



Violence among pregnant women in Denmark from 2019 to 2021 – A hospital-based cross-sectional study

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ABSTRACT

We examined the prevalence of lifetime physical and any recent violence and related maternal characteristics and health in pregnant women. We used Patient Reported Outcomes data retrieved from the Copenhagen Pregnancy Cohort (n = 7,361). The prevalence of lifetime physical and any recent violence was 4.0 % and 1.6 %, respectively. For both lifetime and any recent violence, the highest prevalence rates were seen among women aged 18–24, non-cohabiting, smokers, low levels of educational attainment, and women with chronic medical and psychiatric disease and lower psychological well-being. The prevalence may potentially be underestimated in this study, highlighting the need for improving screening for violence.

Introduction

Violence against women, including intimate partner violence (IPV), represents a significant global public health problem. In a Danish survey, the prevalence rates of low-impact physical IPV, clinically significant physical IPV, and clinically significant psychological IPV in the year preceding pregnancy were estimated to be 5.2 %, 1.8 %, and 2.4 %, respectively, among pregnant women [1]. Intimate partner violence is associated with an increased risk of miscarriage, preterm delivery, postpartum depression, and long-term adverse effects on offspring development [2].

Pregnancy is recommended as a unique opportunity to screen and identify women experiencing violence, partly because the longitudinal process in antenatal care provides an opportunity to develop trust between women/families and the healthcare providers [3].

Since 2019, that is, during and after the COVID-19 pandemic lockdown period, screening for violence has been routinely conducted at the Department of Obstetrics, Copenhagen University Hospital - Rigshospitalet, Denmark as part of the Patient Reported Outcomes (PRO data) questionnaire in antenatal care. The information is recorded in the women's medical files and used during the initial antenatal consultation.

This study aims to assess the prevalence of lifetime physical violence and any recent violence based on the PRO data among pregnant women in Denmark and to examine related maternal characteristics and health.

Methods

We conducted a hospital-based cross-sectional study. Data were sourced from the Copenhagen Pregnancy Cohort and collected from

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Table 1
Prevalence of lifetime physical and any recent violence and related maternal characteristics and health in early pregnant women (n = 7361).

	Study population n (%)	Experienced lifetime physical violence		p-value	Experienced any recent violence		p-value****
		Yes n (%)	No n (%)		Yes n (%)	No n (%)	
Missing	7361	291 (4.0)	7070 (96.0)		118 (1.6)	7219 (98.4)	
Maternal age						24	
18-24	193 (2.6)	15 (7.8)	178 (92.2)		12 (6.2)	181 (93.8)	
25-29	2116 (28.7)	80 (3.8)	2036 (96.2)		33 (1.6)	2078(98.4)	
30-34	3270 (44.4)	124 (3.8)	3146 (96.2)		36 (1.1)	3225 (98.9)	
35-39	1430 (19.4)	49 (3.4)	1381 (96.6)		25 (1.8)	1396 (98.2)	
40+	350 (4.8)	23 (6.6)	327 (93.4)		12 (3.4)	337 (96.6)	
Missing	2	0	2		0	26	
				p= 0.004			p<0.001
Body Mass Index (kg/m²)							
Underweight (<18.5)	347 (4.7)	16 (4.6)	331 (95.4)		7 (2.0)	340 (98.0)	
Normal (18.5-24.9)	5433 (73.8)	212 (3.9)	5221 (96.1)		78 (1.4)	5333(98.6)	
Overweight (25-29.9)	1096 (14.9)	36 (3.3)	1060 (96.7)		22 (2.0)	1074 (98.0)	
Obese (≥30)	348 (4.7)	21 (6.0)	327 (94.0)		7 (2.0)	339 (98.0)	
Missing	137	6	131		4	157	
				p= 0.127			p=0.442
Cohabiting							
Yes	6782 (92.1)	243 (3.6)	6539(96.4)		88 (1.3)	6671(98.7)	
No	563 (7.6)	47 (8.3)	516 (91.7)		30 (5.3)	532 (94.7)	
Missing	16	1	15		0	40	
				p<0.001			p<0.001
Highest obtained educational level							
Master's degree, 5 years or more	4391 (59.7)	130 (3.0)	4261 (97.0)		40 (0.9)	4335 (99.1)	
Bachelor's degree, 3-4 years	2023 (27.5)	75 (3.7)	1948 (96.3)		42 (2.1)	1974 (97.9)	
Tertiary, 1-2 years	333 (4.5)	24 (7.2)	309 (92.8)		10 (3.0.1)	323 (97.0)	
Skilled worker	188 (2.6)	15 (8.0)	173 (92.0)		3 (1.6)	184 (98.4)	
Compulsory education	393 (5.3)	43 (10.9)	350 (89.1)		21 (5.3)	372 (94.7)	
Missing	33	4	76		2	55	
				p<0.001			p<0.001
Danish language skills							
Yes	6737 (91.5)	260	6477(96.1)		107 (1.6)	6608 (98.4)	
No	397 (5.4)	(3.9) 27 (6.8)	370 (93.2)		7 (1.8)	389 (98.2)	
Missing	227	4	29		4	246	
							p=0.789
Parity							
Nulliparous	4611 (62.5)	189 (4.1)	4422 (95.9)		74 (1.6)	4527 (98.4)	
Multiparous	2750 (37.4)	102 (3.7)	2648 (96.3)		44 (1.6)	2692 (98.4)	
Missing	0	0	0		0	0	
				p=0.406			p=1.0
Chronic medical disease							
Yes	2299 (31.2)	143(6.2)	2156 (93.8)		52 (2.3)	2239 (97.7)	
No	5062 (68.8)	148 (2.9)	4914 (97.1)		66 (1.3)	4980 (98.7)	
Missing	0	0	0		0	24	
				p<0.001			p<0.001
Psychiatric disease							
Yes	311 (4.2)	42 (13.5)	269 (86.5)		17 (5.5)	294 (94.5)	
No	7050 (95.8)	249 (3.5)	6801 (96.5)		101 (1.48)	6925 (99.2)	
Missing	0	0	0		0	24	
				p<0.001			p<0.001
Exercise before pregnancy							
Yes	5566 (75.6)	208 (3.7)	5358 (96.3)		73 (1.3)	5473 (98.7)	
No	1792 (24.3)	83 (4.6)	1709 (95.4)		45 (2.5)	1743 (97.5)	
Missing	3	0	3		0	27	
				p=0.091			p<0.001
Smoking status before pregnancy							
Non-smokers	6626 (90.0)	232 (3.5)	6394 (96.5)		85 (1.3)	6517 (98.7)	
Smokers	729 (9.9)	59 (8.1)	670 (91.9)		33 (4.5)	696 (95.51)	
Missing	6	0	6		0	30	
				p<0.001			p<0.001
Alcohol consumption prior to pregnancy							
None alcohol	1678	77 (4.6)	1601 (95.5)		35 (2.1)	1640 (97.9)	
Intake of 1-6 units per week	4509	165 (3.7)	4344 (96.3)		53 (1.2)	4442 (98.9)	
Intake of ≥7 units per week	634	28 (4.4)	606 (95.6)		10 (1.6)	618 (98.4)	
Missing	540	21	519		20	530	
				p=0.206			p=0.027
Well-being (WHO-5) *							
Mean score-(SD)	62.16 (16)	52.83 (19)	62.50 (16)		50.81(20)	62.31 (16)	
WHO-5 ≤ 50***							
Yes	1530 (20.8)	118 (7.7)	1412 (92.3)		54(3.5)	1473 (96.5)	
No	5785 (78.6)	170 (2.9)	5615 (97.1)		64 (1.1)	5701 (98.9)	
				p<0.001			p<0.001
WHO-5 ≤ 28***							

(continued on next page)

Table 1 (continued)

	Study population n (%)	Experienced lifetime physical violence			Experienced any recent violence		
		Yes n (%)	No n (%)	p-value	Yes n (%)	No n (%)	p-value****
Yes	277 (3.8)	38 (13.7)	239 (86.3)		23 (8.4)	252 (91.6)	
No	7038 (95.6)	250 (3.6)	6788 (96.4)		95 (1.4)	6922 (98.6)	
Missing	46	3	43		0	46	
				p<0.001			p<0.001

* The World Health Organization Five Well-Being Index.

** WHO-5 score ≤ 50 indicates low psychological well-being.

*** WHO-5 ≤ 28 indicates high? risk of clinical depression

**** Pearson Chi-square test and t-test were used.

pregnant women attending antenatal care at Copenhagen University Hospital - Rigshospitalet, Denmark.

The data for this study was obtained from 9010 pregnant women who received a questionnaire from 21 November 2019 to 17 December 2021. Women who had a miscarriage before responding (n = 340) and women transferred to another hospital (n = 42) were excluded. Of the remaining 8628 women, 7361 (85.3 %) of them responded to the questionnaire, including the specific questions about violence, and comprised the final study population.

Violence was assessed using a modified version of the Abuse Assessment Screen [3], which exhibited a sensitivity of 93–94 % and a specificity of 55–99 % in identifying instances of violence [4]. The questions recommended by the Danish Health Data Authority to assess violence include the following:

1. Have you ever been physically abused by your partner or someone important to you? for example: slapping, hitting, kicking, and beating. (yes/no)?
2. Within the past year, have you ever been emotionally abused by your partner or someone important to you? For example, have you been repeatedly humiliated, manipulated, controlled, or threatened with destruction of property or violence (yes/no)?
3. Within the past year, have you been hit, slapped, kicked, or otherwise physically hurt by someone (yes/no)?
4. Within the past year, has anyone forced you to engage in sexual activities (yes/no)?

We defined women as having experienced lifetime physical violence if they answered “yes” to the first question. Additionally, pregnant women were defined as having experienced any recent violence if they answered “yes” to at least one of the questions about emotional, physical, or sexual abuse within the last year.

Psychological well-being was measured using The World Health Organization Five Well-Being Index (WHO-5). The WHO-5 measures general subjective psychological well-being in the preceding two weeks, and the total score ranges from 0 (lowest) to 100 (highest) level of well-being. A WHO-5 score ≤ 50 indicates low psychological well-being, and a WHO-5 score ≤ 28 indicates a risk of clinical depression.

The study was approved by the Danish Data Protection Agency (file no.: 2012-58-0004.RH- RH-2016-202), I-Suite no.: 04778, 18 December 2017). The Department of Health Research and Innovation, the Capital Region of Denmark, granted permission to disclose patient information from medical records for research (file no.: R-20066400), 25 May 2022).

Statistical analysis

Data are presented as numbers (n) and percentages (%). Pearson’s Chi-square test and t-test were used. Statistical analyses were performed using IBM SPSS version 25, and a two-sided p-value < 0.05 was considered statistically significant.

Results

A total of 294 (4 %) women reported experiencing lifetime physical violence, and 118 (1.6 %) reported any recent violence. For lifetime physical violence and any recent violence, the highest proportions were seen among women aged 18–24 years, non-cohabiting, smokers, women with low educational attainment, and women with chronic medical and psychiatric diseases (Table 1).

The mean WHO-5 score was 62.16 (SD 16) in the total population. As shown in Table 1, women who experienced lifetime physical violence or any recent violence had a significantly lower mean WHO-5 score, and a higher proportion of them had a WHO-5 score ≤ 50 or WHO-5 score ≤ 28 compared to those in pregnant women without these experiences.

Discussion

In the present study, we observed a lower prevalence of violence in the previous year among pregnant women compared to that in a recent Danish study [1]. However, it is essential to acknowledge that the recent Danish study [1] had questions about specific actions that can be characterized as abuse rather than using the word abuse, as in our study. The differences in the wording of the questions can influence how participants report and ultimately bias the estimates of prevalence.

The overrepresentation of highly educated women may also explain the lower prevalence rate in the current study, while lower social position seems to be associated with a higher risk of being exposed to violence [5]. In addition, the data on violence is part of the electronic record visible to pregnant women. Some women might be afraid to provide accurate information about violence if a partner gains access to the electronic medical record.

Most participants in the study responded to questions about violence during or after the COVID-19 lockdown period. We expected that the lockdown period might have increased the prevalence/level of violence. However, the proportion of women subjected to physically violent crimes in Denmark in the general population was also lower during the COVID-19 pandemic in 2020–2021 compared to that in the preceding years [6]. It may be the same trend we observed in our study. However, conclusively, this remains uncertain because there has never been a systematic measurement of violence among pregnant women in Denmark.

The pregnant women experiencing lifetime physical or any recent violence included a higher proportion of women with lower age and a WHO-5 score of 8, indicating a risk of clinical depression, which aligns with the existing literature [2,5].

The strengths of this study include an unselected hospital-based population and a high response rate. A limitation is that our study sample consisted mainly of well-educated women, limiting generalizability. Furthermore, the questions about violence can potentially introduce bias. However, given the large sample size, it is essential to exercise caution when interpreting statistical significance.

In 2019, we introduced questions about violence in the PRO - questionnaire to pregnant women at Rigshospitalet. In conclusion, the current study demonstrates that a small group of women in vulnerable

positions report experiencing violence. It cannot be ruled out that there is an underestimation of the prevalence of violence in this study, highlighting the need to improve the screening for violence.

Declaration of competing interest

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