soweto, South Africa. *J Dev Orig Health Dis* 2018;9:30-40.
4. Abrahams Z, Lund C, Field S, et al. Factors associated with household food insecurity and depression in pregnant South African women from a low socio-economic setting: a cross-sectional study. *Soc Psychiatry Psychiatr Epidemiol* 2018:1-10.
5. Hartley M, Tomlinson M, Greco E, et al. Depressed mood in pregnancy: prevalence and correlates in two Cape Town peri-urban settlements. *Reprod Health* 2011;8:9.
6. Manikkam L, Burns JK. Antenatal depression and its risk factors: an urban prevalence study in KwaZulu-Natal. *S Afr Med J* 2012;102:940-4.
7. Garman EC, Schneider M, Lund C. Perinatal depressive symptoms among low-income South African women at risk of depression: trajectories and predictors. *BMC Pregnancy Childbirth* 2019;19:202.
8. van Heyningen T, Honikman S, Myer L, et al. Prevalence and predictors of anxiety disorders amongst low-income pregnant women in urban South Africa: a cross-sectional study. *Archives Womens Men Health* 2017;20:765-75.
9. Lee C, Stroo M, Fuemmeler B, et al. Trajectories of depressive symptoms over 2 years postpartum among overweight or obese women. *Womens Health Issues* 2014;24:559-66.
10. Christensen AL, Stuart EA, Perry DF, et al. Unintended pregnancy and perinatal depression trajectories in low-income, high-risk Hispanic immigrants. *Prev Sci* 2011;12:289-99.
11. Mora PA, Bennett IM, Elo IT, et al. Distinct trajectories of perinatal depressive symptomatology: evidence from growth mixture modeling. *Am J Epidemiol* 2009;169:24-32.
12. van Heyningen T, Myer L, Onah M, et al. Antenatal depression and adversity in urban South Africa. *J Affect Disord* 2016;203:121-9.
13. WHO Director- General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Available: <https://www.npr.org/sections/https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19-11-march-2020/2020/03/11/814474930/coronavirus-covid-19-is-now-officially-a-pandemic-who-says>. [Accessed 28 April 2020].
14. President Cyril Ramaphosa: Measures to combat Coronavirus COVID-19 epidemic. Available: <https://www.gov.za/speeches/statement-president-cyril-ramaphosa-measures-combat-covid-19-epidemic-15-mar-2020-0000>. [Accessed 28 April 2020].
15. President Cyril Ramaphosa: Escalation of measures to combat Coronavirus COVID-19 pandemic. Available: <https://www.gov.za/speeches/president-cyril-ramaphosa-escalation-measures-combat-coronavirus-covid-19-pandemic-23-mar>. [Accessed 28 April 2020].
16. Preseident Cyril Ramaphosa: Extension of Coronavirus COVID-19 lockdown to the end of April. Available: <https://www.gov.za/speeches/president-cyril-ramaphosa-extension-coronavirus-covid-19-lockdown-end-april-9-apr-2020-0000>. [Accessed 28 April 2020].

17. COVID-19 risk adjusted strategy. Available: <https://sacoronavirus.co.za/covid-19-risk-adjusted-strategy/>. [Accessed 4 September 2020].
18. Disaster Management Act: Regulations: Alert level 4 during the Coronavirus COVID-19 lockdown. Available: <https://www.gov.za/coronavirus/alert-level-4>. [Accessed 4 September 2020].
19. Disaster Management Act: Regulations: Alert level 3 during the Coronavirus COVID-19 lockdown. Available: <https://www.gov.za/coronavirus/alert-level-3>. [Accessed 4 September 2020].
20. Mental Health and COVID-19. Available: <https://www.who.int/teams/mental-health-and-substance-use/covid-19>. [Accessed 7 September 2020].
21. SADAG's online survey findings on COVID-19 and mental health. Available: <http://www.sadag.org/>. [Accessed 28 April 2020].
22. Posel D, Rogan M. Inequality, social comparisons and income aspirations: Evidence from a highly unequal country. *J Hum Dev Capabil* 2019;20:94-111.
23. Statistics South Africa. Poverty trends in South Africa: An examination of absolute poverty between 2006 and 2015. Pretoria, South Africa: Statistics South Africa, 2017.
24. Gibbs A, Jewkes R, Willan S, et al. Associations between poverty, mental health and substance use, gender power, and intimate partner violence amongst young (18-30) women and men in urban informal settlements in South Africa: A cross-sectional study and structural equation model. *PLoS one* 2018;13:e0204956.
25. The biggest lockdown threat: Hunger, hunger, everywhere. Available: <https://www.dailymaverick.co.za/article/2020-04-17-the-biggest-lockdown-threat-hunger-hunger-everywhere/>. [Accessed 28 April 2020].
26. Domestic violence during COVID-19: are we asking the right questions? Available: <https://reliefweb.int/report/south-africa/domestic-violence-during-covid-19-are-we-asking-right-questions>. [Accessed 7 September 2020].
27. Maternal mental health and violence against women in South Africa. Available: <https://healthasset.org/wp6/>. [Accessed 29 September 2020].
28. Maternity Case Record. Available: <https://pmhp.za.org/wp-content/uploads/Western-Cape-Maternity-Case-Record-Version-19-June-2018.pdf>. [Accessed 23 March 2020].
29. Abrahams Z, Schneider M, Field S, et al. Validation of a brief mental health screening tool for pregnant women in a low socio-economic setting. *BMC Psychol* 2019;7:77.
30. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 1987;150:782-6.
31. Castell GS, Rodrigo CP, de la Cruz, Joy Ngo, et al. Household food insecurity access scale (HFIAS). *Nutricion hospitalaria* 2015;31:272-8.
32. Ford-Gilboe M, Wathen CN, Varcoe C, et al. Development of a brief measure of intimate partner violence experiences: the Composite Abuse Scale (Revised)—Short Form (CASR-SF). *BMJ open* 2016;6:e012824.

33. Frances AJ, Widiger TA, Pincus HA. The development of DSM-IV. *Arch Gen Psychiatry* 1989;46:373-5.
34. Sheehan D, Lecrubier Y, Sheehan KH, et al. Diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatr* 1998;59:22-33.
35. Lawrie T, Hofmeyr G, De Jager M, et al. Validation of the Edinburgh Postnatal Depression Scale on a cohort of South African women. *S Afr Med J* 1998;88:1340-4.
36. Household Food Insecurity Access Scale (HFIAS) for measurement of food access: Indicator guide. Available: [http://www.fao.org/fileadmin/user\\_upload/eufao-fsi4dm/doc-training/hfias.pdf](http://www.fao.org/fileadmin/user_upload/eufao-fsi4dm/doc-training/hfias.pdf). [Accessed 24 August 2020].
37. Zhang Z. Model building strategy for logistic regression: purposeful selection. *Ann Transl Med* 2016;4:111.
38. Zou G. A modified poisson regression approach to prospective studies with binary data. *Am J Epidemiol* 2004;159:702-6.
39. Brooks SK, Webster RK, Smith LE, et al. Rapid Review. *Lancet* 2020;395:912-20.
40. Marzuk PM, Tardiff K, Leon AC, et al. Lower risk of suicide during pregnancy. *Am J Psychiatry*
41. Appleby L. Suicide during pregnancy and in the first postnatal year. *BMJ* 1991;302:137-40.
42. Wallace ME, Hoyert D, Williams C, et al. Pregnancy-associated homicide and suicide in 37 US states with enhanced pregnancy surveillance. *Obstet Gynecol* 2016;215:364. e1,364. e10.
43. Lund C, Breen A, Flisher AJ, et al. Poverty and common mental disorders in low and middle income countries: a systematic review. *Soc Sci Med* 2010;71:517-28.
44. Gelaye B, Rondon MB, Araya R, et al. Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *The Lancet Psychiatry* 2016;3:973-82.
45. Lund C, De Silva M, Plagerson S, et al. Poverty and mental disorders: breaking the cycle in low-income and middle-income countries. *The lancet* 2011;378:1502-14.
46. Patel V, Lund C, Hatherill S, et al. Mental disorders: equity and social determinants. *Equity, social determinants and public health programmes* 2010;115:134.
47. Dewing S, Tomlinson M, le Roux IM, et al. Food insecurity and its association with co-occurring postnatal depression, hazardous drinking, and suicidality among women in peri-urban South Africa. *J Affect Disord* 2013;150:460-5.
48. Huddleston-Casas C, Charnigo R, Simmons LA. Food insecurity and maternal depression in rural, low-income families: a longitudinal investigation. *Public Health Nutr* 2009;12:1133-40.
49. Who has been hit hardest by South Africa's lockdown? We found some answers. Available: <https://www.downtoearth.org.in/blog/economy/who-has-been-hit-hardest-by-south-africa-s-lockdown-we-found-some-answers-71733>. [Accessed 11 September 2020].
50. Results from Wave 2 survey on the impact of the COVID-19 pandemic on employment and income in South Africa. Available: <http://www.statssa.gov.za/publications/Report-00-80-03/Report-00-80-03May2020.pdf>. [Accessed 11 September 2020].

51. Malan M, Spedding MF, Sorsdahl K. The prevalence and predictors of intimate partner violence among pregnant women attending a midwife and obstetrics unit in the Western Cape. *Global Mental Health* 2018;5.
52. SA lockdown sees a 72% drop in murder, 87% drop in reported rape cases. Available: <https://www.iol.co.za/news/south-africa/western-cape/sa-lockdown-sees-72-drop-in-murder-87-drop-in-reported-rape-cases-47039156>. [Accessed 11 September 2020].
53. Ndungu J, Washington L, Willan S, et al. Risk factors for alcohol and drug misuse amongst young women in informal settlements in Durban, South Africa. *Global Public Health* 2020:1-15.
54. Davis EC, Rotheram-Borus MJ, Weichle TW, et al. Patterns of alcohol abuse, depression, and intimate partner violence among township mothers in South Africa over 5 years. *AIDS and Behavior* 2017;21:174-82.
55. Hatcher AM, Gibbs A, McBride R, et al. Gendered syndemic of intimate partner violence, alcohol misuse, and HIV risk among peri-urban, heterosexual men in South Africa. *Soc Sci Med* 2019:112637.
56. Halim N, Beard J, Mesic A, et al. Intimate partner violence during pregnancy and perinatal mental disorders in low and lower middle income countries: A systematic review of literature, 1990–2017. *Clin Psychol Rev* 2018;66:117-35.
57. Shamu S, Abrahams N, Temmerman M, et al. A systematic review of African studies on intimate partner violence against pregnant women: prevalence and risk factors. *PloS one* 2011;6:e17591.

## Tables

**Table 1:** Bivariate associations between socio-demographic and psycho-social risk factors and probable CMD

	With CMD*  (n=110; 12.4%)  n (%)	Without CMD (n=775; 87.6%)  n (%)	Chi-square tests of independence	Jonckheere- Terpstra test for trend
<b>Age</b>				
15-24 years	29 (26.4)	262 (33.9)	$\chi^2(1)=2.498$ ; p=0.114	J=39193; p=0.378
25-29 years	40 (36.4)	226 (29.3)	$\chi^2(1)=2.297$ ; p=0.130	
30-35 years	28 (25.4)	187 (24.2)	$\chi^2(1)=0.079$ ; p=0.778	
>35 years	13 (11.8)	97 (12.6)	$\chi^2(1)=0.049$ ; p=0.825	
<b>Gravidity</b>				
1 <sup>st</sup> pregnancy	23 (20.9)	232 (30.2)	$\chi^2(1)=4.007$ ; p=0.045	J=47353; p=0.017
2-4 pregnancies	74 (67.3)	483 (62.8)	$\chi(1)=0.826$ ; p=0.363	
>4 pregnancies	13 (11.8)	54 (7.0)	$\chi^2(1)=3.144$ ; p=0.076	
<b>Number of other children</b>				
0 children	36 (33.0)	294 (38.2)	$\chi^2(1)=1.102$ ; p=0.294	J=44602; p=0.226
1-2 children	59 (54.1)	396 (51.5)	$\chi^2(1)=0.265$ ; p=0.607	
3-4 children	11 (10.1)	72 (9.4)	$\chi^2(1)=0.059$ ; p=0.808	
>4 children	3 (2.8)	7 (0.9)	$\chi^2(1)=2.877$ ; p=0.090	
<b>Pregnancy status</b>				
Postnatal	70 (63.6)	568 (74.1)	$\chi^2(1)=5.267$ ; p=0.022	
Pregnant	34 (30.9)	192 (25.0)	$\chi^2(1)=1.737$ ; p=0.188	

Miscarriage/ Stillbirth	6 (5.5)	7 (0.9)	$\chi^2(1)=13.590$ ; $p<0.001$	
<b>Unplanned pregnancy</b>	75 (69.4)	477 (62.6)	$\chi^2(1)=0.912$ ; $p=0.167$	
<b>No partner</b>	20 (18.4)	86 (11.4)	$\chi^2(1)=4.355$ ; $p=0.037$	
<b>Psychological distress at first clinic visit**</b>	5 (9.1)	12 (2.5)	$\chi^2(1)=7.168$ ; $p=0.007$	
<b>Anxiety/worry about getting infected***</b>	100 (90.9)	640 (83.1)	$\chi^2(1)=4.368$ ; $p=0.037$	
<b>Employment status prior to the lockdown</b>				
Employed	44 (40.0)	304 (39.5)	$\chi^2(1)=0.011$ ; $p=0.917$	
Unemployed	58 (52.7)	417 (54.1)	$\chi^2(1)=0.079$ ; $p=0.799$	
Student	8 (7.3)	49 (6.4)	$\chi^2(1)=0.131$ ; $p=0.717$	
<b>Increased crime in community****</b>	37 (33.6)	172 (22.5)	$\chi^2(1)=6.621$ ; $p=0.010$	
<b>Increased domestic violence***</b>	5 (4.6)	23 (3.0)	$\chi^2(1)=0.783$ ; $p=0.376$	
<b>Decreased income***</b>	80 (72.7)	496 (64.6)	$\chi^2(1)=2.828$ ; $p=0.093$	
<b>Decreased amount of food in household***</b>	98 (89.1)	551 (71.6)	$\chi^2(1)=15.282$ ; $p<0.001$	
<b>Food security status***</b>				
Food secure	7 (6.5)	167 (21.7)	$\chi^2(1)=13.858$ ; $p<0.001$	J=54498; $p<0.001$
Mildly food insecure	6 (5.6)	75 (9.8)	$\chi^2(1)=1.999$ ; $p=0.157$	
Moderately food insecure	22 (20.4)	221 (28.8)	$\chi^2(1)=3.337$ ; $p=0.068$	
Severely food insecure	73 (67.6)	305 (39.7)	$\chi^2(1)=30.000$ ; $p<0.001$	
<b>Experiences of abuse***</b>				

Psychological abuse	36 (34.3)	101 (13.4)	$\chi^2(1)=30.005$ ; $p<0.001$
Physical abuse	33 (31.1)	88 (11.7)	$\chi^2(1)=29.112$ ; $p<0.001$
Sexual abuse	8 (7.5)	6 (0.8)	$\chi^2(1)=26.667$ ; $p<0.001$

\*Probably common mental disorder (CMD), scored  $\geq 13$  on the Edinburgh Postnatal Depression Scale (EPDS)

\*\*Scored  $\geq 2$  on routinely administered mental health screen at facility

\*\*\*During the Covid-19 lockdown

**Table 2:** Comparison of the results of the routinely administered mental health screening questionnaire measuring psychological distress before and during the lockdown (n=555)

	At the 1 <sup>st</sup> clinic visit  n (%)	During the lockdown  n (%)	Bland-Altman tests of independence
<b>Question 1:</b> Have you on some or most days felt unable to stop worrying or thinking too much?	66 (11.9)	221 (39.8)	$r=0.392$ ; $p<0.001$
<b>Question 2:</b> Have you on some or most days felt down, depressed or hopeless?	27 (4.9)	168 (30.4)	$r=0.640$ ; $p<0.001$
<b>Question 3:</b> Have you on some or most days had thoughts and plans to harm yourself or commit suicide?	10 (1.8)	10 (1.8)	$r=0.00$ ; $p=1.0$
<b>Psychological distress*</b>	17 (3.1)	230 (26.2)	$r=0.720$ ; $p<0.001$
<b>Mental Health Score**</b> [mean ( $\pm$ SD)]	0.18 ( $\pm 0.49$ )	0.72 ( $\pm 0.86$ )	$r=0.505$ ; $p<0.001$

\*Score of  $\geq 2$  on the mental health screening questionnaire

\*\*Sum of questions 1-3 (min=0; max=3)

**Table 3:** Univariate logistic regression models: Factors associated with psychological distress at the first clinic visit and during the lockdown

	Psychological distress*: 1 <sup>st</sup> clinic visit	Psychological distress: lockdown
	Odds ratio (95% confidence interval)	
<b>Age</b>		
15-24 years	1.23 (0.71-2.16)	0.61 (0.44-0.86)
25-29 years	0.86 (0.44-1.66)	1.21 (0.88-1.68)
30-35 years	0.97 (0.50-1.89)	1.33 (0.95-1.87)
>35 years	0.77 (0.23-2.19)	1.06 (0.68-1.66)
<b>Gravidity</b>		
1 <sup>st</sup> pregnancy	0.63 (0.33-1.21)	0.63 (0.44-0.89)
2-4 pregnancies	1.56 (0.86-2.81)	1.23 (0.89-1.68)
>4 pregnancies	0.86 (0.31-2.44)	1.74 (1.04-2.93)
<b>Number of children</b>		
0 children	0.81 (0.36-1.82)	0.61 (0.44-0.86)
1-2 children	0.72 (0.30-1.70)	1.21 (0.88-1.68)
3-4 children	0.34 (0.81-1.40)	1.33 (0.95-1.87)
>4 children	1.76 (0.96-3.21)	1.06 (0.68-1.66)
<b>Pregnancy status</b>		
Post-birth	1.46 (0.82-2.63)	0.88 (0.63-1.123)
Pregnant	0.68 (0.39-1.22)	0.93 (0.66-1.31)
Miscarriage/Stillbirth		9.72 (2.65-35.66)
<b>Unplanned pregnancy</b>	1.42 (0.49-4.09)	1.28 (0.93-1.76)
<b>No partner</b>	1.16 (0.26-5.21)	2.23 (1.47-3.40)
<b>Employment status prior to the lockdown</b>		
Employed	0.73 (0.27-2.02)	0.81 (0.59-1.10)
Unemployed	1.33 (0.50-3.55)	1.32 (0.97-1.78)
Student	1.05 (0.13-8.17)	0.74 (0.38-1.42)
<b>Increased crime in community**</b>	1.57 (0.57-4.32)	2.01 (1.43-2.80)
<b>Increased domestic violence**</b>	1.0	3.96 (1.84-8.52)

<b>Decreased income**</b>	1.11 (0.38-3.19)	1.68 (1.20-2.35)
<b>Decreased amount of food in household**</b>	0.61 (0.22-1.69)	2.24 (1.52-3.31)
<b>Food security status during the past 30 days**</b>		
Food secure	0.26 (0.033-1.95)	0.33 (0.20-0.53)
Mildly food insecure	2.71 (0.85-8.61)	0.67 (0.38-1.19)
Moderately food insecure	1.07 (0.37-3.08)	0.82 (0.58-1.16)
Severely food insecure	0.96 (0.36-2.57)	2.39 (1.76-3.25)
<b>Experiences of abuse during the past 12 months**</b>		
Psychological abuse	3.65 (1.26-10.55)	3.05 (2.09-4.46)
Physical abuse	1.31 (0.37-4.66)	2.77 (1.86-4.11)
Sexual abuse	1.0	7.30 (2.27-23.53)

\*Scored  $\geq 2$  on mental health screening questionnaire

\*\*During the Covid-19 lockdown

**Table 4:** Poisson regression model: Factors associated with probable CMDs

	Unadjusted model	Multivariate model
	Risk ratio (95% Confidence Interval)	
1st pregnancy [ref: >4 pregnancies]	0.65 (0.41-1.02)	
2-4 pregnancies [ref: >4 pregnancies]	1.19 (0.80-1.77)	
Post-birth [ref: pregnant]	0.66 (0.44-0.97)	
Miscarriage/stillbirth [ref: pregnant]	3.83 (1.68-8.73)	4.37 (1.52-12.56)
No partner	1.61 (0.99-2.62)	
Increased crime in community*	1.62 (1.09-2.40)	
Psychological distress at first clinic visit**	3.09 (1.23-7.76)	1.86 (0.64-5.42)
Mildly food insecure** [ref: food secure]	0.58 (0.25-1.31)	
Moderately food insecure** [ref: food secure]	0.67 (0.42-1.06)	
Severely food insecure** [ref: food secure]	2.75 (1.84-4.11)	2.79 (1.51-5.14)
Physical abuse	2.76 (1.83-4.16)	
Psychological abuse	2.75 (1.84-4.11)	2.50 (1.32-4.72)
Sexual abuse	4.96 (2.41-10.20)	2.70 (1.07-6.80)

\*During the Covid-19 lockdown

\*\*Scored  $\geq 2$  on routine mental health screen at facility

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Supplementarytable.docx](#)