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Title: Is Intimate Partner Violence more common in pregnant women with severe mental illness? A retrospective study

Short Title: Severe Mental Illness and Domestic Violence

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Abstract

Objective: To examine the risk of past and current experiences of intimate partner violence (IPV) in women with severe mental illness in pregnancy.

Methods: We examined past and current experiences of intimate partner violence in women with Severe Mental Illness (SMI) in pregnancy. The data of 304 women with SMI, including Schizophrenia and psychotic disorders and Bipolar Disorder meeting ICD-10-AM criteria was extracted from hospital records at King Edward Memorial Hospital, Western Australia. Comparisons with our study data and Australian population data reported by the Australian Bureau of Statistics, which includes data on pregnant women in Western Australia. Additional measures included reported demographics, substance use and pregnancy variables.

Results: 48% of pregnant women with SMI had experienced IPV and were 3 times the risk when compared to the general pregnant population in Australia. There was no difference in rates of IPV in those women with psychotic disorders when compared to bipolar disorder. Furthermore, the rates of smoking and illicit substance use were significantly higher in pregnant women with SMI who experienced IPV compared to those who have not experienced IPV

Conclusions These findings suggest women with SMI in pregnancy are at significantly higher risk of having experienced or experiencing IPV. In addition, IPV in pregnant women with SMI may increase the risk of smoking and illicit substance use. Together this suggests that maternity and mental health services should ensure there are both screening and support pathways that are developed and evaluated specifically for pregnant women with SMI.

Keywords: Severe Mental Illness, Domestic Violence, Pregnancy, Schizophrenia, Bipolar Disorder

Introduction

Intimate Partner Violence (IPV) is a major public health and societal concern and research suggests that women are at an increased risk of IPV during pregnancy (Johnson et al., 2003; Burch and Gallup, 2004). The World Health Organisation defines intimate partner violence as "behaviour that causes physical, sexual or psychological harm including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviour by an existing or previous intimate partner" (Garcia-Moreno et al., 2006). According to the Australian Bureau of Statistics Personal Safety Survey (2016), "women were nearly three times more likely to have experienced partner violence than men with approximately one in six women (17% or 1.6million) and one in sixteen men (6.1% or 547,600) having experienced partner violence since the age of 15" (Cox, 2015; ABO, 2013). The 2012 ABS' Personal Safety Survey (2013) in Australia has identified violence against women as a serious public health problem. The survey demonstrated 36% of women over the age of 18 have experienced physical and/or sexual violence by a known perpetrator since the age of 15; of those, 22% have experienced physical violence during pregnancy by a current partner and 25% by a partner from a previous relationship (Statistics, 2013). Furthermore, of those who experienced violence during pregnancy by a previous partner, 25% reported that violence first occurred during the pregnancy.

A project conducted in Australia between 2009 and 2015 identified the financial impact of intimate partner violence and concluded that the total cost of IPV to the community was $51,879,096 (2009-2015) (Department of Health, 2017). Seventy percent of this cost is attributed to injuries caused by spouse/domestic partner or a family member. Furthermore, a study of hospital admissions following IPV in women in Western Australia found an overall increase in the number of IPV related admissions between 1990 and 2009 (Orr et al., 2019).

Outside of pregnancy there is research to confirm an increased vulnerability to IPV in women with severe mental illness (Trevillion et al., 2012). A systematic literature review of 24 studies published between 1990 and 2017 focused on the extent that IPV adversely affects maternal mental health in pregnant women living in low and lower-middle income countries (Halim et al., 2018). This review concluded that there is a strong association between IPV and antenatal and postnatal depression. A systematic review and meta-analysis specifically examining IPV and perinatal mental health found depression, anxiety and Post-traumatic Stress Disorder (PTSD) were all associated with IPV (Howard et al., 2013). This systematic review identified no studies that examined in the perinatal period either psychotic disorders or bipolar disorder and domestic violence (Howard et al., 2013).

Pregnancy and the first year postpartum are important as a foundation for offspring lifelong health and wellbeing and evidence for the potential detrimental impact of perinatal mental health is clear (Stein et al., 2014; Michel, 2001; Lewis et al., 2014; Galbally and Lewis, 2017). Further research has also confirmed the impact of poorer longer-term child outcomes where there is exposure to IPV in pregnancy (Murray et al., 2018).

A possible mechanism for the impact of both IPV and also perinatal mental disorders on children's socio-emotional and developmental outcomes is through the quality of maternal interaction, behaviour and the emerging parent-child relationship. It has been postulated that the association between maternal depression and poorer mental health outcomes for children is via this impact on interaction and relationship (Hayes et al., 2013; O'Donnell et al., 2014; Galbally and Lewis, 2017).

While there has been much focus on the role of substances in the perpetration of IPV (Gilchrist et al., 2019) there has been less focus on whether victims of IPV are more vulnerable to substance misuse and whether that continues during pregnancy. Given the potential

implications for fetal and child development from exposure to substances such as alcohol this is an important association to understand (Polanska et al., 2015; Nygaard et al., 2017).

On review of the current literature, there is only a single study published that has examined IPV and Severe Mental Illness (SMI) in pregnancy (Taylor et al., 2015). This study recruited 456 pregnant women diagnosed with Bipolar Affective Disorder (BPAD) or psychotic disorders over a 4-year period (Taylor et al., 2015). The authors found that both women with psychotic disorders and those with bipolar disorders had high levels of domestic abuse in pregnancy (18.9%). However women with schizophrenia were less likely to have a partner and more likely to smoke and use substances during pregnancy and to have spent significantly more time in inpatient units in the two years before pregnancy compared to women with BPAD.

Given the paucity of research on IPV, SMI and pregnancy, the aims of this current study are to firstly describe the rate of IPV that is experienced by pregnant women with SMI and compare this to the general population of pregnant women. Secondly, to examine IPV rates between pregnant women with Schizophrenia and related psychotic disorders and compare this to the rate of IPV against pregnant women with Bipolar Affective Disorder to determine if there is a difference between these two diagnostic groups. Thirdly, to examine the rate of comorbid alcohol, substance use and smoking in pregnant women with a SMI diagnosis and to examine whether there is a difference in alcohol, substance use and smoking amongst pregnant women with both SMI and IPV compared to pregnant women with SMI and no IPV.

Methods

The Childbirth and Mental Illness Clinic (CAMI) based at King Edward Memorial Hospital, Perth, Western Australia, Australia, offered a unique opportunity to collect data.. It comprises a multidisciplinary team including consultant psychiatrists, psychiatry trainees, GP obstetricians, social workers and midwives, and is overseen by a consultant obstetrician. Within

this clinic mental health diagnosis, is made by a consultant psychiatrist using ICD-10-AM criteria.[20]

The sample comprised a retrospective analysis of the medical records of 304 pregnant women diagnosed with either Schizophrenia and related psychotic disorders or Bipolar Disorder who all attended the CAMI clinic at KEMH between 2006 to 2017. All files were reviewed using a pro-forma developed prior to data extraction. Data was extracted, de-identified and entered on an Excel spreadsheet and stored securely in a health drive with password-protected access.

Ethics

The study was approved by the King Edward Memorial Hospital, Quality Improvement Committee within KEMH Human Research Ethics Committee (Approval Number 23560).

Data Acquired

Sociodemographic data collected included the women's ages when admitted to CAMI and identification as Culturally and Linguistically Diverse (CaLD) or Aboriginal and Torres Strait Islander Australians. Previous psychiatric admissions including the number of previous admissions within a two-year period, together with data for past and current (current pregnancy) Child Protection and Family Support (CPFS) involvement, and past Statutory CPFS involvement were extracted. Binary data on the women's current use of alcohol, smoking and illicit drugs were also extracted. A history of childhood trauma, including experienced, witnessed and childhood loss, were also extracted from the women's files. IPV was identified through a routine screening form mandatory at KEMH for use for all antenatal women attending for care and through examination of the medical notes made by clinical team assessing the woman, including psychiatrist, social work, midwife and obstetric team.

SMI was determined using the primary mental health diagnosis recorded on the patient's file. The CAMI has perinatal psychiatrists who assign diagnoses following a comprehensive assessment during intake. In this study, we grouped schizophrenia and other psychotic disorders in one group and bipolar disorders in a second. IPV data included binary incidence (No/Yes) of past or current IPV. We also used these data to create another composite binary variable to indicate any incidence IPV (past and current).

Statistical Analysis

Data were managed and descriptive statistics generated using SPSS 24 (IBM Corp., 2016). Risk ratios and associated significance tests were conducted using MedCalc for Windows, version 18.11. To analyse the results presented in this paper, we present frequency and percentage data representing rates within the CAMI sample. Risk Ratios were calculated to test inferentially the differences in the rates between groups. Risk ratios, 95% confidence intervals and exact p-values are reported. For the purposes of this study, statistical significance was defined as a p-value of less than .05. Where possible, comparisons were made between our study data and Australian population data reported by the Australian Bureau of Statistics, and the Australian Institute of Health and Welfare (Hilder et al., 2014; Cox, 2015; ABO, 2013).

Results

Sociodemographic Characteristics

The average age of the 304 women attending CAMI at KEMH between 2006 and 2017 was 29.86 (*SD* = 5.61), ranging between 17 and 44 years of age. The average age for women diagnosed with schizophrenia and related psychotic disorders (*M* = 30.58, *SD* = 5.87, min-max: 19-44 years of age) did not differ significantly compared to women diagnosed with BPAD (*M* = 29.36, *SD* = 5.38, min-max: 17-42 years of age), $F(1, 302) = 3.50$, $p = .062$. Table 1 presents sociocultural and other characteristics of the total sample, and by SMI diagnosis. Of the total

sample, 41.1% were diagnosed with schizophrenia and related psychotic disorders, and 58.9% were diagnosed with BPAD. There were significantly more women with a schizophrenia or related psychotic diagnosis who identified as Aboriginal and Torres Strait Islander Australians, and CALD compared to women with a BPAD diagnosis. In the two years prior to the current presentation, half of women diagnosed with Schizophrenia and related psychotic disorders, and one third of women with BPAD, were admitted to a psychiatric hospital for treatment. Almost half of all women with Schizophrenia and related psychotic disorders, and one-fifth of women with BPAD, had current involvement with state CPFS service. Rates of previous psychiatric admission, past and current CPFS involvement, and past statutory CPFS involvement, were each significantly higher in women with a schizophrenia or related psychotic disorder diagnosis compared to women with a BPAD diagnosis. There were no significant differences between the diagnostic groupings for the rates of both experienced and witnessed childhood trauma, and childhood loss.

INSERT TABLE 1

IPV and SMI

Table 2 shows the rates of IPV for women by SMI diagnosis. Almost half of all women with SMI (*n*=304) at CAMI had experienced IPV (*n* = 133, 43.8%), with nearly one-quarter experiencing IPV at the time of their current pregnancy (*n* = 62, 23.0%). Nearly half of all women with SMI at CAMI had experienced IPV prior to the current pregnancy (*n* = 118, 45.9%). According to the Australian Bureau of Statistics, the rate of IPV in Australian women was 17%. When compared to the general population of Australian women, pregnant women with SMI admitted to CAMI were at more than triple the risk of experiencing or having experienced IPV (*RR* = 3.29 [95% CI: 2.91, 3.37], *p* <.001).

INSERT TABLE 2

During the current pregnancy, the rates of any IPV (past or current) in women with a diagnosis of schizophrenia was 46.4% and separately in women with a diagnosis of BPAD was

48.8% and did not differ significantly between these two groups of women. Almost half of pregnant women diagnosed with either schizophrenia or diagnosed with BPAD experienced past IPV, which did not differ significantly between these groups of women. Finally, almost one-quarter of all women diagnosed with either Schizophrenia or BPAD experienced IPV at the time of their current pregnancy and attended for antenatal care at CAMI clinic, which also did not differ significantly.

Co-morbid Alcohol, Substance Use and Smoking in pregnant women with SMI in CAMI

Table 2 also reports the rate of alcohol, smoking and illicit substance use in pregnant women with SMI. One-fifth of women diagnosed with SMI and attending CAMI reported alcohol (*n* = 57, 19.5%) and illicit substances (*n* = 64, 21.8%) use during pregnancy, and more than one-third of these women reported smoking during pregnancy (*n* = 100, 35.1%). When comparing women by SMI diagnosis, the rates of alcohol and illicit substance use did not differ significantly in women diagnosed with schizophrenia compared to women diagnosed with BPAD. However, the rate of smoking during pregnancy in women diagnosed with schizophrenia was significantly higher compared to the rate of women diagnosed with BPAD who smoked during pregnancy.

Co-morbid Alcohol, Substance Use and Smoking in pregnant women with IPV in CAMI

Table 3 presents the rates of alcohol, smoking and illicit substance by IPV group. Almost half of all pregnant women attending CAMI and having experienced any IPV (past or current) reported smoking, while almost one-third used illicit substances and one-quarter used alcohol. When compared to women with no experience of IPV within the CAMI sample, the rate of alcohol use during pregnancy was similar for women who had experienced IPV. However, the rates of illicit substance abuse and smoking were both significantly higher in women who had experienced IPV compared to women who had not experienced IPV in the CAMI sample.

INSERT TABLE 3

Compared with data reported by the Australian Institute of Health and Welfare[43], our results showed that pregnant women with any SMI diagnosis and IPV were significantly more likely to smoke (44.5% versus 11.3%, *RR* = 3.97 [2.98, 5.28], $p < .001$) and use illicit substances (29.9% versus 2.2%, *RR* = 13.65 [7.85, 23.73], $p < .001$) when compared to the Australian pregnant population. However, the rates of alcohol use in women in the CAMI sample who had experienced IPV were significantly lower compared to the general population of Australian pregnant women (23% versus 34.7%, *RR* = .66 [.48, .93], $p < .017$).

Discussion

This study found that pregnant women with SMI were 3 times higher risk of experiencing IPV compared to the rate for women subject to IPV in Australia. There was no significant difference in the rate of IPV between women diagnosed with Schizophrenia and those with BPAD. Furthermore, pregnant women with SMI who had a past or current history of IPV were more likely to smoke and use illicit substances during pregnancy.

These findings add the increasing body of research that highlight a range of increased risks and poorer pregnancy outcomes for women with SMI (Galbally et al., 2019a; Galbally et al., 2019b; Judd et al., 2014; Nguyen et al., 2013). Indeed, women with SMI have higher risk pregnancies across a number of domains including obstetric and neonatal as well as the psychosocial risks for both IPV and smoking and substance use highlighted in this study. Together this supports the development of specific models of antenatal care to ensure the appropriate obstetric, psychiatric and neonatal care can be co-ordinated to optimise outcomes for women and children (Galbally et al., 2010; Nguyen et al., 2013; Van Deinse et al., 2019).

Overall, this study found pregnant women diagnosed with schizophrenia were more likely to smoke, use alcohol and illicit substances compared to pregnant women diagnosed with BPAD. It was notable and unexpected in our cohort, that pregnant women with SMI and IPV

were not more likely to consume alcohol during pregnancy. One possible explanation could be the attention that is currently given by media and labelling of alcohol that highlights the detrimental use of alcohol in pregnancy. In addition, local health services have focused on education and reduction in alcohol use in pregnant women in response to high identified rates of fetal alcohol spectrum disorder in Western Australia.

Our findings confirm data from the only other study reporting data on SMI and IPV in pregnancy. This U.K study also reported an elevated risk for IPV in pregnant women with SMI. It found that 34.9% of women with SMI reported past IPV and 18.9% reported IPV during current pregnancy (Taylor et al., 2015). Our study provides data specifically on Australian women and when comparing our data to the UK findings, our cohort were more likely to experience IPV than pregnant women within this study of women with SMI in the UK. Our cohort also had higher rates of smoking (35.1% cf. 17.3%), alcohol (19.5% cf. 16.9%) and illicit substance use (21.8% cf. 13.4%) than the rates reported in UK study.

A review of the literature indicated the paucity of reported research on IPV in pregnant women diagnosed with SMI, with no reported studies on Australian women diagnosed with SMI. Therefore, the contributions of this retrospective cross-sectional chart review are two-fold. It adds to the currently limited data available identifying the prevalence of IPV in pregnant women with SMI and also shows the impact on specific co-morbidity with substance use, finding a significant increase of smoking and illicit substance use in pregnant women with SMI and IPV. This study shows that in a sample of Australian pregnant women with SMI, IPV experiences are common, and this group of women should be regarded as high risk for IPV. While the relationship between experiencing IPV and substance use in pregnancy has been previously examined, as far as we are aware this is the first study that examines this relationship between pregnancy, SMI, IPV and substance use. This is important in understanding additional

risks and the potential impact of smoking, substance and alcohol use in pregnant women experiencing IPV and who have a SMI diagnosis.

The rate of screening for IPV within antenatal and mental health care is often reported as low despite an increasing focus on policy that would support this practice. Indeed a survey of mental health professionals' knowledge and skills in IPV in the Netherlands found low levels of both knowledge and confidence supporting the need for more education and focus on IPV within mental health (Ruijne et al., 2019) with similar findings are in other jurisdictions (Trevillion et al., 2016). Furthermore, a survey of mental health clinicians training found few had adequate training in assessment and identification of IPV (Forsdike et al., 2019). This was confirmed in a study of professionals specifically in relation to SMI, FDV and pregnancy (Van Deinse et al., 2019). This study found women with SMI in pregnancy were likely to face greater hurdles in accessing support from relevant service providers.

Australian research on screening for IPV confirms the importance of screening within the health systems if there is to be the identification, response and then ultimately a reduction in harm to women and children from IPV (Spangaro, 2018; Spangaro et al., 2016). In Australian jurisdictions where routine antenatal screening occurs there is a reported screening rate of 62-75%, indicating that it is possible to integrate routine screening into perinatal and maternity health settings (Spangaro et al., 2011a). Together these findings are relevant to service implementation and practice for both mental health care and antenatal care, emphasising the importance of assessing for IPV in women with SMI and the importance of identifying specific comorbidities including smoking, alcohol and substance use which are risk factors in pregnancy (Spangaro et al., 2011b). However, there are no doubt challenges, particularly for IPV screening in Aboriginal and Torre Strait Islander and Culturally and Linguistically Diverse women, where the stigma in reporting IPV in the antenatal setting may be much higher and adaptations to

screening protocols and approaches may need to be considered to ensure there is cultural safety and acceptability.

This study has several limitations. The retrospective nature of the data collection means that the accuracy of the study findings is dependent upon the thoroughness of the recording of clinical information in the patient record. Disclosure of partner abuse is a sensitive issue and it is possible that pregnant women with SMI minimised or failed to disclose their IPV experiences.

Conclusions

Psychiatrists and mental health services who manage pregnant women require a clear understanding of psychosocial risks including IPV which is core to providing holistic care. For many women with SMI contact with primary care may be limited and paired with irregular attendance at antenatal care, hence the importance of mental health clinicians in assessing for associated risks such as IPV.

This retrospective study has also revealed several areas for future research such as the need for studies evaluating the risk of harm to pregnant women with SMI and their infants when women are also experiencing intimate partner violence. In addition, the examination of barriers associated with assessing and screening for IPV in pregnant women with SMI and evaluation of screening specifically in this group of pregnant women. Given the high rate of IPV in pregnant women with SMI and expanding this focus to non-pregnant women with SMI to examine IPV rates might also be beneficial.

Our findings suggest the importance of incorporating IPV screening as part of antenatal and mental health care and adopting processes to support the early identification, early

intervention and appropriate management of women and their babies at increased risk of harm. While there may be barriers including under-reporting and stigma associated with IPV screening, it is clear the high risks of health systems ignoring IPV for women and their unborn children.

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Table 1. Characteristics of the Total CAMI Sample, and by SMI Diagnosis.

	Diagnosed with Schizophrenia (*n* = 125)		Diagnosed with BPAD (*n* = 179)		Total Sample (*N* = 304)	
	n	*%*	*n*	*%*	*n*	*%*
Aboriginal and Torres Strait Islander Australians	27	22.0[a]	10	5.7[a]	37	12.4
CALD	29	33.4[a]	18	10.2[a]	47	15.7
Nulliparous	50	40.0	88	49.2	138	45.4
Previous Psychiatric Admission	63	52.9[a]	50	31.1[a]	113	40.4
Current CPFS Involvement	54	44.3[a]	35	20.1[a]	89	30.1
Past CPFS Involvement	33	26.8[a]	23	13.5[a]	56	19.0
Past Statutory CPFS Involvement	28	22.6[a]	13	7.5[a]	41	13.8
Childhood Trauma - Experienced	39	40.2	64	44.8	103	42.9
Childhood Trauma - Witnessed	31	32.6	38	26.4	69	28.9
Childhood Loss	21	21.2	29	19.3	50	20.1

[a] Denotes proportions that differ significantly at $p < .05$ between SMI Diagnoses, Schizophrenia and BPAD, using a Chi-square Test of Independence.
Abbreviations: SMI, Severe Mental Illness, CAMI, Childbirth and Mental Illness Clinic, CALD, Culturally and Linguistically Diverse; CPFS, Child Protection and Family Support.

Table 2. Intimate Partner Violence (IPV), and Substance Use and Abuse Rates for Pregnant Women with SMI diagnosis at CAMI Clinic (*N* = 304).

	Diagnosed with Schizophrenia (*n* = 125)		Diagnosed with BPAD (*n* = 179)			
	n	%	n	%	*RR [95% CI's]*	*p*-value
IPV Any	52	46.4	81	48.8	.95 [.74, 1.23]	.700
IPV Current	24	22.4	38	23.3	.96 [.61, 1.51]	.866
IPV Past	47	46.1	71	45.8	1.01 [.77, 1.32]	.966
Alcohol Use	26	20.8	31	17.3	1.21 [.76, 1.93]	.425
Illicit Substance Use	34	28.1	30	17.3	1.54 [1.00, 2.36]	.051
Smoking	54	45.0	46	27.9	1.61 [1.18, 2.21]	.003

Abbreviations: SMI, Severe Mental Illness, CAMI, Childbirth and Mental Illness Clinic

Table 3. Rates of Substance Use and Abuse for Pregnant Women Diagnosed with SMI at CAMI Clinic by any IPV Experience (*N* = 304).

	IPV (*n* = 133)		No IPV (*n* = 145)		*RR* [*95% CI's*]	*p*-value
	n	*%*	*n*	*%*		
Alcohol Use	29	23.0	25	17.2	1.33 [.82, 2.15]	.237
Illicit Substance Use	38	29.9	19	13.1	2.28 [1.39, 3.75]	.001
Smoking	59	44.5	39	37.1	1.64 [1.18, 2.30]	.004

Abbreviations: SMI, Severe Mental Illness, CAMI, Childbirth and Mental Illness Clinic