PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	COVID-19 and Perinatal Intimate Partner Violence: A cross-sectional survey of pregnant and post-partum individuals in the early stages of the COVID-19 pandemi
AUTHORS	Muldoon, Katherine; Denize, Kathryn; Talarico, Robert; Boisvert, Carlie; Frank, Olivia; Harvey, Alysha; White, Ruth; Fell, DB; O'Hare-Gordon, Meagan Ann; Guo, Yanfang; Murphy, Malia; Corsi, Daniel J.; Sampsel, Kari; Wen, Shi Wu; Walker, Mark; El-Chaar, Darine

VERSION 1 – REVIEW

REVIEWER	Gomes-Sponholz, F Universidade de Sao Paulo Escola de Enfermagem de Ribeirao Preto, Enfermagem Materno-Infantil e Saúde Pública
REVIEW RETURNED	01-Feb-2021

GENERAL COMMENTS	Título: COVID-19 AND PERINATAL INTIMATE PARTNER VIOLENCE: A CROSS- SECTIONAL SURVEY OF PREGNANT AND POST-PARTUM INDIVIDUALS IN THE EARLY STAGES OF THE COVID-19 PANDEMIC. Apreciação feita de acordo com as diretrizes do STROBE Statement—Checklist Opinion on the manuscript entitled "COVID-19 and perinatal intimate partner violence: a cross- sectional survey of pregnant and post-partum individuals in the early stages of the COVID-19 pandemic", bmjopen-2021-049295. Considering the theme, approach and what was presented by the authors in the study, I cover the recommendations: This is a well-written and interesting paper on an issue of high importance and relevance for public health and women's health. There are some issues that need addressing to strengthen the paper. Abstract: check if the number of participants is 216 or 261. Standardize the number of decimal places in the abstract (one decimal place) and in the article (two decimal places). Standardize the objective in both abstract and text. Introduction: the problem of investigation, question and presentation of women in situations of violence is very well posed. Some questions: did the authors consider whether all women had been with the same partner for at least twelve months? For consider perinatal IPV? cohabitation was considered? There were women who had had a relationship with an intimate partner in the current pregnancy, but not anymore? Objective: text and abstract are distincts. Methods and analysis: sampling need to be more clearly

	described. Was there a sampling criterion? Please provide more justification of the period of 20 to 90 days after delivery. Results and discussion: I suggest giving more emphasis to the prevalence of violence, since this is the main objective of the study. How is this rate compared to other places? The total of 39 women on page (13 lines 217-220) is not clear to me. Does the number refer to the total number of women who suffer IPV (52) or the 37 women whose partners have controlling behavior? Still in this same paragraph, rewrite the explanation of the controlling behavior as it is in the discussion (using them/their) and not using the pronoun as it was in the questionnaire (using the word you). Was the questioning about the partner's behavior made for the woman to think beyond the confinement period? Reading the discussion implies that the period of social isolation, after the start of the pandemic, was more considered than the previous. Please check if you would not be primiparous instead of nulliparous in tables and text.

REVIEWER	Costa, Diogo University of Porto, Institute of Public Health
REVIEW RETURNED	24-Feb-2021

GENERAL COMMENTS	Thanks for the opportunity to read and review this work. This is a well-written piece, showing relevant results of IPV experiences during the Covid-19 Pandemic in a sample of women who gave birth during this period. I have some suggestions, and some references, that the authors might want to consider. In my view, these could improve some sections of the manuscript. Introduction: the authors set the scene by arguing the need to document IPV since the start of the Pandemic, in the perinatal period. Although not stated in the objectives, and despite acknowledging as a limitation not having measured IPV pre-Covid-19, the provision of some prevalence estimates of IPV in comparable samples pre-pandemic, would help to contextualize the potential increased burden imposed by the crisis, and contrast methods/instruments/study design (e.g. doi: 10.2105/AJPH.2012.300843 doi: 10.1007/s10896-015-9789-4 doi: 10.1016/j.ajog.2007.05.015). Analysis: the authors should explain why the choice for those 5 covariates to include in multivariate models. Was it based on significance of chi-square/Wilcoxon significant difference? Previous literature? Also, medians and IQR are provided and Wilcoxon ranked text conducted because continuous variables did not follow a normal distribution? If so, and if tested, authors should consider detailing it. Table 1 – please consider adding legends for IPV, IQR, state where n(%) is displayed and that the p-value refers to Chi-square or Wilcoxon. Also, units can be added – maternal age in years, infant age in days. Controlling behaviours are also a potential risk factor for IPV (e.g. doi: 10.1111/j.1471-6402.2005.00221.x). They

	might consider testing these as associated with IPV occurrence in their sample, instead of including all cases (controlling and IPV victims) in the same group. Discussion: An important issue in the violence literature concerns the definitions used, the questions' standardization and the methods of administration (doi: 10.1016/j.annepidem.2014.02.005 or doi:10.1001/jama.296.5.530), which influence disclosure, response, and prevalence rates. For example, pregnant women have been frequently assessed with the Abuse Assessment Screen in this context (doi: 10.1001/jama.267.23.3176). The authors should discuss how their choice for the WHO instrument (whose acts-based scale – the authors Scale 2 – rely on the Conflicts Tactics Scales) can impact their results, had they chosen a different instrument (e.g.: doi: 10.1891/0886-6708.VV-D-14-00122). This should be added to the discussion about how their methods of administration and the whole Covid-19 scenario described, affects disclosure. IPV tends to be frequent and re-victimization is common. It is very likely that victims of IPV during the pandemic, have suffered before. Provided the vast amount of literature showing the adverse effects of violence to pregnancy outcomes (e.g.: 10.1016/j.ajog.2007.05.015), the authors should discuss how their results could in fact reflect the odds of previous violence experiences (even though they included measures for different "windows"), how this could have impacted (adverse) pregnancy outcomes not reported in this study but potentially associated with the studied outcome and exposures, and what long-term consequences could be expected in such cases. In my view, considering experiences pre- and post-pregnancy in the same outcome is a limitation that should be acknowledged since different factors might have influenced violent acts differently in the distinct periods. The "stress" imposed by Covid-19 does not apply to those victimized before pregnancy (6.05%, n=13) - and perhaps also not to those victimized during pregnancy (5.12%, n=11, together that is more than 60% of the sample who suffered IPV, not considering control victims). In my opinion, authors should acknowledge the potential for residual confounding. The authors do not provide any hypothesis to justify why other typical risk factors were not found associated with IPV in their analysis (simply acknowledge the potential for selection bias). Furthermore, income is a proxy measure of socioeconomic status. Other indicators might provide a more nuanced picture of the association between a disadvantaged socioeconomic position and the risk of IPV (e.g. unemployment may be associated with higher odds of male perpetration, and education with higher odds of female victimization, as shown in the general population – e.g. doi: 10.1016/j.puhe.2016.05.001), which should also be discussed in light of the societal changes imposed by Covid-19, the main results presented and the conclusions taken.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. F Gomes-Sponholz, Universidade de Sao Paulo Escola de Enfermagem de Ribeirao Preto

Comments to the Author:
Opinion on the manuscript entitled "COVID-19 and perinatal intimate partner violence: a cross- sectional survey of pregnant and post-partum individuals in the early stages of the COVID-19 pandemic", bmjopen-2021-049295. Considering the theme, approach and what was presented by the authors in the study, I cover the recommendations:

3. This is a well-written and interesting paper on an issue of high importance and relevance for public health and women's health. There are some issues that need addressing to strengthen the paper. Abstract: check if the number of participants is 216 or 261. Standardize the number of decimal places in the abstract (one decimal place) and in the article (two decimal places). Standardize the objective in both abstract and text.
    - Thank you for your support and attention to these details. The sample size is 216 and the decimal points have been standardized throughout the tables, text and abstract.

4. Introduction: the problem of investigation, question and presentation of women in situations of violence is very well posed. Some questions: did the authors consider whether all women had been with the same partner for at least twelve months? For consider perinatal IPV? cohabitation was considered? There were women who had had a relationship with an intimate partner in the current pregnancy, but not anymore?
    - This is an excellent point. We do not have information about the duration of the relationship or cohabitation status throughout the pregnancy. We know that 94.4% of the sample (204/216) were married or common law. This is an excellent point for future studies.
    - The following text has been added to the manuscript:
        - 'While 94.4% were married/common law, we do not have information on the length of the relationship and if the participant had the same partner during the perinatal period.' (Limitation section)

5. Objective: text and abstract are distincts.
    - The objective statement has been clarified so it is the same between the abstract and the manuscript
    - The following text has been added to the abstract and manuscript:
        - 'The objectives of this study were to: 1) document violent and controlling behaviours within intimate partnerships during the perinatal period; and 2) determine individual, interpersonal and household-level factors influencing the

risk of perinatal intimate partner violence.' (Abstract and Introduction Section)

6. Methods and analysis: sampling need to be more clearly described. Was there a sampling criterion?
    - Thank you for highlighting this point for clarification. There was inclusion and exclusion criteria, but no sampling procedure. All patients who met the inclusion criteria were contacted. The inclusion criteria were: any patient who had given birth between March 17th and June 16th, 2020, >20 days post-partum, 16 years of age or older, had consented to the Institution to Contact program, and had a valid phone number. Patients whose pregnancies resulted in a still birth or neonatal death were excluded.
    - The following text has been added:
        - 'This is a cross-sectional survey of patients who gave birth at The Ottawa Hospital who were. Patients were identified through the hospital birth records and contacted for a one-time survey if they met the following inclusion criteria: had given birth after 17th March 2020, >20 days post-partum, 16 years of age or older, and consented to the hospital's Permission to Contact Program. Patients were excluded if their pregnancy resulted in a still birth or neonatal death and were not contacted.'(Methods, study design and recruitment)

7. Please provide more justification of the period of 20 to 90 days after delivery.
    - We chose 20 days post-partum as the start date to contact participants to allow for at least 20 days to pass where post-partum IPV could occur and be measured. We have removed the maximum of 90 days because it was not part of the inclusion criteria in the study protocol, but rather the study period lasted for 90 days (March17th to June 16th, 2020).
    - The following text has been added:
        - 'We chose 20 days post-partum as the cut-off to allow for at least 20 days to pass where post-partum IPV could occur. To improve response rate, eligible patients were contacted by phone and after obtaining verbal informed consent, a link to the online survey was sent to a private email address. This allowed for private completion of the survey on a personal computer or device. The survey took 10 minutes to complete'(Methods, study design and recruitment)

8. Results and discussion: I suggest giving more emphasis to the prevalence of violence, since this is the main objective of the study. How is this rate compared to other places? The total of 39 women on page (13 lines 217-220) is not clear to me. Does the number refer to the total number of women who suffer IPV (52) or the 37 women whose partners have controlling behavior?

- Thank you for highlighting this point for clarification. We have revised the manuscript to clarify the outcome and distinguish between act-based forms perinatal IPV (emotional, physical or sexual abuse), regular controlling behaviours, or both combined (main outcome of interest). Only act-based forms of perinatal IPV were measured at each of the perinatal time periods (i.e. pre-pregnancy, during pregnancy, post-partum). Regular controlling behaviours were assumed to been happening consistently, including during each time period.
- There were 52 (24.07%) people who reported any acts of perinatal IPV or any regular controlling behaviours, 37 (17.13%) reported any general controlling behaviour, and 24 (11.11%) reported any acts of perinatal IPV during any of the three perinatal time frames, and 9 (4.17%) reported both controlling behaviours and acts of perinatal IPV. In addition to the figures, we have now included appendices with data tables with the detailed breakdown of the different forms and timing of perinatal IPV.
- The following text has been added to the manuscript:
    - 'It is estimated that over 30% of women have experienced IPV in their lives[11] and 3-9% of individuals experience perinatal IPV, defined as violence or abuse that occurs 12 months prior to pregnancy, during pregnancy and up to one year post-partum.[12]' (Introduction)
    - 'Perinatal IPV was measured by two scales from the World Health Organization multi-country study on domestic violence.[41] Scale One, comprised of eight questions, measures different forms of regular controlling behaviour exhibited by the partner (e.g., insists on knowing where you are at all times, restricting from connecting with friends or family, is suspicious of infidelity, etc.). Scale Two, measures act-based forms of IPV. Four items measured emotional abuse (i.e., insulting, belittling, intimidating, threatening to hurt someone you care about), six items measured physical abuse (i.e., slapped, pushed, hit, strangled, threatened with a weapon), and three items measured sexual abuse (i.e., forced to have unwanted sexual intercourse, forced to have other unwanted sexual activities, forced to engage in unwanted sexual activities they considered degrading or humiliating). The act-based forms of perinatal IPV were asked for each perinatal time periods: 12 months before pregnancy, during pregnancy, and post-partum. A composite outcome of any perinatal IPV was defined as experiencing any regular controlling behaviour (Scale One) or any act-based forms of IPV (Scale Two) during the perinatal period.'(Outcome, Methods)
    - 'In total there were 52 (24.07%) participants who reported perinatal IPV. In total, 37 (17.13%) reported regular controlling behaviours from their partners, 24 (11.11%) reported act-based forms of IPV, and 9 (4.17) reported both.'(Results)

- ‘A strength of this study is the detailed breakdown of the different forms, timing and frequency of perinatal IPV, including revictimization that happened in multiple perinatal time periods. The estimated prevalence of perinatal IPV in this study is higher than previous studies of the perinatal population (estimated to be 3-9%) and online surveys investigating violence during the COVID-19 pandemic (estimated between 10-17%). This may be influenced by the broad definition of perinatal IPV that we used (i.e. two scales from the World Health Organization multi-country study on domestic violence), that capture more forms of perinatal IPV compared to other scales. We chose an online survey as the method of administration, as online surveys have been shown to have higher rates of disclosure compared to face-to-face, paper, or voice/telephone. Additionally, perinatal IPV included an observation window that included pre-pregnancy IPV that occurred before the COVID-19 pandemic began, however only a minority (5 participants) reported IPV that only occurred in pre-pregnancy. ’(Discussion)

9. Still in this same paragraph, rewrite the explanation of the controlling behavior as it is in the discussion (using them/their) and not using the pronoun as it was in the questionnaire (using the word you).
    - Thank you for highlighting this point. We have reviewed the manuscript for consistency in the language for the items measuring controlling behaviour

10. Was the questioning about the partner's behavior made for the woman to think beyond the confinement period? Reading the discussion implies that the period of social isolation, after the start of the pandemic, was more considered than the previous.
    - Primarily, participants were asked to report on IPV during the three perinatal periods (12 months before pregnancy, during pregnancy, and post-partum). The questions on perinatal IPV were independent of the COVID-19 timeframe. The state of emergency was declared on 17mar20, so all pre-pregnancy IPV events happened before COVID-19 was declared, the majority of participants had some part of their pregnancy since the beginning of the COVID-19 pandemic and all post-partum events occurred during the COVID-19 pandemic. The general controlling behaviours were considered to be happening constantly including during the COVID-19 pandemic.
    - The following text has been added to clarify this in the methods:
        - ‘The act-based forms of perinatal IPV were asked for each perinatal time periods: 12 months before pregnancy, during pregnancy, and post-partum. A composite outcome of any perinatal IPV was defined as experiencing any regular controlling behaviour (Scale One) or any act-based forms of

IPV (Scale Two) during the perinatal period.' (Outcomes, Methods section)

- The following text has been added to clarify this in the discussion:
  - 'The estimated prevalence of perinatal IPV in this study is higher than previous studies of the perinatal population (estimated to be an average of 3-9%) and online surveys investigating violence during the COVID-19 pandemic (estimated between 10-17%).[27,48] This may be influenced by the broad definition of perinatal IPV that we used (i.e. two scales from the World Health Organization multi-country study on domestic violence), that capture more forms of perinatal IPV compared to other scales.[47,49–54] We chose an online survey as the method of administration, as online surveys have been shown to have higher rates of disclosure compared to face-to-face, paper, or voice/telephone. [49]Additionally, perinatal IPV included an observation window that included pre-pregnancy IPV that occurred before the COVID-19 pandemic began[47–49] '(Discussion section)

11. Please check if you would not be primiparous instead of nulliparous in tables and text.
    - We have the convention of using the term nulliparous to refer to pregnant individuals whose pregnancy resulted in the first birth registered at the hospital. We use primiparous to refer to individuals who are pregnant for the first time, but the pregnancy may end in miscarriage or abortion and not proceed to birth.

Reviewer: 2
Dr. Diogo Costa, University of Porto, University of Porto Medical School

12. Thanks for the opportunity to read and review this work. This is a well-written piece, showing relevant results of IPV experiences during the Covid-19 Pandemic in a sample of women who gave birth during this period. I have some suggestions, and some references, that the authors might want to consider. In my view, these could improve some sections of the manuscript. Introduction: the authors set the scene by arguing the need to document IPV since the start of the Pandemic, in the perinatal period. Although not stated in the objectives, and despite acknowledging as a limitation not having measured IPV pre-Covid-19, the provision of some prevalence estimates of IPV in comparable samples pre-pandemic, would help to contextualize the potential increased burden imposed by the crisis, and contrast methods/instruments/study design
    - Thank you raising this point. We have expanded the introduction and discussion to include more information on the prevalence of perinatal IPV in other settings and included the recommended references: Include the general prevalence of IPV literature
    - The following text has been included:

- ‘It is estimated that over 30% of women have experienced IPV in their lives[11] and 3-9% of individuals experience perinatal IPV, defined as violence or abuse that occurs 12 months prior to pregnancy, during pregnancy and up to one year post-partum.[12]’(Introduction section)

13. Analysis: the authors should explain why the choice for those 5 covariates to include in multivariate models. Was it based on significance of chi-square/Wilcoxon significant difference? Previous literature?
    - Thank you for raising these points for clarification. The model selection was designed to align with the objectives of the study to investigate individual, interpersonal and household level factors that are known risks for violence. We chose combined income below the Ottawa median as the household-level variable of interest, partner substance use and parity was the interpersonal-level variables, and maternal age and post-partum depression were the individual-level variables. As our sample is relatively small and there were 52 participants with the outcome of perinatal IPV, we chose 5 variables that covered the three levels of interest.
    - The following text has been added:
        - ‘Log binomial regression models were calculated to investigate the association between five pre-specified risk factors and perinatal IPV using unadjusted Risk Ratios (RR) and 95% confidence intervals (CI). The risk factors were selected to capture individual, interpersonal and household level factors that influence risk of violence including: maternal age, EPDS, parity, increases in partners substance use, and household income below the municipal median. All covariables of interest were included in the multivariable model and presented using adjusted RR and 95% CI.’ (Analyses, Methods section)
14. Also, medians and IQR are provided and Wilcoxon ranked text conducted because continuous variables did not follow a normal distribution? If so, and if tested, authors should consider detailing it.
    - Thank you for raising these points. We chose the median and IQR to measure the distribution of the continuous variable as they are more robust measurements and less influenced by outliers (compared to means and standard deviations). Maternal age and infant age were relatively normally distributed, however, the post-partum depression scale was right-skewed. We chose to use the Wilcoxon signed rank test because it is more robust to skewness and wanted to use the same test across all variables.
    - The following text has been added:
        - ‘The characteristics of the sample were summarized using descriptive statistics include frequencies and percentages for categorical variables. Continuous variables were summarized using median and interquartile range (IQR), which are more robust measures and less sensitive to outliers.’(Analyses, Methods section)

15. Table 1 – please consider adding legends for IPV, IQR, state where n(%) is displayed and that the p-value refers to Chi-square or Wilcoxon. Also, units can be added – maternal age in years, infant age in days.
    - Thank you, this information has been added to the tables

16. Controlling behaviours are also a potential risk factor for IPV (e.g. doi: 10.1111/j.1471-6402.2005.00221.x). They might consider testing these as associated with IPV occurrence in their sample, instead of including all cases (controlling and IPV victims) in the same group.
    - We attempted to run a multivariable regression with the act-based forms of IPV as the main outcome, however there were only 24 events, which left us with very few events to conduct a proper multivariable analysis, so we did not include it in the manuscript
    - A potential way to examine this association in the future would be to have a cohort of people who report controlling behaviour but not acts of violence and then follow-up with them to assess the proportion who have experienced violence since the original exposure.

17. Discussion:
    An important issue in the violence literature concerns the definitions used, the questions' standardization and the methods of administration (doi: 10.1016/j.annepidem.2014.02.005 or doi:10.1001/jama.296.5.530), which influence disclosure, response, and prevalence rates. For example, pregnant women have been frequently assessed with the Abuse Assessment Screen in this context (doi: 10.1001/jama.267.23.3176). The authors should discuss how their choice for the WHO instrument (whose acts-based scale – the authors Scale 2 – rely on the Conflicts Tactics Scales) can impact their results, had they chosen a different instrument (e.g.: doi: 10.1891/0886-6708.VV-D-14-00122). This should be added to the discussion about how their methods of administration and the whole Covid-19 scenario described, affects disclosure.
    - This is an excellent point. There are several scales for ascertaining violence though different delivery methods (e.g. face-to-face, voice/telephone, computer, paper, online). Assessment tools can be difficult to harmonize across cultures, which led us to choose the WHO instrument because of its broad use across the globe in several settings. It has 12-items that measure explicit act-based forms of violence and 8 items that measure controlling behaviours. It captures a range of experiences, including those that participant might not consider abusive (e.g. 'insisting on knowing where you are at all times' etc). While we created time frames specific to the perinatal period, the WHO instrument is not specifically designed for pregnancy. While our study involved a clinical sample, the WHO scale is not intended as a screening tool and the current study was not designed as to evaluate screening. With regards to the method of delivery, providing the survey through an online platform likely increased the rates of reporting IPV, as judged by findings from validation

studies assessing disclosure. We felt that contacting the participants by phone to ask if they wanted to participate in the study would improve uptake in

- The following text has been added to the manuscript:
    - 'To improve response rate, eligible patients were contacted by phone and after obtaining verbal informed consent, a link to the online survey was sent to a private email address. This allowed for private completion of the survey on a personal computer or device. The survey took 10 minutes to complete. All participants were provided with links to community resources for IPV, maternal support, or encouraged to contact the hospital for referrals.'(Study design and recruitment, Methods Section)
    - 'The estimated prevalence of perinatal IPV in this study is higher than previous studies of the perinatal population (estimated to be 3-9%) and online surveys investigating violence during the COVID-19 pandemic (estimated between 10-17%). This may be influenced by the broad definition of perinatal IPV that we used (i.e. two scales from the World Health Organization multi-country study on domestic violence), that capture more forms of perinatal IPV compared to other scales. We chose an online survey for the method of administration, as online surveys have been shown to have higher rates of disclosure compared to face-to-face, paper, or voice/telephone. Additionally, perinatal IPV included an observation window that included pre-pregnancy IPV that occurred before the COVID-19 pandemic began, however only a minority (5 participants) reported IPV that only occurred in the pre-pregnancy period.' (Discussion)

18. IPV tends to be frequent and re-victimization is common. It is very likely that victims of IPV during the pandemic, have suffered before. Provided the vast amount of literature showing the adverse effects of violence to pregnancy outcomes (e.g.: 10.1016/j.ajog.2007.05.015), the authors should discuss how their results could in fact reflect the odds of previous violence experiences (even though they included measures for different "windows"), how this could have impacted (adverse) pregnancy outcomes not reported in this study but potentially associated with the studied outcome and exposures, and what long-term consequences could be expected in such cases.
    - Thank you for raising this point for discussion. We have included a table with the break-down of the different combinations of regular controlling behaviour and act-based forms of perinatal IPV, including the frequency of acts of perinatal IPV. We found that there were 11 (5.09%) participants who experienced act-based perinatal IPV in multiple time period, which is a measure of revictimization. We do not have any information on any forms of violence that occurred prior to the perinatal window, however we acknowledge that violence is often cyclical and having a history of violence is a risk factor for future violence. Additionally, we do not have any information on maternal or fetal outcomes (adverse or non-adverse). The results from this

study cannot draw conclusions on revictimization beyond the perinatal period and we also do not have information on how perinatal IPV or revictimization (or having a history of abuse) impact obstetrical outcomes. We have referenced studies that have quantified this association and have included in the discussion.

- The following text has been included:
    - 'There were 52 (24.07%) participants who reported perinatal IPV. In total, 37 (17.13%) reported regular controlling behaviours from their partners, 24 (11.11%) reported act-based forms of IPV, and 9 (4.17) reported both (Table 1).'(Results)
    - 'A strength of this study is the detailed breakdown of the different forms, timing and frequency of perinatal IPV, including revictimization that happened in multiple time perinatal time periods.'(Discussion)
    - 'Additionally, this study was unable to evaluate associations between IPV and clinical outcomes as we did not have information on maternal or newborn outcomes.'(Limitations)

19. In my view, considering experiences pre- and post-pregnancy in the same outcome is a limitation that should be acknowledged since different factors might have influenced violent acts differently in the distinct periods. The "stress" imposed by Covid-19 does not apply to those victimized before pregnancy (6.05%, n=13) - and perhaps also not to those victimized during pregnancy (5.12%, n=11, together that is more than 60% of the sample who suffered IPV, not considering control victims).
    - Temporality is an important measurement concern within this study that we have expanded on. While everyone in the study was in the perinatal period (defined as 12 months pre-pregnancy to 90 days post-partum), the pre-pregnancy period did not occur during COVID-19, and in some participants, only part of the pregnancy occurred since COVID-19.
    - We identified 5 participants who reported pre-pregnancy act-based perinatal IPV alone (i.e. no controlling behaviours, no pregnancy or post-partum act-based perinatal IPV), we removed them from the sample to calculate a sensitivity analysis to assess the concerns of temporality. We found the same results that household income below the Ottawa median was the only factor significantly associated with perinatal IPV. The sensitivity analyses are described and available in Appendix 3. The following text has been added:
        - 'To evaluate the robustness of the analyses, we conducted a sensitivity analysis to remove participants from the sample who reported pre-pregnancy act-based forms of IPV alone (i.e. no controlling behaviours, no pregnancy or post-partum act-based forms of IPV) to assess concerns of perinatal IPV that occurred before COVID-19 began.' (Analyses, Methods Section)
        - 'In sensitivity analyses, 5 individuals were identified who reported pre-pregnancy act-based forms of perinatal IPV alone, when removed from the sample, the estimates

remained the same. The bivariable and multivariable results are available in Appendix 3.' (Results Section)

- We have adjusted our discussion to highlight that we are meausuring perinatal IPV that has occurred among individuals who have given birth since COVID-19 began, however the act-based perinatal IPV could have occurred before COVID-19 began.

20. In my opinion, authors should acknowledge the potential for residual confounding. The authors do not provide any hypothesis to justify why other typical risk factors were not found associated with IPV in their analysis (simply acknowledge the potential for selection bias). Furthermore, income is a proxy measure of socioeconomic status. Other indicators might provide a more nuanced picture of the association between a disadvantaged socioeconomic position and the risk of IPV (e.g. unemployment may be associated with higher odds of male perpetration, and education with higher odds of female victimization, as shown in the general population – e.g. doi: 10.1016/j.puhe.2016.05.001), which should also be discussed in light of the societal changes imposed by Covid-19, the main results presented and the conclusions taken.
    - Thank you for raising all these points for discussion. Residual confounding is an important methodological consideration that we have expanded on in the text. The main source of residual confounding is the lack of detailed information on the nuances of socioeconomic position factors that influence perinatal IPV. A limiting feature of this study was that it was a 10-minute online survey among post-partum individuals. Previous survey's that our team has conducted with this same population yielded a response rate of 4%, so we chose to approach this study with fewer questions and yielded a 42.58% response rate. This limits our ability to investigate a more nuanced picture of disadvantage and perinatal IPV. With a sample size of 216, we are also limited to the number of associations we can investigate by further stratifying the data. We acknowledge that a regression model will never be entirely correct this issue and residual confounding will still exist.
    - In Table 2, we have now included two measures of income (dwelling owned and combined household income below Ottawa median), both indicators are associated with risk of perinatal IPV through chi-square tests, and both proxy measures for socioeconomic status (SES). We assessed these variables to be colinear and income below the Ottawa median was chosen for inclusion in the model as it can position the participant within the larger socioeconomic status in Ottawa.
    - Over 87% of our sample had completed some post-secondary education, and it was not significantly associated with perinatal IPV. We did not have a direct measure of unemployment, but did have a measure of income loss (29.6%) because of COVID-19 protocols, which was also not significantly associated with perinatal IPV.
    - The following text has been added to summarize these issues:
        - 'We do not have information on those who did not consent to participate which may have introduced self-selection bias, non-response bias or residual confounding, all factors

that may explain why several hypothesized risk factors were not significantly associated with perinatal IPV. All measures of IPV were self-reported and may underestimate the prevalence of IPV within this sample, however, the survey was designed to capture regular controlling behaviours that may not be perceived as abusive in addition to act-based forms of emotional abuse (e.g., insulting, scaring, belittling etc.), physical abuse (e.g. hitting, slapping, pushing), or sexual abuse (e.g., forced sexual activity). While 94.4% were married/common law, we do not have information on the length of the relationship or if the participant had the same partner throughout the perinatal period. We did not have a comparison group of participants prior to COVID-19 and are unable to estimate the change in prevalence of perinatal IPV attributable to the increased stress of the COVID-19 pandemic. Additionally, this study was unable to evaluate associations between IPV and clinical outcomes as we did not have information on maternal or newborn outcomes.' (limitations)

VERSION 2 – REVIEW

REVIEWER	Gomes-Sponholz, F Universidade de Sao Paulo Escola de Enfermagem de Ribeirao Preto, Enfermagem Materno-Infantil e Saúde Pública
REVIEW RETURNED	01-Apr-2021

GENERAL COMMENTS	I thank the authors for the work done in remodeling and adapting the manuscript. For my part, all questions were answered or justified. the manuscript is more robust and I have no further consideration to make. I wish success.

REVIEWER	Costa, Diogo University of Porto, Institute of Public Health
REVIEW RETURNED	15-Mar-2021

GENERAL COMMENTS	The authors have satisfactorily address all concerns and changed the manuscript accordingly.