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## Intimate partner violence and health outcomes experienced by women who are pregnant: a cross-sectional survey in Sanma Province, Vanuatu

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### ABSTRACT

**Background:** We aimed to describe the association between ni-Vanuatu women's experiences of violence perpetrated by their intimate partner (IPV) during pregnancy, and health outcomes, including self-reported general health, antenatal care attendance, psychological distress and suicidal thoughts/behaviours.

**Methods:** A cross-sectional survey of a consecutive cohort of women attending the antenatal clinic at Northern Provincial Hospital, Vanuatu from May to July 2019. Psychological, physical and sexual IPV were measured using the WHO Violence Against Women Instrument. Psychological distress was measured using the 20-item WHO Self-Reporting Questionnaire. Data were collected in confidential individual interviews with a trained local interviewer. Logistic regression models were used to investigate the relationship between IPV and health outcomes while controlling for confounding variables.

**Findings:** 192 women contributed data, among whom 188 answered the questions about IPV. Of these, 80 women had experienced any form of IPV during the current pregnancy. Women who experienced IPV were more likely than those who did not to report poorer general health (aOR:2.97, 95%CI:1.42-6.22), higher levels of psychological distress (aOR:4.77, 95%CI:2.02-11.24) and suicidal thoughts (aOR:3.78, 95%CI:1.71-8.33) and/or behaviours (aOR:1.98, 95%CI:0.69-5.64) in the previous four weeks. Late antenatal attendance was widespread, but not related to IPV.

**Interpretation:** IPV perpetrated against women who are pregnant is a serious public health problem in Vanuatu and is related to worse antenatal physical and psychological health.

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### Research in context

#### Evidence before this study

We searched relevant medical databases for existing evidence about the impact of experiences of intimate partner violence (IPV) on the health of women who are pregnant. Experiences of IPV are associated with adverse health outcomes for women, but most evidence is from high-income countries. Very few studies have examined the relationship between IPV and perinatal health in Pacific Island Countries. Despite the extremely high prevalence of IPV in Vanuatu, there have

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been no studies specifically examining the experiences of IPV and the health of pregnant women.

#### Added value of this study

We interviewed a consecutive cohort of women attending antenatal care in Sanma Province, Vanuatu. We found that women who were experiencing psychological, physical and/or sexual IPV during pregnancy had worse general health, higher rates of psychological distress and increased likelihood of suicidal thoughts and behaviours.

#### Implications of all the available evidence

These are the first findings in Vanuatu about the adverse effects of IPV on pregnancy health. Vanuatu and other Pacific Island Countries are seeking to improve reproductive, maternal, newborn, child and adolescent health, and these findings are vital to ensuring that potentially modifiable risks, including IPV, are considered. Together with the existing evidence, these findings highlight the need for increased capacity of service providers to detect and take action on the risk posed to perinatal mental health by IPV and the need for elimination strategies.

## INTRODUCTION

Psychological, physical and sexual violence perpetrated against women who are pregnant by an intimate partner is a significant public challenge. In the landmark World Health Organization (WHO) Multi-Country Study on Women's Health and Domestic Violence Against Women prevalence of physical violence against women during a pregnancy ranged from 1%-28.8%.<sup>[1]</sup> Prevalence is higher if psychological and sexual violence are also considered.<sup>[2]</sup>

Intimate partner violence (IPV), including psychological IPV, has adverse consequences for victims' health.<sup>[3,4]</sup> Women who have experienced IPV are more likely to rate their overall health as poor or very poor <sup>[5]</sup> and use health services more frequently than non-abused women, including after IPV ceases,<sup>[6]</sup> but are less likely to seek preventive healthcare.<sup>[7]</sup> Women who are pregnant and experiencing IPV are less likely to receive adequate antenatal care than women whose partners are not violent.<sup>[8]</sup> IPV perpetrated against women is associated with unintended pregnancy,<sup>[9]</sup> miscarriage,<sup>[10]</sup> premature labour and low birth weight.<sup>[11]</sup>

Perinatal common mental disorders (PCMD) are a prevalent public health problem worldwide.<sup>[12]</sup> In the first systematic review of evidence from LMICs, Fisher et al.<sup>[12]</sup> identified IPV as a major determinant of PCMD. The finding was confirmed in subsequent reviews.<sup>[13,14]</sup> Halim et al.<sup>[13]</sup> found that experiences of IPV during pregnancy increased the odds of antenatal (adjOR: 1.69 – 3.76) and postnatal (adjOR: 1.46 – 7.04) depression significantly.

There is a dearth of peer-reviewed evidence on the prevalence of and relationships between IPV and perinatal health in Pacific Island Countries. Vanuatu, with a population of 250,000, is a lower-middle income country in Melanesia, comprising 83 islands spanning a distance of 1300km.<sup>[15]</sup> In 2011, using the WHO Multi-Country Study methods and questionnaire, the Vanuatu Women's Centre found that the lifetime prevalence of IPV experienced by women in Vanuatu was amongst the highest in the world; 60% nationally and 78% in Sanma Province.<sup>[16]</sup> While this survey reports some data about physical violence experienced in past pregnancies, there has been no research in Vanuatu specifically about IPV against women who are pregnant. The aim was to describe the association between experiences of IPV during pregnancy and self-reported general health, antenatal care attendance, psychological distress and suicidal thoughts and behaviours.

## METHODS

The methods are described in detail in McKelvie et al.<sup>[17]</sup> where we report the prevalence, patterns and determinants of experiences of IPV perpetrated against women who are pregnant in Vanuatu. In brief, women attending an antenatal clinic at one of the two major hospitals in Vanuatu were recruited consecutively to participate by completing a structured survey in a confidential individual interview.

### Setting

This study was conducted at the Northern Provincial Hospital (NPH) in Luganville, Sanma Province, which is the smaller of Vanuatu's two tertiary referral hospitals. NPH serves the Northern archipelagos of Vanuatu and the midwife-led antenatal clinic is open four days a week, providing care to 60-100 women per week.

### Participant Recruitment

Cochrane's formula was used to establish the sample size required to estimate IPV prevalence, given a previous estimate of prevalence of 14% in the Vanuatu National Survey,<sup>[16]</sup> 95% confidence interval and a 5% margin. The same sample (n=185) was sufficient to ascertain the relationship between health outcomes and experiences of IPV. Women were eligible to participate if they were pregnant (all gestational ages were included), attending NPH for antenatal care, aged at least 18 years, able to understand and speak Bislama (the national language), able to understand the explanatory statement and give informed consent. Exclusion criteria were to have an intellectual disability that limited capacity for informed consent, or a current health condition requiring inpatient treatment.

All women who attended the antenatal clinic during the data collection period were invited to participate. The Head of Antenatal Care described the study in the group health talk at the beginning of each clinic, and information was also given during individual appointments. To ensure safety, the study was described as being about 'women's health and relationships during pregnancy'. Women who expressed interest in participating were invited to a private interview room during the clinic time. There, an interviewer read the explanatory statement aloud, and explained the purpose of the study. Eligibility was confirmed, and verbal consent to participate was witnessed by the interviewer and a researcher and documented.

### Data Sources

#### Intimate Partner Violence

We defined IPV using the WHO Multi-Country Study operational definitions,<sup>[1]</sup> and added questions about two pregnancy-specific experiences of physically and sexually violent behaviours perpetrated by an intimate partner. These variables were adapted from the additional questions in the violence during pregnancy section of the WHO Women's Health and Life Experiences Questionnaire. We used a modified version of the WHO Violence Against Women Instrument (VAWI),<sup>[1]</sup> which we adapted to assess IPV during the lifetime, any past pregnancies, and the current pregnancy. Psychological violence was defined as experience(s) of any of the following: being insulted or humiliated, belittled in front of family or others, scared or intimidated on purpose, threatened with harm to her or her family. Physical violence included being slapped, pushed, hit, or kicked or punched in the abdomen. Sexual violence included being vaginally penetrated manually or with an

object to harm the baby, being forced to have sex, having sex because she was frightened of what he might do, or being forced to do something sexual she found humiliating.

### Psychological Distress

We used the WHO Self-Reporting Questionnaire (SRQ-20) to measure psychological symptoms. The SRQ-20 was developed to identify common mental health problems, particularly in resource-constrained countries.[18] The SRQ-20 comprises 20 fixed response yes(1)/no(0) questions about current symptoms, which are added to yield a total score. The SRQ-20 has not been formally validated against diagnostic psychiatric interviews in Vanuatu, but it has been used widely in Pacific Island Countries, and in the Vanuatu National Survey on Women's Health and Family Relationships.[16]

### General Health and Antenatal Care

Self-reported general health was determined by asking 'How would you describe your overall health?', with five options ranging from excellent to very poor. Timing of the first antenatal clinic visit for this pregnancy was determined by asking 'The first time you attended the hospital antenatal clinic, were you in the first three months of pregnancy, the middle three months, or the last three months?'. For women interviewed with gestational ages in the first trimester, 'first three months' was automatically selected by the interviewer.

### Sociodemographic Characteristics and Reproductive History

Participants were asked about sociodemographic and reproductive health characteristics, including age, literacy status, educational attainment, rurality of origin and current living location, frequency of smoking, alcohol and kava (a traditional mood-altering substance made from the kava plant, which is native to Western Pacific Islands) use, number of times partnered, household composition, marital status, gravidity, parity and weeks of gestation in the current pregnancy. Participants were asked about characteristics of their partner, including age, literacy status, educational attainment, employment status, and frequency of kava, alcohol and illicit substance use. Socioeconomic status was calculated based on household characteristics: the main source of drinking water, the type of toilet, designated household possessions, and ownership of transport-related assets by any member of the household, using the Vanuatu National Survey's method.[16]

As in the National Survey, at the end of the interview, all women were asked if they felt better, the same or worse compared to how they had felt before the interview.

### Procedure

The questionnaire was developed in English, checked for cultural sensitivity and appropriateness, then translated into Bislama by an independent, professional, bilingual ni-Vanuatu woman. It was back-translated and checked for accuracy by a bilingual interviewer. During this process minor grammatical changes were made, 'home brew' (kava prepared at home) was included in the question about kava use, as well as the decision to remove specific examples of violence from the explanatory statement and instead refer to 'conflict inside the family.' Questionnaires were pilot tested in two interviews to check for comprehensibility, ambiguity or inaccuracies and no further changes were made

Data were collected by trained, ni-Vanuatu female interviewers, all with secondary education and fluent in Bislama. Interviewers were given three days training in gender-based violence and interview techniques. Data were collected using consecutively numbered paper questionnaires between May and July 2019. Each survey took approximately 45 minutes to one hour to complete. As a token of appreciation, and best practice in resource-constrained

settings, participants were given a small gift in respectful recognition of their time and any inconvenience.

### Data Management and Analysis

Data were managed and analysed in SPSS Version 26.[19] Pairwise deletion was used for missing data. Intimate partner violence during the current pregnancy was treated as a binary variable, where 1 = experiencing at least one form of IPV, and 0 = not experiencing any form of IPV. Categorical data for self-reported health were collapsed into two groups: very poor, poor, fair or good, and excellent. An SRQ-20 cut off score of >7 was used to define psychological distress. Late antenatal care attendance was defined as first antenatal visit in the second or third trimester.

Analyses were conducted in three steps. First, chi-squared tests, Fisher's exact tests and independent sample t-tests were used to conduct between group comparisons, and identify associations between any experience of IPV during the current pregnancy and each of the outcomes. Second, we conducted bivariable analyses between each potential confounder (sociodemographic factors) and IPV during the current pregnancy (the exposure variable); and sociodemographic factors and each outcome. Logistic regression models were used to investigate the relationship between IPV during the current pregnancy and the outcomes of self-rated health, SRQ score, suicidal thoughts and attempts and late antenatal attendance. Sociodemographic factors which were selected if the associations between the factor and IPV, and the factor and outcome, both had a p-value < 0.2 were controlled for in all analyses. For each of the models, Variation Inflation Factors (VIF) were calculated to assess collinearity, using the standard criteria that VIFs exceeding 4 warrant further investigation, and VIFs greater than 10 indicate serious multicollinearity and require correction.

### Ethics

This study was approved by Monash University Human Research Ethics Committee (approval number: 2019-18348-31433) and the Vanuatu Ministry of Health (reference: MOH/DG 02/6-GKT/ms). This study conformed to the WHO Ethical and Safety Guidelines for Researching Violence Against Women.[20] All women who participated, regardless of disclosure of violence, were given information about the local Vanuatu Women's Centre, which provides counselling and advice for women experiencing violence. All women who disclosed suicidal thoughts were offered an appointment with a health professional employed at the hospital.

### Funding

JF is supported by the Finkel Professorial Fellowship, which is funded by the Finkel Family Foundation; TT is supported by a Monash Strategic Bridging Fellowship. Monash University provided a student research grant to SMcK which was used to remunerate the interviewers and cover field research costs. Soroptimist International Gippsland provided a grant which was used to fund small gifts for the women who participated by contributing data. The funding bodies were not involved in the design, conduct, analysis or written synthesis of this research.

### RESULTS

Of the 537 women who attended the antenatal clinic on interview days, 214 women expressed interest in the study, and 192 participated and provided data (Figure 1), giving a response rate of 35.75%. The characteristics of the women and their partners are described in Table 1.

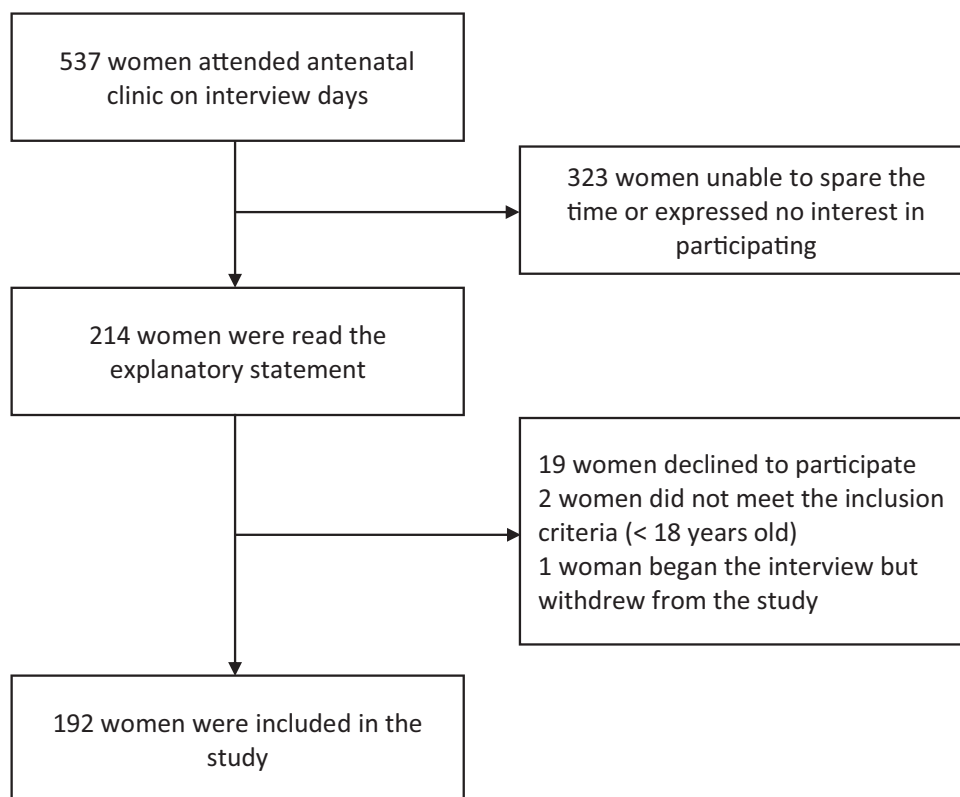


Figure 1. Flow diagram of participant recruitment

**Table 1** Sociodemographic characteristics, antenatal and reproductive history of participants.

Continuous Variables	N	Mean	Std Dev
Age (years)	191	25.7	5.4
Gestational age (weeks)	188	27.3	8.8
Categorical Variables	N	n	%
Completed education	191		
No formal education		3	1.57
Primary		56	29.31
Secondary		112	58.64
Tertiary		20	10.47
Socioeconomic status	191		
Low		4	2.09
Middle		130	68.06
High		57	29.84
Employed before pregnancy	190	89	46.84
Continued employment during pregnancy	190	63	33.16
Current living location	192		
Luganville		103	53.65
Rural Sanma		73	38.02
Remote Sanma		14	7.29
Other province		2	1.04
Number of times partnered	191		
Never partnered		1	0.52
One partner		151	79.06
Two or more partners		39	20.42
Living with current partner	186	170	91.40
Living with other family	191		
Her family of origin		40	20.94
Partner's family of origin		94	49.21
Both families of origin		29	15.18
Neither		28	14.66
Married to current partner	191	47	24.61
Parity	190		
Nulliparous		72	37.89
Parous		118	62.11

Note: The table is drawn from McKelvie et al. (17)

Of the 192 participants, 188 women provided data on IPV. The prevalence of IPV during the current pregnancy was 44.68% (84/188 women, Table 2). The associations between experiencing any form of IPV during the current pregnancy and self-reported general, mental and pregnancy health, injuries and health service use are presented in Table 2. Of the women experiencing IPV, only one quarter reported excellent general health, compared to nearly half of the women not experiencing IPV. All mental health indicators were significantly worse among women experiencing IPV than those who were not.

There were no differences in injuries resulting from physical or sexual lifetime IPV among women experiencing or not experiencing IPV in the current pregnancy. The frequency and timing of antenatal clinic visits did not differ between women experiencing and not experiencing IPV.

After conducting bivariable analyses between the sociodemographic factors, IPV and the health outcomes, five outcomes and sociodemographic characteristics were included in the regression models (Tables S1 and S2).

We tested the association between IPV during the current pregnancy and each of the five outcomes in logistic regression models (Table 3). All models had VIF < 4, indicating no substantial collinearity. In Model 1, when sociodemographic characteristics were controlled, the odds of reporting poorer general health among women experiencing IPV during pregnancy was three times that of women not experiencing IPV (p=0.004) and women with older partners were more likely to report poorer general health (p=0.048).

In Model 2, women experiencing IPV had odds of having an SRQ-20 score > 7 nearly five times those of women not experiencing IPV, and odds of having lifetime suicidal thoughts three times that of women not experiencing IPV (Model 3). When sociodemographic characteristics were controlled for in Model 4, the relationship between IPV during the current pregnancy and lifetime suicidal attempts was no longer significant. Completing secondary



**Table 2**

Health, injuries, and health care use of women experiencing any form of IPV during their current pregnancy, compared to women not experiencing IPV (N=188)

	No IPV (N=104)	n (%) IPV (N=84)	Chi-squared value or t-value (degrees of freedom)	p-value
<b>Self-rated general health</b>				
Self-rated overall health			10.53 (1)	<b>0.001</b>
Excellent	50 (48.1)	21 (25.0)		
Very poor/poor/fair/good	54 (51.9)	63 (75.0)		
Self-rated pain or discomfort*			6.77 (1)	<b>0.009</b>
None	60 (57.7)	32 (38.6)		
Any pain	44 (42.3)	51 (61.4)		
Disability			2.09 (1)	0.148
None	95 (91.3)	71 (84.5)		
Physical and/or intellectual	9 (8.7)	13 (15.5)		
<b>Mental health</b>				
SRQ-20 score >7 <sup>+</sup>	63 (60.6)	75 (90.4)	21.18 (1)	<b>&lt;0.001</b>
Mean SRQ-20 score (SD)	8.96 (4.43)	13.66 (4.38)	-7.25 (185)	<b>&lt;0.001</b>
Recent thoughts of ending their life (SRQ-20 Item 17) <sup>+</sup>	19 (18.3)	30 (36.1)	7.63 (1)	<b>0.006</b>
Lifetime suicidal thought/s <sup>+</sup>	17 (16.3)	33 (41.3)	14.17 (1)	<b>&lt;0.001</b>
Lifetime suicidal attempt/s <sup>+</sup>	7 (6.7)	18 (21.7)	8.92 (1)	<b>0.003</b>
<b>Pregnancy health</b>				
Gravidity <sup>†</sup>			0.29 (1)	0.591
First pregnancy	37 (35.9)	33 (39.8)		
Had multiple pregnancies	66 (64.1)	50 (60.2)		
Vaginal bleeding during current pregnancy*	7 (6.7)	10 (12.0)	1.58 (1)	0.209
Pregnancy welcome by woman <sup>#</sup>	104 (100.0)	81 (97.6)	2.53 (1)	0.196
Pregnancy welcome by partner/husband <sup>#</sup>	103 (99.0)	81 (97.6)	0.61 (1)	0.416
<b>Injuries as a result of physical and/or sexual violence</b>				
Any injury as a result of partner-perpetrated physical and/or sexual violence in their lifetime (n=76)**	10/21 (47.6)	28/55 (50.9)	0.07 (1)	0.798
Number of times injured (n=38)***			4.08 (1)	<b>0.048</b>
Once or twice	8/10 (80.0)	12/28 (42.9)		
Three or more times	2/10 (20.0)	16/28 (57.1)		
Injured during current pregnancy (n=38)***	0/10 (0)	11/28 (39.3)	N/A	N/A
Needed health care at least once because of injury (n=39)***	4/10 (40.0)	15/27 (55.6)	0.71 (1)	0.319
Needed health care because of injury (in current pregnancy) (n=37)***	0/9 (0)	4/28 (14.3)	N/A	N/A
<b>Health service use</b>				
Number of antenatal clinic visits <sup>‡</sup>			0.03 (1)	0.870
Three or more	43 (42.2)	34 (41.0)		
One or two	59 (57.8)	49 (59.0)		
First antenatal clinic visit in 2 <sup>nd</sup> or 3 <sup>rd</sup> trimester <sup>‡</sup>	83 (79.8)	63 (75.9)	0.41 (1)	0.521
Hospital stay during current pregnancy <sup>§</sup>	10 (9.6)	12 (14.6)	1.11 (1)	0.293

Note: p-values are derived from chi-squared tests for categorical data and t-tests for continuous data

\* IPV: 1 missing response

+ No IPV: 1 missing response, IPV: 1 missing response

# No IPV: 2 missing responses, IPV: 1 missing response

‡ IPV: 2 missing responses

\*\* This question was only asked of women who had ever experienced physical and/or sexual violence (including during the current pregnancy)

\*\*\* The remaining injury-related questions were only asked to women who answered 'yes' to the first injury question (any injury as a result of partner-perpetrated physical or sexual violence)

or tertiary education appears to be protective against experiencing suicidal thoughts ( $p=0.003$ ) or attempting suicide ( $p<0.001$ ) (Model 3 and 4). However, it appears that being employed before pregnancy was associated with three times higher likelihood of having attempted suicide in their lifetime, compared to women who were not employed before pregnancy (Model 4). Experiencing IPV during pregnancy was not associated with late attendance at antenatal care, but being employed before pregnancy was associated with early antenatal care attendance ( $p=0.028$ ) (Model 5).

At the end of the questionnaire, 186 out of 191 women stated that they felt better, and no women stated that they felt worse compared to before the interview.

## DISCUSSION

This is, to our knowledge, the first investigation of the associations between women's experiences of IPV during pregnancy and their perinatal health, including mental health in a low- or middle-income Pacific Island Country. It revealed that experiences of psychological, physical and/or sexual IPV are associated with significantly

worse general health, very high rates of psychological distress and increased likelihood of suicidal thoughts and behaviours.

### Strengths and Limitations

Study strengths include that we modified the VAWI to assess violence experienced during pregnancy comprehensively and specifically. We measured physical, psychological and sexual violence using behaviourally-specific questions, avoiding stigmatising or leading language and giving women multiple opportunities in a safe environment to disclose experiences of violence. Local health professionals and experts in the field of VAW, many of them women, contributed to the conceptualisation, design and implementation of the study. The study procedures drew on findings from the Vanuatu National Survey on Women's Health and Family Relationships. Participants' appraisals of the experience of completing the interview were consistently positive; more than 97% of women reported that they felt better at the end than they had at the beginning.

We acknowledge the limitation that causal relationships cannot be ascertained in cross-sectional studies. We examined health out-

**Table 3**  
Logistic regression models of factors associated with health outcomes.

	Odds ratio	95% CI	p-value
<b>Model 1: Very poor, poor, fair or good self-reported health</b>			
IPV during current pregnancy	2.97	1.42 – 6.22	<b>0.004</b>
Completed secondary or tertiary education	0.89	0.41 – 1.92	0.759
Currently living in Luganville	0.51	0.26 – 1.03	0.060
Partner's age	1.06	1.00 – 1.12	<b>0.048</b>
Partner uses kava every day	1.57	0.71 – 3.45	0.266
Partner uses illicit drugs once a week or more	1.91	0.64 – 5.72	0.249
<b>Model 2: SRQ score &gt;7</b>			
IPV during current pregnancy	4.77	2.02 – 11.24	<b>&lt;0.001</b>
Currently living in Luganville	0.56	0.27 – 1.18	0.129
Partner uses alcohol once a week or more	2.86	1.04 – 7.78	<b>0.041</b>
Partner uses kava every day	1.14	0.50 – 2.57	0.759
Partner uses illicit drugs once a week or more	1.97	0.52 – 7.49	0.318
<b>Model 3: Lifetime suicidal thought/s</b>			
IPV during current pregnancy	3.78	1.71 – 8.33	<b>0.001</b>
Completed secondary or tertiary education	0.30	0.14 – 0.66	<b>0.003</b>
Currently living in Luganville	0.97	0.45 – 2.11	0.945
Living with birth family	0.73	0.33 – 1.66	0.456
Partner's age	1.05	0.99 – 1.11	0.089
Partner uses kava every day	1.49	0.67 – 3.34	0.330
<b>Model 4: Lifetime suicidal attempt/s</b>			
IPV during current pregnancy	1.98	0.69 – 5.64	0.203
Completed secondary or tertiary education	0.136	0.05 – 0.40	<b>&lt;0.001</b>
Employed before pregnancy	2.99	1.005 – 8.45	<b>0.039</b>
Currently living in Luganville	0.82	0.30 – 2.22	0.693
Partner currently employed	0.50	0.18 – 1.45	0.202
Partner uses kava every day	1.71	0.64 – 4.56	0.284
<b>Model 5: First antenatal clinic visit in second or third trimester</b>			
IPV during current pregnancy	1.00	0.48 – 2.10	0.992
Employed before pregnancy	0.44	0.21 – 0.92	<b>0.028</b>
Partner uses illicit drugs once a week or more	0.50	0.20 – 1.27	0.145

Note: p-values are derived from logistic regression models

comes plausibly associated with IPV during pregnancy, but cannot conclude that IPV caused them. It is possible that poor health leads to escalating violence, perhaps because women who are unwell can't fulfil gender-based roles like completing household tasks. Failure to complete household tasks was identified by women as a justified reason for violence in the Vanuatu National Survey on women's lives and relationships.[16] In the Multi-Country Study on Men and Violence in Asia and the Pacific, men with more inequitable attitudes to gender roles were more likely to use violence.[21] However, in the context of international evidence, we believe that it is much more likely that experiences of IPV have direct detrimental effects on women's health,[22,23] including mental health than the alternative explanation.

We acknowledge that no screening tool, including the SRQ-20, has been formally validated against a gold-standard to establish its sensitivity and specificity to detect diagnosable mental disorders in Vanuatu. There is very little published evidence about ni-Vanuatu mental health available for reference. In 2009, the first National Mental Health Policy and Strategic Plan was launched.[24] Nearly 10 years later, there were few health professionals working solely in the field of mental health,[25] mental health literacy is low and access to mental health services limited.[26] Cultural beliefs in the determinants and course of mental illness influence ni-Vanuatuans' conceptualisation and experience of mental health problems,[25] which may not be captured in the SRQ-20. However, it has been used in Pacific Island Countries, including Vanuatu in the National Survey.[16] Given its prior use in Vanuatu and internationally, and that it uses behavioural descriptions of current experiences, the SRQ-20 was deemed the most appropriate instrument for this study.

We also acknowledge that the women included in this study were more likely to have a higher socioeconomic position, and level of education, and live in an urban area, compared to the general population.[17] Given that these factors are protective of men-

tal health it is possible that the findings of this study are an underestimate of the population burden of antenatal mental health problems associated with IPV.

### Main Findings

Women who had experienced IPV during pregnancy reported significantly more severe psychological distress than those who had not experienced IPV. This is consistent with the international evidence generated among women who are pregnant and not pregnant, with the SRQ-20, and other psychological screening instruments. All but one study in Halim et al.'s systematic review found a significant association between IPV and psychological distress or a diagnosable mental disorder.[13] The WHO Multi-Country Study found that in all study sites, women who had experienced physical or sexual violence reported greater psychological distress.[27] Further, using the Multi-Country Study data Potter et al. showed that experiencing more than one form of IPV in the past year was associated with more severe psychological distress.[28] In the Vanuatu National Survey, the median SRQ-20 score for those who had experienced physical and sexual IPV was 10, and for those who had not experienced IPV, it was 5.[16] In our study, the mean SRQ-20 score for those who had experienced violence in their current pregnancy was nearly 14. For those who had not, the mean was 9, which exceeds the commonly used cut-off score of 7 for screening for mental disorders.[18] This indicates that the majority of women who are pregnant in Sanma are experiencing significant psychological distress.

Women experiencing IPV during pregnancy were also more likely than others to report suicidal thoughts and behaviours within the past four weeks, and during their lifetime. Evidence, mainly from high-income countries, indicates that suicide is less common among women who are pregnant than those who are not.[29,30] However, contrary to the belief that pregnancy is pro-

tective against suicidality, in Gelaye et al.'s systematic review prevalence of suicidal ideation among pregnant women was higher than in the general population.[31] It was associated with lower educational attainment and having a mental disorder.

The WHO Multi-Country Study found that IPV is strongly associated with lifetime suicide attempts among women with and without mental health problems.[32] We found that the relationship is likely to be multifactorially determined. Having completed secondary or tertiary education was protective against suicide attempts. While IPV plays an important role in suicidality among ni-Vanuatu women, including women who are pregnant, the broader conditions in which women live and work are important factors in attempted suicide. Education is generally protective of health through providing greater access to income, health care, and knowledge about protective health behaviours. Paradoxically in this study being employed prior to pregnancy was associated with an increased likelihood of reporting a past suicide attempt. It is not clear why this might be the case, but we established that being employed during pregnancy was associated with increased likelihood of IPV and it is possible that in experiencing the empowerment that comes with employment, women are at risk of controlling practices including IPV.[17] Suicidal thoughts and behaviours occur most commonly when a person feels trapped and humiliated. It is likely that women in this setting feel even less able to escape the intrinsically humiliating predicament of violent victimisation while pregnant than at other times. The estimated female, age-standardised suicide rate per 100,000 people in Vanuatu in 2016 was 2.2, well below the global average for women.[33] Nevertheless, 25 out of 192 women in our study disclosed a past suicide attempt and 49 disclosed recent suicidal ideation, indicating that suicidality is an important public health problem among pregnant women in Sanma, Vanuatu and is linked to experiences of IPV.

Women who experienced IPV during their current pregnancy were less likely to report excellent health. While self-reported overall health has been questioned as potentially subjective, it is consistently aligned with objective health status, is an independent predictor of mortality among women and men and is especially useful as a predictor in younger populations.[34,35] While our study does not reveal a significant relationship between the experience of IPV during pregnancy and late presentation to antenatal services, other studies show that IPV is related to inadequate antenatal care.[8]

Most women presented for their first antenatal healthcare visit during the second or third trimester of pregnancy, which, coupled with data indicating that women who experience IPV are more likely to report poor perinatal health, poses a challenge to the provision of comprehensive and effective maternal health services in Vanuatu. These findings are important not only for maternal health but also for child health. Women's mental health influences foetal, neonatal and child health, growth and development. High maternal perinatal stress is associated with worse infant and child development.[36] Pomer et al. surveyed women in Vanuatu after a cyclone, and found that maternal distress was associated with lower birthweight.[37] Bennett et al. found in four LMIC, using the SRQ-20, that maternal psychological distress was related to child malnutrition, with persistence of the effect up until the age of eight years in children in India and Vietnam.[38] Under-nutrition continues to be an important determinant of child mortality and morbidity in Vanuatu.[39]

### Conclusion and Implications

These data show that IPV perpetrated against women is associated with serious adverse impacts on maternal health and is a significant public health problem in Vanuatu. Intimate partner vio-

lence compromises women's ability to participate socially and economically and has adverse intergenerational effects on children. The findings have significant implications for Vanuatu's strategy to improve reproductive, maternal, newborn, child and adolescent health; which remain critical development priorities in meeting the Sustainable Development Goals. The findings demonstrate that although research about IPV is highly sensitive, when it is conducted with ethical rigour and is respectful of women at every stage, it can be a powerful and positive experience. They point towards the need for health sector responses to the impact of violence on women's health, programmes to increase service provider capacities to detect and respond to perinatal mental health problems and programmes to eliminate violence against women.

### Contribution to Authorship

SM, BL and JF conceptualised and designed the research project, developed the study protocol, wrote the questionnaire and secured ethics approvals. TS and MM revised the study protocol. SM, BL, TS, MM and AM managed data collection and supported interviewers, one of whom was AM. SM, RS and TT analysed the data. All authors contributed to interpretation of the analyses and SM and RS drafted the manuscript. All authors revised and approved the final manuscript.

### Data Sharing Statement

De-identified data may be available upon reasonable request to the authors.

### Declaration of Competing Interest

The authors declare that there are no competing interests.

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### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.lanwpc.2021.100272](https://doi.org/10.1016/j.lanwpc.2021.100272).

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