



Domestic Violence During Pregnancy and Risk of Obstetrical Complications

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Context: Intimate partner violence is a phenomenon that affects a significant number of women and has an important impact on society. This conjugal violence against women can have important consequences on their health as well as on the health of the unborn child during pregnancy.

Objectives and Methods: In order to assess the risk of obstetrical complications in women who are victims of domestic violence, we conducted a descriptive cross-sectional study with an analytical component to determine the association between domestic violence and obstetrical complications on the one hand, and to determine the factors associated with domestic violence on the other. The descriptive part consisted of determining the prevalence of domestic violence and neonatal complications, and describing the different types of violence. A questionnaire was self-administered to pregnant women who came for prenatal consultations at the Dschang District Hospital.

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Results: Amongst 320 women approached, 300 agreed to participate in the study. The overall prevalence of spousal violence was 37.33%, and the prevalence of spousal violence during pregnancy was 13.33%; the prevalence of neonatal complications was 20.7%, premature deliveries accounted for 7.7%, miscarriages 7%, stillbirths 6.7%, while the prevalence of low birth weight babies was 1.7%. Domestic violence was significantly associated with neonatal complications (OR=4.1 p value=0.000). Regarding the types of violence, verbal and psychological violence had a frequency of (108)36%, physical violence which represented (40) 13.3%, control and financial violence represented (23) 7.7% and (30) 10% respectively; sexual violence was the least represented with (20) 6.7%. Regarding the factors associated with domestic violence, the 25-34 age group of the woman (p value 0.02, OR: 4.2), consumption of alcohol by the partner (p value 0.02, OR: 4.14) and the history of violence before pregnancy (p value 0.001, OR: 92.91) were significantly associated with domestic violence.

Conclusion: Early identification of abuse in pregnant women and taking steps to prevent it may reduce the occurrence of these adverse outcomes.

Keywords: Domestic violence; obstetrical complications; preterm delivery; stillbirth; miscarriage.

1. INTRODUCTION

Violence against women by their partners remained an almost invisible phenomenon until the mid-1970s, when efforts to denounce and document it began to multiply [1,2].

According to the World Health Organization, partner violence is defined as "any act of violence within an intimate relationship that causes physical, psychological or sexual harm or suffering to those involved. Also included are the threat of such acts, coercion, arbitrary deprivation of liberty in public and private life." [3].

This violence can be : Verbal (insults, shouting, threats, blackmail), often trivialized; psychological (contempt, ignorance, domination, devaluation, intimidation, climate of fear); physical (injuries of all kinds and sexual abuse), up to and including rape and homicide; economic: financial and administrative (deprivation of all resources, control of payments, ban on working, confiscation of documents: national identity card, health insurance card, passport, diplomas, etc.). In the vast majority of cases, these forms of violence are repeated and cumulative.

Pregnancy is a major upheaval in a couple's emotional and relational life [4] It also entails a heavy responsibility for the unborn child, making the pregnant woman more vulnerable [5].

It's also a propitious period in a woman's life for detecting past or present violence. The pivotal period of pregnancy is also a time of emotional and physical instability, leading to psychological

upheaval. [6]. This delicate period can also be a trigger or aggravating factor for domestic violence [5]. If pregnancy is a high-risk period, it's because violence tends to begin or intensify during these few months. [7]. Depending on the type, degree and frequency of violence, the consequences will vary. All these forms of violence have impacts and consequences that are often serious for both the woman and the fetus. First of all, it can intensify stress, depression and eating disorders, all of which can lead to obstetrical complications and fetal death in utero [8,9].

In Cameroon, according to data from the 2011 Demographic and Health Survey, women reported high rates of domestic violence: physical violence 45%, emotional violence 42% and sexual violence 20%.

We decided to carry out a study to assess the risk of obstetrical complications in women who are victims of domestic violence at Dschang district hospital. This will give us an idea of the current figures for this problem at Dschang district hospital, and enable us to make recommendations for better management of these women who are victims of violence during pregnancy.

2. MATERIALS AND METHODS

2.1 Study Diagram

This was a cross-sectional study with an analytical component. Data were collected from pregnant women in hospitals using a self-administered questionnaire. The analytical component involved logistic regression to

determine the association between domestic violence and neonatal complications, and to identify factors associated with domestic violence.

2.2 Study Location

The study was carried out at the Dschang district hospital located in the Dschang health district, Menoua department of the West region.

2.3 Study Duration

This study took place from October 2021, when we began drafting the protocol, to July 2022, when we presented the data collected. 4. Study period This period ran from February to March 2022, the period during which data collection took place.

2.4 Study Population

The study included pregnant women living with their partner who came for a simple routine prenatal consultation and lived in the city of Dschang.

Selection criteria : Inclusion and non-inclusion criteria

2.5 Inclusion Criteria

Pregnant women who were married or living with their partner and who came for an antenatal consultation at Dschang district hospital, and who agreed to take part in the study.

Non-inclusion criteria: Women consulting for other reasons, minors, not living with their partner or refusing to take part in the study.

2.6 Exclusion Criteria

All questionnaires that were incorrectly completed or incomplete.

2.7 Sample Size Calculation

The sample size was calculated using Lorentz's formula. Assuming that the prevalence of domestic violence during pregnancy is 25.8% according to a study conducted in Ethiopia (15), a confidence interval of 95% and a margin of error of 5%. $N = \text{minimum sample size}$ $Z = 1,96$ $P = \text{prevalence of domestic violence during pregnancy (25.8\%)}$ $D = \text{study precision (0.05)}$

$$N = Z^2 \cdot P(1-P) / D^2$$

$$N = 1.962^2 \cdot 0.258 \cdot 0.742 / 0.052^2 = 285.44$$

2.8 Implementation Procedures

2.8.1 Design of data collection tools

For our study, the questionnaire was drawn up by the principal investigator under the supervision of the supervisor. The latter used it as a pretext to make any necessary modifications, and finally validated it. The informed consent form was read and signed by each participant before completing the questionnaire.

2.8.2 Authorization search

The protocol was submitted to the Cameroon National Ethics Committee for ethical approval. The protocol was submitted to the director of the Dschang district hospital for authorization to carry out data collection

2.8.3 Data analysis procedure

The data collected was entered into Épi info7 software, then exported and analyzed using SPSS version 20.0 and Microsoft Excel 2016.

SPSS software was used to identify the different numbers and frequencies of variables, and a logistic regression analysis was performed to assess the association between exposure to domestic violence and obstetrical complications, and to determine the factors associated with domestic violence.

The results are presented in the form of tables and graphs containing numbers and frequencies. Presentation is based on the objectives of the study.

3. RESULTS

The population we studied consisted of 320 women, 300 of whom agreed to take part in the study, i.e. a participation rate of 93.75%.

3.1 Socio-demographic Characteristics

According to Table 1, the highest participation 173 (57.7%) was recorded among participants in the 25-34 age bracket, while those in the 35-45 age bracket were less numerous 27 (9%). The majority of participants were Christian, with

Catholics predominating, while the minority 10 (3.3%) were Muslim.

Married women represented 195 (65%) of our population, compared with 105 (35%) living in a common-law union with their partner.

➤ Intimate partner profile

According to Table 2, most of the 147 men (49%) were in the 26-35 age bracket; more than half of the partners (159, 53%) had completed tertiary education, while a minority (17, 5.7%) had not gone beyond primary school. In terms of profession, 30 (10%) of the partners were unemployed students, while the majority of the men were shopkeepers.

According to Fig. 1, the proportion of educated women is higher than that of men. 166 (55.33%) of women were educated to tertiary level, compared with 159 (53%) of men; 125 (41.66%) of women attended secondary school, compared with 124 (41.33%) of men; 9 (3%) stopped at elementary school, compared with 17 (5.66%) of men.

3.2 Prevalence of Domestic Violence

The overall prevalence of domestic violence was 37.33% (112/300) in our study. According to Table 3, women in the 25-35 age group recorded the highest prevalence 74 (24.66%) compared with other age groups; this prevalence was highest 50 (16.66%) among women in monogamous households, followed by those living in concubinage 39 (13%) and finally a low prevalence 23 (7.66%) among women in polygamous marriages;

3.3 Prevalence of Domestic Violence among Pregnant Women During Pregnancy

Despite being pregnant, 73 (24.33%) of the women in our study admitted to suffering various types of domestic violence; 40 (13.33%) admitted that this violence began when they were pregnant, while the rest of the women had already suffered violence before pregnancy.

Table 1. Sociodemographic characteristics of pregnant women aged 15 to 45 attending ANC at HD Dschang from February to March 2022 who participated in our study

Features	Workforce	Frequency (%)	95% CI
Age ranges			
15-24	100	33.3	[27,9 ; 38,6]
25-34	173	57.7	[52,1 ; 63,2]
35-45	27	9	[5,7 ; 12,2]
Religions			
Catholic	203	67.7	[62,4 ; 72,9]
Protestant	52	17.3	[13,0 ; 21,5]
Muslim women	10	3.3	[1,2 ; 5,3]
Other Christians	21	7	[4,1 ; 9,8]
No religion	14	4.7	[2,3 ; 7,1]
Marital status			
Bride	195	65	[59,6 ; 70,4]
Cohabitation	105	35	[29,6 ; 40,4]
Education level			
Primary	9	3,0	[1,1 ; 4,9]
Secondary	125	41,7	[36,1 ; 47,2]
Superior	166	55,3	[49,6 ; 60,9]
Professions			
Retailer	43	14,3	[10,3 ; 18,2]
public employee	34	11,3	[7,7 ; 14,8]
private employee	46	15,3	[11,2 ; 19,3]
Student	83	27,7	[22,6 ; 32,7]
Housekeeper	68	22,7	[22,6 ; 32,7]
Farmer	4	1,3	[0,01 ; 2,7]
Self-employed	7	2,3	[0,6 ; 3,9]
Other	15	5,0	[2,5 ; 7,4]

Table 2. Socio-demographic characteristics of partners (men) of pregnant women aged 15 to 45 attending ANC at HD Dschang from February to March 2022 who participated in our study

Features	Workforce	Frequencies	95% CI
Age ranges			
15 – 25	36	12,0	[8,3 ; 15,6]
26 – 35	147	49,0	[43,3 ; 54,6]
36 – 45	98	32,7	[27,3 ; 38,0]
46 – 55	17	5,7	[3,1 ; 8,3]
56 et plus	2	0,7	[0 ; 1,6]
Education level			
Primary	17	5,7	[3,1 ; 8,3]
Secondary	124	41,3	[35,7 ; 46,8]
Superior	159	53	[47,3 ; 58]
Professions			
Retailer	93	31,0	[25,7 ; 36,2]
public employee	18	6,0	[3,1 ; 8,3]
private employee	85	28,3	[23,2 ; 33,3]
Student	30	10,0	[6,6 ; 13,3]
Housekeeper	23	7,7	[4,6 ; 10,7]
Farmer	12	4,0	[1,7 ; 6,2]
Self-employed	13	4,3	[2,0 ; 6,6]
Other	26	8,6	[5,4 ; 11,7]

Table 3. Prevalence of domestic violence among pregnant women aged 15 to 45 attending ANC at HD Dschang from February to March 2022 who participated in our study

Features	Workforce	Prévalence (%)	95% CI
Age ranges			
[15 - 25[	28	9.33	[6,0 ; 12,6]
[25 - 35[	74	24.66	[19,7 ; 29,5]
[35 – 45]	10	3.33	[1,2 ; 5,3]
Type of wedding			
Monogamous bride	50	16.66	[12,4 ; 20,8]
Polygamous bride	23	7.66	[4,6 ; 10,6]
Cohabitation	39	13	[9,1 ; 16,6]
Parity			
Multipare	85	28.33	[23,2 ; 33,4]
Primipare	27	9	[5,7 ; 12,2]
Education level			
Primary	6	2	[0,4 ; 3,5]
Secondary	57	19	[14,5 ; 23,4]
Superior	49	16.3	[12,1 ; 20,5]
Financial dependence on spouse			
yes	62	20.6	[16,0 ; 25,2]
No	50	16.66	[12,4 ; 20,8]
Monthly household income			
[0 - 100 000[	59	19.66	[15,1 ; 24,1]
[100 000 - 150 000[	14	4.66	[2,2 ; 7,0]
[150 000 - 200 000[	18	6	[3,3 ; 8,6]
[200 00 - 250 000[	4	1.33	[,03 ; 2,6]
Plus de 250 000	3	1	[0 ; 2,1]
No idea	14	4.66	[2,2 ; 7,0]

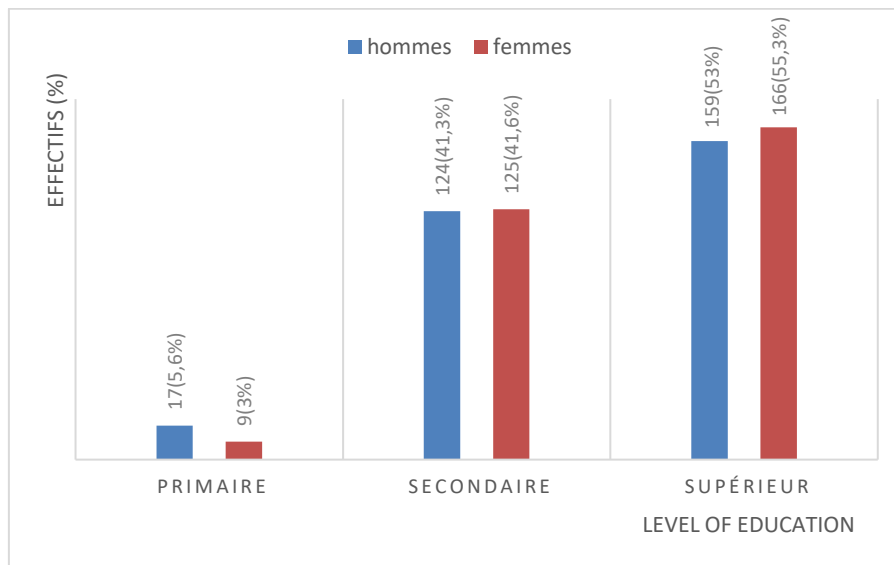


Fig. 1. Education level of men and of pregnant women attending ANC at HD Dschang from February to March 2022 who participated in our study

Table 4. Different causes of domestic violence listed

Reasons	Workforce	Frequency (%)
If she doesn't do the housework	11	3,7
If she refuses to make love to him	9	3,0
If she argues with him	27	9,0
If she goes out without warning	16	5,3
Other	8	2.7

Table 5. Prevalence of obstetrical complications among pregnant women aged 15 to 45 years attending ANC at HD Dschang from February to March 2022 who participated in our study

Obstetrical complications	Workforce	Prevalence
Miscarriages	21	7
Premature births	23	7.7
Low-weight child	5	1.7
Stillbirths	20	6.7

Table 6. Distribution of obstetrical complications according to domestic violence among pregnant women aged 15 to 45 attending ANC at HD Dschang from February to March 2022 who participated in our study

Victim of Domestic Violence	Obstetrical complication		Grand total
	No	yes	
No	166	22	188
Yes	72	40	112
Grand total	238	62	300

Table 7. Logistic regression between the dependent variable (obstetrical complications) and the explanatory variable (domestic violence)

	P.Valeur	Odds ratio	95% confidence interval	
			Lower	Superior
Domestic violence	,000	4,192	2,326	7,556

3.4 Causes of Domestic Violence

The various causes of domestic violence in our sample were arguments between the 2 partners, with a prevalence of 27 (9%), followed by going out without the partner's agreement 16 (5.3%), then failure to carry out household chores, and the minority reason was refusal to have sex with one's partner 9 (3%). Other women 8 (2.7%), on the other hand, refused to share with us the reasons why they were abused.

3.5 Prevalence of Obstetrical Complications

Obstetrical complications included miscarriage, premature delivery, stillbirth and low birthweight. The overall prevalence of these complications was 20.7%. According to Table 5, premature deliveries had the highest prevalence 23 (7.7%), followed closely by miscarriages 21 (7%) and stillbirths 20 (6.7%), while low birth weight had the lowest prevalence 5 (1.7%).

Table 6 shows that 40 of the 62 women with obstetrical complications were victims of domestic violence. Over half (64.5%) of women with obstetrical complications were victims of domestic violence. Analysis of the table also shows that 22 women with obstetrical complications were not victims of domestic violence. This represents a percentage of 35.5%.

3.6 Studying the Association between the "Obstetrical Complication" Variable (Dependent Variable) and the "Domestic Violence" Variable (Explanatory Variable) Using Logistic Regression

After logistic regression, we found that the P value was significant at the 5% threshold, $\text{Exp}(B)=\text{OR}= 4.192$, i.e. women who were victims of domestic violence were 4.192 times more likely to have an obstetrical complication than

those who were not, and the confidence interval does not contain the value 1 (2.326-7.556).

3.7 Description of the Different Types of Domestic Violence

We then studied the distribution of the different types of domestic violence experienced by the participants in our study. Verbal and psychological violence had the highest frequency (108)36% compared to other types of violence, followed by physical violence which represented (40) 13.3%; control and financial violence represented (23) 7.7% and (30) 10% respectively; sexual violence was the least represented with (20) 6.7%.

3.8 Logistic Regressions: Search for Factors Associated with Domestic Violence

3.8.1 Overview of variables used in logistic regression

Table 9 shows that Over a quarter 112 (37.3%) of women were victims of domestic violence. The majority 282 (94%) of the women surveyed were over 18 on the day of their marriage, and chose their partner themselves. Over half 173 (57.7%) of the women were aged between 25 and 35; half 150 (50%) were monogamously married, 45 (15%) were polygamously married, 105 (35%) were cohabiting. More than half of the women 166 (55.3%) and their partners 159 (53%) had higher education. Just over half 151 (50.3%) of the women were financially dependent on their partner. Over 60% (194) found their partner's monthly income average, and 46 (15.3%) found it low. Over a quarter 86 (28.7%) of the women's partners drank alcohol; the majority 277 (92.3%) of partners did not use drugs. More than half 204 (68%) of the women were multiparous. More than half 175 (58.3%) of the women had no history of violence prior to pregnancy.

Table 8. Different types of violence listed by pregnant women

Types of violence	Effectifs	Fréquence (%)	95% CI
Physical violence			
Yes	40	13,3	[9,4 ; 17,1]
Verbal and psychological abuse			
yes	108	36,0	[30,5 ; 41,4]
Control violence			
yes	23	7.7	[4,6 ; 10,7]
Financial violence			
yes	30	10,0	[6,6 ; 13,3]
Sexual violence			
yes	20	6,7	[3,8 ; 9,5]

Table 9. List of explanatory variables for logistic regression

Variables	Modality N= 300	Numbers (frequency) n (%)
domestic violence	0 = No	188 (62,7)
	1=yes	112 (37,3)
women's age group	1="[15 – 25["	100 (33,3)
	2= "[25 – 35["	173 (57,7)
	3="[35 – 45["	27 (9)
Age range of partners	1= "15 – 25",	36 (12)
	2= "26 – 35"	147 (49)
	3= "36 – 45",	98 (32,7)
	4= "46 et plus"	19 (6,4)
marital status	1= "Monogamous bride	150 (50)
	2"Polygamous bride"	45 (15)
	3= "cohabitation"	105 (34,7)
education level woman	1= "Primary	9 (3)
	2="Secondary"	125 (41,7)
	3= "Superior"	166 (55,3)
education level partner	1= "Primary	17 (5,7)
	2="Secondary"	124 (41,3)
	3= "Superior",	159 (53)
financial dependence on spouse	0 = No	149 (49,7)
	1 = yes	151 (50,3)
how do you find out your partner's monthly income ?	1= "good",	46 (15,3)
	2= "low",	60 (20)
	3="Medium"	194 (64,7)
estimate of general monthly income	1= "good",	39 (13)
	2= "low",	66 (22)
	3="Medium"	195 (65)
partner's alcohol consumption	0= "No"	214 (71,3)
	1 ="yes	86 (28,7)
partner's alcohol consumption drug use	1= "No"	277 (92,3)
	2= "Don't know"	19 (6,3)
	3= "yes",	4 (1,3)
Parity	1="Primipare"	96 (32)
	2="Multipare"	204 (68)
history of violence prior to pregnancy	1="No",	40 (13,3)
	2="Non applicable"	175 (58,3)
	3="yes"	85 (28,3)
age on wedding day	1="Over 18 years old"	282 (94)
	2="Under 18 "	18 (6)
partner selection	1="Yourself"	282 (94)
	2="Your family"	18 (6)

3.9 Bi-variate Analysis: Test between the Spousal Violence Variable and the Explanatory VARIABLES

Our aim here was to analyze inter-variable associations. As our variables were qualitative, the statistical test used was the Chi-square 2 with a significance level of 10%.

Table 10 shows that, at the 5% threshold, the variables associated with domestic violence during pregnancy were the man's age (P value = 0.027), the patient's level of education (P value = 0.003), partner's level of education (p value = 0.000), partner's use of alcohol (p value = 0.000013) and drugs (p value = 0.004), parity (p value = 0.032), and history of violence prior to pregnancy (p value = 2.2e-16). And at the 10%

Table 10. Significance test of explanatory variables at the 10% threshold

Explanatory variables	Valeur du test du Chi-2	p-value
Age range of woman	5.913	0.051
Male age range	10.942	0.027
Marital status	6.3837	0.094
Patient's level of education	11.295	0.003
Partner's level of education	16.192	0.000
Financial dependence on spouse	1.497	0.221
How would you estimate your household's monthly income?	0.730	0.694
How would you estimate your partner's monthly income?	1.877	0.391
Alcohol consumption	23.298	1.388e⁻⁰⁶
Drug use	11.025	0.004
Parity	4.554	0.032
History of violence prior to pregnancy	228.69	< 2.2e⁻¹⁶
You got married at what age	10.942	0.027
Who chose your partner	5.771	0,016

Table 11. Multivariate analysis of factors associated with domestic violence among pregnant women aged 15 to 45 attending ANC at HD Dschang from February to March 2022

Variables	Terms and conditions	OR (confidence interval)	P value
Age of the woman	[15– 25[	Reference	1
	[25 – 35[	4,20 (1.29, 15.84)	0,02
	[35 – 45[	3,32 (1.60, 22.45)	0,04
Partner's age	"15– 25"	Reference	1
	"26 – 35"	0,64 (0.03, 14.28)	0,78
	"36 – 45"	9,23 (0.42, 283.55)	0,18
	"46 – 55"	4,20 (0.04, 415.35)	0,54
Woman's level of education	Primary	Reference	1
	Secondary	2,22 (0.01, 510.1)	0,81
	Superior	0,19 (0.00, 35.84)	0,63
Marital status	Monogamousbride	Reference	1
	Polygamousbride	0,59 (1.53, 5.71)	0,65
	cohabitation	7,89 (1.53, 54.89)	0,06
Partner's level of education	Primary	Reference	1
	Secondary	1,14 (0.01, 510.81)	0,96
	Superior	1,32 (0.02, 224.90)	0,91
Financial dependence on spouse	No	Reference	1
	yes	1,62 (0.35, 8.26)	0,55
How would you rate your partner's monthly income?	good	Reference	1
	low	2,54 (0.16, 46.95)	0,52
	Medium	1,03 (0.01, 60.34)	0,99
Estimated general monthly income	good	Reference	1
	low	0,24 (0.01, 4.57)	0,34
	Medium	0,26 (0.00, 20.14)	0,53

Variables	Terms and conditions	OR (confidence interval)	P value
Partner's alcohol consumption	No	Reference	
	yes	4,14 (1.33, 13.85)	0,020
Partner's drug use	Don't know	Reference	1
	yes	24,60 (0.01, 67.84)	0,51
	No	1,43 (0.07, 37.39)	0,83
Parity	Multipare	Reference	1
	Primipare	1,09 (0.18, 6.46)	0,92
History of violence prior to pregnancy	No	Reference	1
	yes	92,91 (14.42, 23.24)	<0,001
	N A	0,00 (0.00, 0.02)	<0,001

threshold the variables that were related to spousal violence during pregnancy were Woman's Age Range (P-value= 0.051) and Marital Status (P-value=0.094). Other variables such as "how do you estimate your monthly household income", "how do you estimate your partner's monthly income", "financial dependence on spouse", were not associated with the dependent variable.

Our target variable being a dichotomous variable, we used a logistic model to see which variables determined and explained domestic violence during pregnancy. We considered the variables linked to our target variable at the 10% threshold

3.9.1 Determining risk factors related to domestic violence

The results of the logistic regression presented in Table 11 showed that most of the modalities of the variety were not statistically significant at the 5% level. Only the modalities of the variables Partner's alcohol consumption, History of violence before pregnancy and Woman's age were significant at the 5% threshold.

The results of the logistic regression presented in Table 11 above show that most modalities of variety are not statistically significant at the 5% level. The older age of the woman (P=0.02, CI 1.29-15.84), the fact that the partner drank alcohol (P=0.02, CI 1.33- 13.85) and a history of violence before pregnancy (P=0.001, CI 14.42-23.24) were significantly associated with spousal violence during pregnancy.

4. DISCUSSION

The overall aim of our study was to assess the risk of fetal complications in women victims of

domestic violence at the Dschang district hospital; this study revealed new information that was lacking in research in our country. Domestic violence accounts for the lion's share of violence suffered by women on a daily basis; violence has been used by man since the dawn of time. It is a tool that invades, destroys and destabilizes territory, whether that of the victim or the aggressor; our study revealed that the overall prevalence of domestic violence was 37.33%, all types combined, this frequency was lower than that of the demographic and health survey carried out in Cameroon in 2011 by the national institute of statistics [10] where such violence accounted for around 60% of cases. This prevalence was higher among women aged between 25 and 34 74 (24.6%), an age group in which partners really discover each other and understand the realities of married life, results similar to those found in the 2011 DHS. The proportion of women who had experienced domestic violence decreased with age, from 24.66% in the 24-34 age bracket to 3.33% in the 35-45 age bracket; these results are in line with those found in the 2011 DHS, where this frequency fell from 24% to 18%.

Intimate partner violence during pregnancy is worrying and can have significant implications for neonatal outcome. This study found that the extent of intimate partner violence during pregnancy was 24.33% ; this is lower than the results found in studies on the effects of domestic violence and pregnancy outcome carried out in Tanzania (30%) by Laelago et al (2017) and Vietnam (32.5%) by Hoang et al [9], but higher than the studies carried out in Morocco (18.3%) by Bouffetal et al (2012), Ethiopia (7.3%) by Gebreslasie et al (2020) on domestic violence during pregnancy, and in Cameroon during the DHS in 2011 (14%)

[11,12,13,14,10] This disparity between results could be attributed to the study area and to differences in time and culture. Most of the studies with higher prevalence were carried out many years ago, and it is plausible that there has been some improvement in awareness of the dangers of domestic violence during pregnancy; however, it is also possible that there is under-reporting of domestic violence during pregnancy in our study. Domestic violence in pregnant women is a reality that studies express with sometimes very wide variations. The highest prevalence rates are also observed in research designed on the basis of repeated measurements during pregnancy, detailed face-to-face interviews and in which several questions explore the presence of violent behaviour. On the other hand, the lowest estimates are found among women from higher socioeconomic backgrounds, recruited from private clinics or subjected in early pregnancy to a self-administered questionnaire often presented by someone other than the referring professional, as Louise Seguin et al (2021) point out in a systematic review on domestic violence during pregnancy [15]. The studies by Torres et al [13] and Brown JB et al (1996) on violence during and after pregnancy [16,17] found that domestic violence intensifies during pregnancy in women who are victims of domestic violence, and in some cases begins during pregnancy; this was confirmed in our study. In a similar vein, Saltzman et al's [15] study of physical abuse during pregnancy: an examination of prevalence and risk factors in 16 states [18] showed that among women abused during pregnancy by an intimate partner, a quarter were new cases of violence and three quarters were a continuation of domestic violence, which is somewhat different from our study where new cases accounted for half of the cases.

As far as causes are concerned, in our study, intimate partner violence could be explained by the woman going out without her partner's consent (5.3%), quarrelling between the two partners (9%), failure to carry out household chores (3.7%) and refusal to have sex with her partner (3%), as well as many other reasons that our participants were unwilling to share, probably due to the extreme sensitivity of this subject. Johnson (1995) notes that intimate partner violence is not a unitary phenomenon attributable to a single cause.

The present study found that intimate partner violence was associated with neonatal

complications. The P. value was significant at the 5% threshold (0.000), the odds ratio (OR) was 4.192, meaning that women who were victims of intimate partner violence were 4.192 times more likely to have a neonatal complication than those who were not, and the confidence interval did not contain the value 1 (2.326-7.556). This result was in line with those found in a meta-analysis by Goodman et al (1993) on violence against women and the physical and mental effects, which concluded that there was an excess risk of low birth weight associated with violence during pregnancy (p value 0.045, OR 1.75) [19]. In addition, an excess of spontaneous abortions, low birth weight, fetal suffering or stillbirths, as well as higher rates of chorio-amnionitis and maternal infections were reported by the studies by Saurel-Cubizolles (2005) and Weiss et al [18] on domestic violence during pregnancy and sexual abuse as a risk factor for depression in women respectively [20,21]. Domestic violence can lead to these complications either through direct impact (trauma) or indirectly (such as reduced nutritional intake due to psychosocial trauma). In addition to this, women experience sexual violence exposing them to sexually transmitted diseases that can impact neonatal outcome [13]. During pregnancy, domestic violence can harm the baby's development, while it increases, in proportion to its frequency, the likelihood of stillbirth, miscarriage, pre-term delivery or the baby being born with a low birth weight [22].

As regards the different types of violence, all forms were reported in our study. Physical violence represented 13.3% of cases, verbal and psychological violence 36%, control violence 7.7%, economic violence 10% and sexual violence 6.7%. These results are lower than those of a study recently published in Cameroon by Angela M. et al (2021) on domestic violence and mental disorders among pregnant women living with HIV/AIDS, which reported 37% physical violence, 44% psychological violence and 31% sexual violence [23] and those of the 2011 DHS, where control violence accounted for 21%, economic violence 29%, physical violence 45%, psychological violence 42% and 20% sexual violence [24]. Control violence exerted by the husband/partner seemed to concern more women who had been to school (42% or more) than those with no education (31%), which was confirmed in our study. The proportion of women subjected to sexual violence decreased with age, while emotional violence followed the opposite trend until the age of 35, when it began to

decline. These various forms of violence can occur independently of one another or simultaneously.

Domestic violence can be associated with several factors. We performed a chi-square test of independence with several explanatory variables and domestic violence as the dependent variable. In bivariate analysis, we found that the age of the man and the woman, the patient's level of education, the partner's level of education, the partner's alcohol and drug consumption, parity, antecedent violence before pregnancy, age on the day of marriage, choice of partner and marital status were significant variables at the 10% threshold; we then ran a multiple logistic regression with these variables. In our study, domestic violence was associated with the age of the woman subjected to violence (OR:4.20, P=0.02, CI 1.29-15.84), the fact that the partner consumed alcohol (OR:4.14, P=0.02, CI 1.33-13.85) and a history of violence before pregnancy for women subjected to violence during pregnancy (OR:92.91, P=0.001, CI 14.42-23.24). Women aged between 25 and 34 were 4.2 times more likely to experience violence than those aged between 15 and 24, but this risk decreased for older women. Women whose partners drank alcohol were 4.14 times more likely to be victims of violence than those whose partners did not, and women who experienced violence before pregnancy were much more likely to experience it during pregnancy. These results are similar to those of Louise Séguin et al (2021) on domestic violence during pregnancy: review of the literature where age and partner alcohol consumption were associated with domestic violence [15]. Age appears with increasing consistency to be a determinant of violence in couples, whether the woman is pregnant or not, as Saltzman et al [15] point out in their article on physical abuse during pregnancy and the examination of prevalence and risk factors [18]. Amaro et al [25] report from their study on substance use and violence during pregnancy that the risk of violence during pregnancy or not is twice as great in the case of multiple drug use (alcohol, narcotics) by the abuser, and that there is a well-established association between IPV and alcohol consumption. It must be acknowledged that the link between domestic violence in general and alcohol consumption by the abuser is well established, which can be justified by the behavioural deviations and poor self-control that alcohol provokes.

5. CONCLUSION

At the end of our study, the aim of which was to assess the risk of obstetrical complications in women victims of domestic violence at the Dschang district hospital, the data support the importance of taking an interest in the problem of domestic violence and not considering it as a homogeneous reality. It shows that :

- A third of the participants were subject to domestic violence, and a quarter of them were victims during pregnancy;
- The prevalence of obstetric complications was 20.7%, with miscarriage predominating. Intimate partner violence is widespread and is accompanied by serious complications for the health of both the newborn and the women involved. The association between conjugal violence and obstetrical complications found in our study proves this;
- All forms of domestic violence with different frequencies were found in our study with a predominance for psychological violence (36%);
- Factors associated with domestic violence were female age, partner's alcohol consumption and history of violence prior to pregnancy.

Pregnancy is therefore a strategic time for the detection of domestic violence. At present, however, there are still gaps in the literature on domestic violence in Cameroon. Indeed, we have little epidemiological data on domestic violence from the point of view of both perpetrators and victims. In this sense, we need to gain a better understanding of their different trajectories, in order to promote a better understanding of this problem and, ultimately, to enable the implementation of appropriate and effective interventions.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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