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Original article

Domestic Violence during Pregnancy: Prevalence and Relationship with Maternal and Neonatal Adverse Outcomes

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Abstract Domestic violence during pregnancy can have adverse effects on both the mother and the newborn. However, limited amount of data on such issue exists in Thailand. The objectives of this study were to assess the prevalence of domestic violence during pregnancy and the association between domestic violence during pregnancy and adverse maternal and newborn health outcomes. It was conducted as a hospital-based cross-sectional study at two general hospitals in central Thailand. Data were collected by face-to-face interview of postpartum mothers visiting the hospitals for giving childbirth or postpartum services, using a validated structured questionnaire. It was found that 30.2% of participants experienced domestic violence during their pregnancy, with verbal violence being the most common form, followed by psychological, physical, and sexual violence. Women who experienced domestic violence during pregnancy gave birth to newborns with lower mean birth weight than women who did not experience violence and were more likely to provide preterm birth (32.2% vs. 13.0%, p-value = 0.003). The prevalence of experiencing domestic violence during pregnancy was relatively high. Domestic violence was associated with birth weight and preterm birth. The experience of domestic violence could have been under-reported due to the sensitivity of the issue. The caveat is advised in the interpretation of the study findings.

Keywords: **domestic violence; adverse outcomes; postpartum depression**

Introduction

Violence refers to any action against other persons that causes physical or psychological suffering, sexual violation, or deprivation of freedom and authority.[1] Domestic violence (DV) is violence perpetrated by one partner in a domestic partnership against another, and is a common forms of violence against women. In Thailand, approximately 4,148 reported incidents of domestic violence against women and children between 2017-2019; more than half of which were perpetrated by an immediate family member, particularly by a husband against a wife.[2]

Domestic violence may occur anytime during a woman's life, including their pregnancy, which can

have adverse effects on the fetus and the mother. Stress during pregnancy raises cortisol and adrenaline levels, which can lead to constriction of the blood vessels, limiting blood flow to the uterus and resulting in reduced blood supply to the fetus, increasing the risk of maternal and newborn morbidity and mortality.[3,4]

Common morbidities in women with high levels of cortisol and adrenaline include postpartum depression, which negatively affects the relationship between the mother and the newborn, and pregnancy-induced hypertension, respectively, which negatively affects the fetus. Stress induces more significant contraction of the uterus, increasing the risks of preterm birth, delayed intra-uterine growth, low birth weight, amniotic and urinary tract infections.[5,6]

Previous studies showed that the prevalence of DV against pregnant women varied from 4% to 30%.[7-9] There are limited studies in Thailand on the relationship between DV and birth outcomes. The objectives of this study were to assess the prevalence of DV during pregnancy and the association between DV and adverse maternal and newborn health outcomes.

Material and Methods

Study design, study population, and sample size calculation

This study was a hospital-based cross-sectional study at Ang Thong and Baan Mi Hospitals, 2 general hospitals with attending obstetricians, and similar contexts of service. The study population included mothers who visited the hospitals for giving childbirth or postpartum services at one day to 6 weeks after giving birth. Inclusion criteria included age 18-49 years, no life-threatening co-morbidity, and physical condition at the time of the study. Exclusion criteria included having diagnoses of psychosis, depression, or mental retardation, mothers who had any type of abortion, those with hearing impairment, and those who were not able to communicate in Thai. Sample size calculation was made by estimation of one proportion, assuming the prevalence of domestic violence of 15%, alpha value of 0.05, and beta value of 0.20, yielding the minimum sample size of 196 individuals. In this study, 199 mothers met the inclusion criteria and agreed to participate (n=199 mothers).

Study instrument

The instrument in this study was a structured questionnaire with three sections: (1) general characteristics of the respondents; (2) exposure to four types of DV (physical, psychological, verbal, and sexual violence); and (3) adverse outcomes in mother and newborn, focusing on depressive symptoms occurring after delivery and birth weight, preterm birth, low birth weight.

Questions for measurement of exposure to DV were developed based on the WHO framework on DV against women.[1] Three experts assessed the content validity of the questions: an obstetrician, a psychiatrist, and a well-trained nurse in counseling. The reliability of the DV measurement questions was evaluated based on the pilot-test of the study instruments among 30 individuals with similar demographic characteristics to the study participants. The Cronbach's alpha value from the pilot-test was alpha=0.82. Concerning the measurement of adverse outcomes, postpartum depression was measured using the 9-items and 8-item instruments of the Department of Mental Health of Thailand.[10] Birth weight and gestational age were recorded using birth record form.

Data collection

Data were collected by a well-trained registered nurse with background in counseling on the use of the study tools. Due to the limited timeframe, mothers after delivery at day 1 to 6 weeks from both hospitals were selected by purposive sampling on the day of data collection. The assigned nurse approached the study participants, explained about the study, and asked for their interest and consent to participate. Data were collected by face-to-face interview.

Statistical analyses

Data were analyzed using R statistical environment. Data analyses included descriptive statistics (mean, median, standard deviation, frequencies, and percentages). Association between continuous variable exposure and the categorical outcome was assessed using Student's t-test, while the association between categorical exposure and outcome was evaluated using the Chi-square test or Fisher's exact test, depending on the distribution of the frequencies. All missing values were excluded from the analyses.

This study was approved by the Ang Thong Human Research Ethics Committee (approval number: ATGEC11/2563) and Baan Mi Hospital (approval number: 2563/07).

Results

Half of the study participants were 26 years of age or younger, were new mothers of the first or second child, were married, had high school education or less, and had a job with wages that accounted for half of their household income or more (Table 1). The respondents' husband had a higher prevalence of being a high school graduate or less but were more likely to have wage-earning jobs.

Approximately one-third of the respondents had experienced domestic violence (any form) (Table 2). The most common forms were verbal and psychological

Table 1 General characteristics of the study participants (n=199)

Characteristics	Frequency of non-DV participants		Frequency of DV participants		Total participants	
	No.	Percent	No.	Percent	No.	Percent
Number	139		60		199	
Age (median, IQR)	26	(22,32.5)	25	(22,31)	26	(22,32)
Body weight (median, IQR)	64	(55,74)	58	(52,70.2)	60	(53,73)
Marital status						
Married	80	57.6	41	68.3	121	60.8
Divorced/living alone (unmarried)/abandoned	59	42.4	19	31.7	78	39.2
Participants' education level <12 years	119	85.6	50	83.3	169	85.0
Participants' education level >12 years	20	14.4	10	16.7	30	15.1
Participants employment						
Employed	82	59.0	31	51.7	113	56.8
Unemployed	57	41.0	29	48.3	86	43.2
Household income (Thai baht/month)						
Median	15,000		15,000		15, 000	
IQR)	10,000-25,000		9,000-20,000		10000-25000	

Table 1 General characteristics of the study participants (n=199) (cont.)

Characteristics	Frequency of non-DV participants		Frequency of DV participants		Total participants	
	No.	Percent	No.	Percent	No.	Percent
Participants' own income (Thai baht/month)						
Median	10,000		11,000		10, 000	
IQR)	8,450-14,000		9,000-15,000		8,650-14500	
Gestational order						
1	55	39.6	20	33.3	75	37.7
2	47	33.8	22	36.7	69	34.7
3	27	19.4	13	21.7	40	20.1
4	10	7.2	5	8.3	15	7.5
Unplanned pregnancy	43	71.7	83	59.7	126	63.3
Planned pregnancy	56	40.3	17	28.3	73	36.7
First marriage of participants	92	66.2	41	68.3	134	67.3
First marriage of their spouses	96	69.1	35	58.3	131	65.8
Duration of living with husband						
<= 2 years	40	28.8	23	38.3	63	31.7
>2 - 10 years	76	54.7	32	53.3	108	54.3
>10 years	23	16.5	5	8.3	28	14.0
Husband's education level <12 years	130	93.5	52	86.7	182	91.5
Husband's education level >12 years	9	6.5	8	13.3	17	8.5
Spouses employment						
Employed	127	91.4	54	90.0	181	91.0
Unemployed	12	8.6	6	10.0	18	9.0

IQR = Interquartile range*

Table 2 Experience of domestic violence (DV) during pregnancy among study participants (n=199)

	Overall		Perpetrated by domestic partner		Perpetrated by other family members	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Any type of DV	60	30.2	-	-	-	-
Physical DV.	14	7.0	12	85.7	2	14.3
Psychological DV.	48	24.1	25	52.0	23	48.0
Verbal DV.	49	24.6	26	53.0	23	47.0
Sexual DV.	3	1.5	Refused to answer		Refused to answer	

violence. Seven percent of respondents reported having experienced physical violence, overwhelmingly perpetrated by the domestic partner, i.e., the respondent's husband. Approximately 1.5 percent of respondents reported experience of sexual violence but refused to answer a question regarding the perpetrator.

Mothers who experienced domestic violence (any type) had newborns with lower mean birth weight than mothers who did not experience domestic violence (Table 3). Still, the prevalence of low birth weight was similar between the two groups. Mothers who experienced domestic violence also had a higher prevalence of giving preterm birth than mothers who did not experience domestic violence. However, there were no significant differences between the two groups regarding the prevalence of depression and suicidal tendencies.

Discussion

In this hospital-based cross-sectional study, one-third of pregnant women who participated in this study experienced domestic violence during their pregnancy, with the most common form being verbal and psychological violence. However, respondents also reported experience of physical and sexual violence. Experience of domestic violence was associated with having lower mean birth weight and a higher prevalence of preterm births.

Table 3 Association between the experience of domestic violence during pregnancy (DV, any type) and adverse outcomes (n=199)

Items	Experienced DV (n=60)		Did not experience DV (n=139)		p-value
	Frequency	Percent	Frequency	Percent	
Birth weight (mean(SD))	2882.5	491.2	3061.7	473.1	0.023
Birth weight categories					
Low birth weight (weight < 2,500 grams)	8	15.4	14	10.5	0.506
Normal weight (weight >= 2,500 grams)	44	84.6	119	89.5	
Gestational age (GA) at birth					
GA <37 weeks (preterm)	19	32.2	18	13.0	0.003
GA ≥37 weeks (term)	40	67.8	120	87.0	
Prevalence of depression					
Low to very low level of depression (score ≤12 points on the screening test)	37	100.0	25	92.6	0.174
Moderate to high level of depression (score >12 points on the screening test)	0	0.0	2	7.4	
Suicidal tendency					
Low to no tendency (score ≤8 points on the screening test)	3	100.0	13	72.2	0.549
Moderate to severe tendency (score >8 points on the screening test)	0	0.0	5	27.8	

The prevalence of DV during pregnancy in our study was similar to the prevalence in previous studies.[3,4,7-9] The two most common types of domestic violence were verbal and psychological violence. Similar to the work of Waithayawongkorn and colleagues, who also found a high prevalence of domestic psychological violence,[9] but differed from the findings of Thananowan, who found a low prevalence of domestic violence during pregnancy with physical violence being the most common type followed by psychological and sexual violence.[8]

The findings on the association between experience of domestic violence during pregnancy and mean birth weight were similar to the results of Alhusen[11], who conducted a cross-sectional study among low-income women in rural and urban areas. However, Alhusen classified the birthweight as small for gestational age (SGA) and found that mothers who experienced DV had a 4.8 times higher probability of giving births to SGA newborn than those who did not experience DV. The prevalence of low birth weight among mothers who experienced and did not experience DV was similar to the work of Pun[3] but differed from the work of Laelego.[4] However, this study was conducted among mothers aged 18-49 years. The age range was more expansive than the other studies, which may be associated with other factors for low birth weight such as nutrition, prenatal care.[12] The findings of our study also differed from the work of Nejatizade,[13] who found an association between low birthweight and DV only among participants aged 25 years or younger, mothers with chronic conditions, and substance use history; the latter two groups were excluded from our study. The association between experience of DV and preterm birth was similar to the findings from previous studies.[3,4,13,14] There was no association between experience of DV and depression or suicidal tendencies, which could be explained by our exclusion criteria: we excluded mothers with chronic conditions, mental health conditions, and depression. Postpartum depression is common among young and adolescent mothers[15] The median age of the participants in this study was 26 years, generally older than the participants in other studies.

The strength of this study was the integration of psychosocial science on domestic violence to obstetrics and gynecology and assessed the association between domestic violence and adverse outcomes in newborns and their mothers. However, a number of limitations should be taken into consideration in the interpretation of the study findings. The cross-sectional design of the study did not allow for establishment of cause and effect relationship between the exposure and the outcome. The analyses did not adjust for other predictors of adverse outcomes such as the mother's nutrition, antenatal care, and negative health behaviors (alcohol and drug use, inadequate rest, physical exertion). Domestic violence is a sensitive issue, and the participants could have under-reported their experience in one or multiple aspects. Future studies should consider the prospective study design and long-term follow-up to assess the outcomes among children of mothers who experienced domestic violence. The study should also be expanded to a national level to obtain data that are more generalizable to the overall population.

Conclusion

This hospital-based cross-sectional study assessed the prevalence of domestic violence during pregnancy

and found that a domestic violence was associated with birth weight and preterm birth. Experience of domestic violence could have been under-reported due to the sensitivity of the issue. Caveat is advised in the interpretation of the study findings. The findings of this study have both obstetric research and public health implications. Screening of domestic violence at antenatal care (ANC) clinic should be done collaborate with routine ANC.

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ความรุนแรงในครอบครัวต่อสตรีระหว่างตั้งครรภ์อาจส่งผลเสียต่อทั้งมารดาและทารก ในประเทศไทยยังไม่พบการศึกษาวิจัยในประเด็นดังกล่าว เพื่อหาความชุกของความรุนแรงในครอบครัวต่อสตรีในระหว่างตั้งครรภ์ และความสัมพันธ์ระหว่างความรุนแรงดังกล่าวกับผลลัพธ์ไม่พึงประสงค์ต่อมารดาและทารก เป็นวิจัยแบบภาคตัดขวาง ในโรงพยาบาลขนาดกลางสองแห่งในภาคกลาง เก็บข้อมูลด้วยการสัมภาษณ์ซึ่งหน้า โดยสัมภาษณ์สตรีหลังคลอดที่มารับบริการ ณ โรงพยาบาล การเก็บข้อมูลใช้แบบสอบถามที่ผ่านการตรวจสอบโดยผู้เชี่ยวชาญ พบกลุ่มตัวอย่างร้อยละ 30.2 เคยประสบความรุนแรงในครอบครัวระหว่างตั้งครรภ์ รูปแบบที่พบได้บ่อยที่สุด คือ ความรุนแรงทางวาจา รองลงมาคือความรุนแรงทางจิตใจ ทางกาย และทางเพศตามลำดับ กลุ่มตัวอย่างที่ประสบความรุนแรงในครอบครัวระหว่างตั้งครรภ์มีค่าเฉลี่ยน้ำหนักแรกคลอดของทารกต่ำกว่ากลุ่มที่ไม่ได้ประสบความรุนแรง และมีโอกาสคลอดก่อนกำหนดมากกว่ากลุ่มตัวอย่างที่ไม่ได้ประสบความรุนแรงด้วย (32.2% vs. 13.0%, p=0.003) พบความชุกของการประสบความรุนแรงในครอบครัวระหว่างตั้งครรภ์อยู่ในระดับสูง และพบความสัมพันธ์ระหว่างการประสบความรุนแรงในครอบครัวระหว่างตั้งครรภ์ กับน้ำหนักแรกคลอดและการคลอดก่อนกำหนด อย่างไรก็ดี การประสบเหตุความรุนแรงในครอบครัวเป็นเรื่องละเอียดอ่อน อาจมีการรายงานน้อยกว่าความจริงเนื่องจากความอ่อนไหวของหัวข้อ การตีความผลการวิจัยควรเป็นไปด้วยความระมัดระวัง

บทคัดย่อ: **ความรุนแรงในครอบครัว; ผลลัพธ์ไม่พึงประสงค์; ภาวะซึมเศร้าในมารดาหลังคลอด**