Archives of Women's Mental Health (2021) 24:293–301
https://doi.org/10.1007/s00737-020-01058-4

ORIGINAL ARTICLE

Screening for domestic violence during pregnancy follow-up: evaluation of an intervention in an antenatal service

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Received: 24 December 2019 / Accepted: 20 July 2020 / Published online: 19 September 2020

Abstract

To assess the impact of a brief training for obstetricians and midwives about screening for domestic violence during pregnancy follow-up and to identify barriers to a routine enquiry. A monocentric quasi-experimental study was performed in an obstetrics department in Paris, France. We asked patients during their pregnancy follow-up to complete a survey describing their demographic characteristics. They were also asked if a health professional had screened them for domestic violence during the current pregnancy. Exclusion criteria were refusal and inability to complete the survey alone. Health professionals attended a brief training about domestic violence. The intervention provided general information about domestic violence to alert health professionals (prevalence, risk factors, consequences on women's health, pregnancy, and children) and guidelines on screening and how to deal with women disclosing domestic violence. They also had to complete a survey about their knowledge and practice concerning domestic violence. Two months later, patients consulting for their pregnancy follow-up completed the same survey. Health professionals were not aware of the study's aim throughout its course. The primary outcome was the rate of patients screened for domestic violence during pregnancy follow-up. The secondary outcome was the identification of barriers to a routine enquiry. Four hundred ninety-five patients completed the first survey (control group): 21 patients (4.8%) had been screened for domestic violence. Twenty-one health professionals attended the intervention. Eight (38.1%) stated that they never screened for domestic violence, and 3 (14.3%) stated that they always did. Three hundred ninety-five patients completed the second survey (experimental group): 17 patients (4.3% vs 4.8%, $p = 0.53$) stated that they had been screened for domestic violence. The main barriers to screening mentioned by health professionals were the presence of the partner, the lack of awareness of the need to screen, uncomfortable feelings, and the difficulty to identify victims. There was no increased screening for domestic violence during pregnancy follow-up after a brief training of obstetricians and midwives. An early training during medical studies or more extensive training for professionals could be more efficient.

Keywords Pregnancy · Domestic violence · Intervention · Screening

Introduction

Violence against women is an increasingly recognized worldwide phenomenon, which is defined as a "violation of human rights and a form of discrimination against women." Domestic violence (DV), a subtype of violence against women, refers to every act of physical, sexual, psychological or economic violence that occurs […] between former or current spouses or partners (Council of Europe 2011).

According to global prevalence estimates, more than one in three women had experienced DV, and 38% of women homicides were perpetrated by a current or former partner (World Health Organization 2013).

In France, two national surveys have estimated the prevalence of violence against women and stated that 1% of women

Article 222–14 Pénal. Sect. 1: Des atteintes volontaires à l'intégrité de la personne, Loi n°2010-769 Juillet, 2010 (https://www.legifrance.gouv.fr/affichCodeArticle.do?cidTexte=LEGITEXT000006070719&idArticle=LEGIARTI000006417647&dateTexte=&categorieLien=cid Accessed 6 August 2019).

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would be victims of either physical or sexual violence, 2% would be victims of several types of violence, and 9% would be victims of any type of violence, including psychological violence (Jaspard 2003; Inter-ministerial Mission on Women Protection and Against Human Trafficking 2018). French law[1] states that violence committed by an intimate partner or against a pregnant woman is more severely punished than other forms of interpersonal violence. In the case of DV, women can report the violence to the police, but police can also launch an enquiry in case of an obvious offense. In 2017, 100,000 procedures concerning women victims of DV were recorded by the French police. Among women victims of DV, 19% complained to the police, 9% alerted (which means reporting an offense without filing a lawsuit), and 72% had no contact with the police (Inter-ministerial Mission on Women Protection and Against Human Trafficking 2018). Women victims of DV can leave their residency immediately in case of emergency, dialing 115 or "social emergency assistance," or they can be protected and separated from their partner for 6 months if they benefit from a "protection order." Many victim support associations exist, as well as law access points. A toll-free hotline is available 7 days a week: women can call and get information about the law and how to react in case of DV. This service received around 45,000 calls in 2017.

DV during pregnancy may worsen many pregnancy diseases, such as miscarriages, drugs and alcohol consumption, hospitalizations during pregnancy, preterm deliveries, low birth weight babies, cesarean sections, postpartum depressions, suicides, and homicides (Amaro et al. 1990, Gazmarian et al. 1996, Webster et al. 1996, Dunn and Oths 2004, Saurel-Cubizolles and Lelong 2005, Valladeres et al. 2009, Boufettal et al. 2012, Palladino et al. 2012, World Health Organization 2013, Alhusen et al. 2014, Hassan et al. 2014, Hill et al. 2016, Rogathi et al. 2017). Pregnancy is associated with a high risk of DV, possibly because the partner has no longer the exclusivity of his partner's attention, which may change their relationship and generate frustration that leads to the use of violence (Cherniak et al. 2005, Brownridge et al. 2011).

Previous research has shown that one in four women reports DV to a doctor, making health professionals preferred interlocutors, even more than social workers, lawyers, psychologists, or police officers (Inter-ministerial Mission on Women Protection and Against Human Trafficking 2018). Pregnancy may be a privileged period for screening because during that period, women benefit from a close follow-up focused on themselves and on their fetus. Talking about their fetus may raise their awareness of acting against the violence they are victims of (Spangaro et al. 2016). According to a recent meta-analysis, systematic screening for DV in an antenatal care setting is 4.5 times more effective than in other settings such as women's health clinics, emergency departments, or primary care (O'Doherty et al. 2015). Many studies about the effects of interventions on domestic violence were performed, finding no differences in terms of quality of life, safety planning and behavior or mental health at 12 months in a primary care setting (Hegarty et al. 2013), or on decreasing DV (O'Doherty et al. 2015), but also no harm. A lack of knowledge about screening and care about victims of domestic violence may be a barrier to screening (Waalen et al. 2000). The World Health Organization (WHO) recommends that every professional involved in the care of women victims of violence should be trained in DV screening (World Health Organization 2012).

Most studies about screening for DV were conducted in English-speaking countries where guidelines on screening exist, but to our knowledge, no such study, or even study about screening rate during pregnancy follow-up, was performed in France.

The objectives of this study were to determine if a brief intervention in a French antenatal service may improve screening for domestic violence during pregnancy follow-up and to identify barriers to a routine enquiry.

Materials and methods

A monocentric quasi-experimental study was performed in an obstetrics department of a general hospital in Paris from March to September 2018. The studied population was health professionals including obstetricians and midwives, but patients completed the survey, not health professionals. The aim of the study was blind to health professionals throughout its course. Informed consent was obtained from every patient included in the study.

Control group

All patients consulting for pregnancy follow-up were asked to complete a self-administered and anonymous survey in March 2018. The survey aimed to describe their demographic characteristics (Table 1) and included a question about screening for DV during the current pregnancy. No question was asked about the geographic origin, race, or ethnicity. Every patient receiving an envelope containing the questionnaire was requested to answer it entirely by herself, without telling anyone about its contents, especially not telling a health professional or her intimate partner. Exclusion criteria were refusal and inability to complete the survey alone. Patients fulfilled the survey either while waiting for the pregnancy follow-up consultation, which means 1 month after the previous one, or immediately after it.

Intervention (Table 2)

We organized a brief hour and a half training session that aimed to improve knowledge and screening for DV in

Table 1 Patients survey

1. How old are you ?
2. Who is your obstetrician or your midwife?
3. How advanced is your current pregnancy?
4. How many times have you been pregnant (including the current pregnancy)?
5. Do you have some addictive disorders?
6. What highest-grade level did you complete?
7. What is your job?
8. Are you currently in a relationship?
9. If the answer is "yes", do you live with your partner?
10. Did you come with someone for the medical consultation today? If the answer is "yes", who?
11. How many medical consultations did you have at the hospital for the current pregnancy?
12. Did someone ask you about domestic violence at the hospital since the beginning of your pregnancy?
13. Did any health professional ask you about domestic violence outside the hospital since the beginning of your pregnancy?
14. Would you have wished to talk about domestic violence with any health professional since you have been pregnant?

May 2018. Speakers were involved in the management of violence against women. Every gynecologist, obstetrician, and midwife working in the obstetrics department was encouraged to attend the session. Professionals were asked to attend it on a voluntary basis, and measures were taken to allow time for this training in their schedules. The training focused on global and regional prevalence, subtypes, and complications of domestic violence on women and particularly on pregnant women. Advices on how to ask about domestic violence and what to do in case of positive answers were given to the participants. Details about the intervention are given in Table 2. Participants in the session also had to complete a questionnaire concerning their practices on screening for DV (Table 3).

Table 2 Detailed intervention. Presentations were performed using PowerPoint software. Only the main issues are detailed below. Presenters gave furthers details, examples, and answered questions if asked

First presentation: why should health professionals screen for domestic violence during pregnancy?
• Key numbers about domestic violence in France
• Who do women victims refer to?
• Results of the ENVEFF study (2003)
• Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence
• Risk factors worldwide (World Health Organization 2012)
• Health consequences worldwide concerning women
• Prevalence of domestic violence during pregnancy - Variable data between and within countries
• Consequences concerning pregnancy worldwide
• Consequences on children worldwide (World Health Organization 2012)
Second presentation: how to screen for domestic violence during pregnancy?
• Violence: WHO definition
• Violence against women: United Nations definition
• Consequences of violence that should be considered to deal with women victims
• Arguments for a routine screening
• Examples of questions to screen for domestic violence
• Victims advantages of being screened during pregnancy follow-up
• How to overcome obstacles?
• What should we say in case of domestic violence, in order to reassure patients?
• What to do in practice?
• Precisions on how to write a medical certificate in case of violence
• Contact details - Centers of Information on Women and Family rights - Victim support associations - Law access points - Police stations - Toll-free hotline 3919 - Forensic units
• Legal proceeding

Experimental group

We asked all patients consulting for pregnancy follow-up to complete the same survey as the control group in July 2018. Modalities to complete the survey and exclusion criteria were the same in both groups.

Outcomes

The primary outcome was to assess the impact of brief training on health professionals on screening for DV during pregnancy follow-up, comparing the percentage of patients answering "yes" to the question "During the current pregnancy, did an obstetrician or a midwife ask you about domestic violence in the hospital?" in both groups. The secondary outcome was to identify barriers to a routine enquiry.

Data analysis

Quantitative variables were expressed in averages and standard deviations, and qualitative ones were expressed in numbers and percentages. P values were calculated using the χ^2 test for qualitative variables and the Student test for quantitative variables.

Table 3 Health professionals' survey

1. How old are you ?
2. Do you practice pregnancy follow-up consultations?
3. If the answer is "yes", how many follow-up consultations a week do you perform?
4. When did you obtain your degree?
5. How long have you been practicing in this hospital?
6. Do you receive patients with their partner during the pregnancy follow-up?
7. Did you already have a teaching about domestic violence?
8. Did you already have to deal with a patient victim of domestic violence?
9. Do you screen patients for domestic violence?
10. What barriers prevent you from asking pregnant women about domestic violence? (answer using the Likert scale)

- Their partner escorts them
- Someone else escort them
- Because of a lack of knowledge
- Because of a lack of time
- Because of a lack of "reflex"
- Because you do not feel at ease talking about domestic violence
- Because it is a taboo subject
- Because you are afraid of loosing patients trust
- Because it does not concern your patients
- Because it is difficult to recognize the concerned patients
- Because you would not know what to do if a patient answered "yes" to the question

11. What sort of signs would lead you to evoke domestic violence?
12. Do you think it is our duty as health professionals to ask for domestic violence?
13. Would you like to benefit from an intervention about domestic violence?

Results

Patients

During March 2018 and July 2018, auxiliary nurses in charge of pregnancy follow-up distributed 1047 questionnaires. A total of 834 (79.7%) patients completed the survey: 439/561 (78.3%) in the control group and 395/486 (81.3%) in the experimental group (Figs. 1 and 2), all of them between 13 and 41 weeks of pregnancy.

The patients' demographic characteristics were similar in the two groups (Table 4). The mean age was 32 years, the mean number of pregnancies was 2.4, and the mean number of deliveries was less than one for each group. Ninety patients in the control group (20.5%) and 69 (17.4%) in the experimental group attended the consultation with their partner ($p = 0.06$).

Health professionals

A total of 21 health professionals attended the intervention: 13 obstetricians and 8 midwives. Among them, 17 (81%) practiced pregnancy follow-up consultations, 3 (14%) were gynecologists, and 1 (6%) was a resident. Sixteen (80%) had worked at this hospital since more than half of their career, including 6 (30%) who had worked nowhere else since they graduated. Two health professionals (9%) stated that they always let the partner outside in order to receive their patient alone, and 15 (71%) asked them out only if they disturbed the consultation progress. Eight health professionals (38%) stated that they never screened for domestic violence, and 3 (14%), 4 (19%), 1 (5%), and 3 (14%) rarely, sometimes, often, and always did it respectively.

Health professionals gave similar answers to the open-ended question on the signs pointing to DV. They were mainly "abnormalities concerning the woman's behavior" ($n = 9$, 43%), "mood disorders" ($n = 8$, 36%), "numerous emergency consultations" ($n = 7$, 32%), "gynecologic trouble" ($n = 5$, 24%), "physical traumatic lesions" ($n = 4$, 19%), and "an intrusive partner" ($n = 3$, 14%).

Primary and secondary outcomes

There was no difference in the two groups about the screening for DV: 21 patients were asked for domestic violence in the control group and 17 in the experimental one (4.8% vs 4.3%, $p = 0.53$). Forty-seven patients (11%) in the control group and 33 patients (8%) in the experimental group ($p = 0.08$) wished to be screened for DV.

As no difference was found concerning the primary outcome, none was researched between subgroups.

Barriers to enquiry that were most often quoted by health professionals were the partner's presence ("always" a barrier for 33% of health professionals), the difficulty to recognize women who were victims, the lack of "reflex", and the fact that they did not feel at ease with the subject ("often" a barrier for respectively 38%, 29%, and 24% of health professionals) (Table 5).

Discussion

This study demonstrated insufficient screening for DV during pregnancy follow-up after a brief intervention (4.8% of the patients were screened for DV before the intervention and 4.3% of the patients after it, $p = 0.53$). The originality of this study was to ask the patients directly and not the health professionals, which may explain why the screening rate was so low, under 5% in each group. In a study performed in the United States (US), 11% of the obstetricians and 15% of the midwives reported that they usually screened their patients for

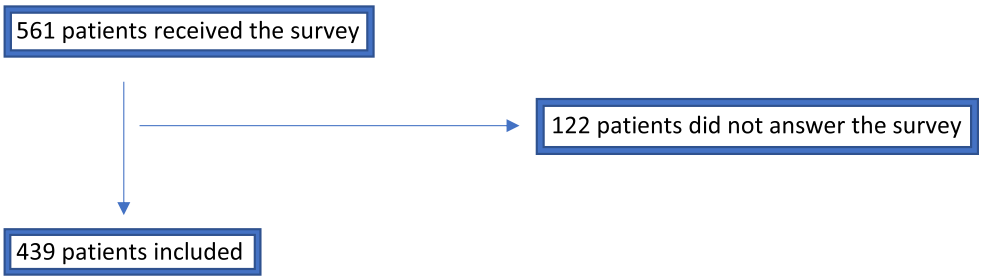

Fig. 1 Flowchart of the control group

DV, and 32% of the obstetricians and 45% of the midwives did it when their patients seemed to need it (Foy et al. 2000). In a French study, 17.5% of midwives reported that they always practiced screening (Cillart et al. 2017). In the present study, there was a difference between health professionals' perception of their practice, around one to five reporting to always or often screen for DV, and the real practice as reported by patients, under 5% of them being screened.

Most studies evaluating the effectiveness of intervention about DV concerned longer interventions lasting a full working day or repeated brief interventions. These interventions included training with the help of health staff, implementation of a program of routine enquiry plus on-site support after disclosure (Bacchus et al. 2010), interdisciplinary and interactive workshop (Smith et al. 2018), meetings with team nurse consultants following by meetings with health care team (Taft et al. 2015), and role-playing to "practice" asking women about DV (Salmon et al. 2006). Some of them evaluated the effectiveness of the intervention asking the health professionals, most often midwives and nurses (Bacchus et al. 2010, Baird et al. 2013, 2018, Smith et al. 2018), some other using women's survey (Taft 2015, Creedy 2019), or using a review of maternity records (Bacchus et al. 2010). Conflicting results were observed on screening rates. Two studies found an increased screening rate, from 15% in the first year of training to 47% in the second year (Bacchus et al. 2010), from 42.1 to 53.8% at 4 months, and 60.7% at 6 months (Janssen et al. 2002), but another, evaluating the difference in routinely screening rate between an intervention group and a control group, found no significant difference (Taft et al. 2015). They were performed in English-speaking countries, where recommendations and support about screening for DV are different. In France, no guidelines about screening for DV existed when the study was performed. Health professionals could benefit from this type of training if they wanted to, but that implies they were already aware of DV. We chose a brief training in order to reach a high proportion of health professionals, including those who would have not spontaneously attended it: our aim was to make most health professionals aware of DV. Considering our results, maybe a more complete training method would be more effective, as in previous studies.

Key issues affecting violence screening mentioned by health professionals were the partner's presence, the lack of occurrence of screening in their mind, and the difficulty to recognize women victims of DV. It was noticeable that the partner's presence was an important barrier because, in this study, he was present at the pregnancy follow-up in 1 out of 5 cases. During the intervention, lots of questions were asked by the professionals about how to behave with the partner, including the way to request him to leave the consultation to be alone with the pregnant woman and how to react in case of refusal. Violent men can be intrusive and refuse to leave their partners alone with someone else, and especially with a health professional, which can make the situation problematic.

The lack of training was not often quoted as an important barrier by health professionals, but the absence of occurrence of screening in their mind and an uncomfortable feeling was "often" a reason not to screen for DV for a third of them. These three items are probably linked because if health professionals initially benefited from interventions about DV (information about prevalence, complications, the way to screen them, and how to react in case of positive screening), they would be used to screening for it since their early studies. In the present study, no health professionals had studied DV before they graduated, and only 1 out of 5 had been taught

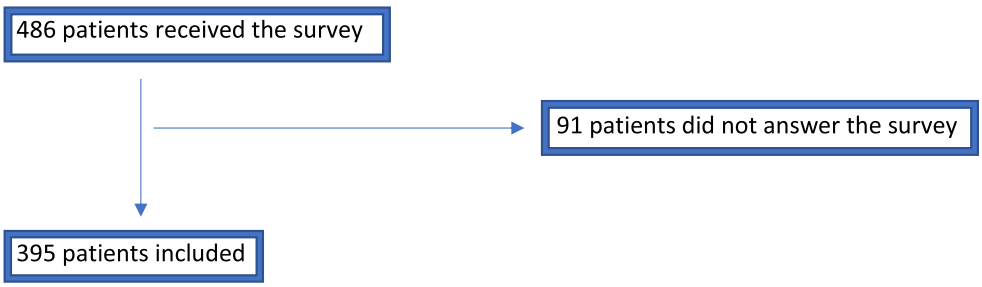

Fig. 2 Flowchart of the experimental group

Table 4 Sociodemographic variables

	Control group, $n = 439$ (%)	Experimental group, $n = 395$ (%)	P value
Age mean (years)	32.3	32.6	0.26
Term of pregnancy (weeks of gestation)	26.8	27.4	0.29
Number of pregnancies	2.4	2.4	0.88
Number of children	0.8	0.7	0.69
Number of miscarriages	0.34	0.42	0.18
Number of abortions	0.26	0.24	0.63
Addictions	50 (11.3)	55 (13.9)	0.27
Tobacco	47 (9.3)	55 (13.9)	0.15
Highest degree obtained	/	/	0.44*
Working women	317 (72.2)	330 (83.5)	0.17
Housewives	37 (8.4)	29 (7.3)	0.3
Unemployed women	40 (9.1)	32 (8.1)	0.32
Socio-economic category	/	/	0.94*
Women in a relationship	383 (87.2)	387 (97.8)	0.16
Women living with their intimate partner	365 (83.1)	370 (93.7)	0.3
Women coming with someone at the pregnancy follow-up	109 (24.8)	96 (24.3)	0.3
Intimate partner	90 (20.5)	69 (17.4)	0.06
Family	16 (3.6)	23 (5.8)	0.25
Mean number of pregnancy follow-up consultations	3.5	3.5	0.97

*P value was globally calculated, using the number of patients in each subgroup, as for the highest degree obtained and for socio-economic categories according to the INSEE classment

about it later on. Even in the US, where systematic screening is recommended (The American College of Obstetricians and Gynecologists 2012), lack of knowledge is mentioned as a barrier for screening: in a study, midwives declared they wish to benefit from more training on how to screen for DV and how to react if women report it (Parsons et al. 1995). They brought up the discussion with victim women as a way to enhance their confidence in screening (Smith et al. 2018). Currently, French medical students receive training about DV, which may imply an enhancement of screening for it, regardless of their medical specialty in a few years' time.

Difficulty to recognize victims is also a barrier to screening for DV. Health professionals who were asked about suspecting signs of DV mainly answered "numerous

Table 5 Barriers to screen for domestic violence according to health professionals (answers according to the Likert scale)

	Never, $n = 21$(%)	Rarely, $n = 21$(%)	Sometimes, $n = 21$(%)	Often, $n = 21$(%)	Always, $n = 21$(%)	No answer, $n = 21$(%)
Partner's presence	2 (9.5)	1 (4.8)	6 (28.6)	3 (14.3)	7 (33.3)	2 (9.5)
Other person's presence	7 (33.3)	2 (9.5)	4 (19)	3 (14.3)	3 (14.3)	2 (9.5)
Lack of time	8 (38.1)	4 (19)	2 (9.5)	4 (19)	1 (4.8)	2 (9.5)
Lack of Knowledge	6 (28.6)	2 (9.5)	4 (19)	4 (19)	3 (14.3)	2 (9.5)
Lack of "reflexes"	4 (19)	3 (14.3)	3 (14.3)	6 (28.6)	2 (9.5)	3 (14.3)
Feeling uncomfortable	5 (23.8)	7 (33.3)	1 (4.8)	5 (23.8)	1 (4.8)	2 (9.5)
Fear of creating a malaise	13 (61.9)	4 (19)	0 (0)	2 (9.5)	0 (0)	2 (9.5)
Patients are not concerned by this point	9 (42.9)	3 (14.3)	6 (28.6)	0 (0)	1 (4.8)	2 (9.5)
Difficulty to recognize victims	1 (4.8)	1 (4.8)	6 (28.6)	8 (38.1)	3 (14.3)	2 (9.5)
Ignorance of how to react in case of positive screening	6 (28.6)	5 (23.8)	5 (23.8)	3 (14.3)	0 (0)	2 (9.5)

emergency consultations," "gynecologic trouble," "abnormalities concerning the woman's behavior," "mood disorders," "physical traumatic lesions," or "an intrusive partner." These items were already quoted in several studies by midwives and general practitioners (François et al. 2004; Cillart et al. 2017) but they lack sensitivity. Health professionals should be aware that DV cannot always be identified by recent traumatic injuries such as bruises or sores. Elements betraying domestic violence may also be non-traumatic medical troubles such as aggravation of chronic troubles, psychosomatic troubles, psychological troubles, or drug addictions (Henrion 2005). According to the National College of French Gynecologists and Obstetricians, in addition to traumatic lesions and women attitudes which may generate suspicion of DV, it also happens that the woman has no perceptible sign (National French College of Gyncologists and Osbtetricians 2004). According to this evidence, it would be useful to systematically screen for DV, instead of trying to determine whereas women could be victims. After this study was performed, French recommendations have been published and prompt health professionals to screen for DV at least once in the perinatal period (French National Authority for Health 2019).

In this study, the lack of time was "never" a barrier to the screening for DV for 4 out of 10 health professionals. This is not consistent with other studies' findings: it was the most important item evoked in a Canadian study, concerning one-third of the nurses and physicians, more than the lack of training and the partner's presence (Beynon et al. 2012). In a previous study performed in the US, 4 out of 10 physicians declared that they were limited by the lack of time to screen and deal with abuse (Parsons et al. 1995). This point is difficult to assess since health professionals may be reluctant to consider the lack of time as a barrier regarding care and feel ashamed to disclose it. However, dealing with women victims of violence undoubtedly requires more time than other common pregnancy follow-up questions. It takes time to listen to patients, understanding the situation, and helping them to deal with the violence they are victims of. Indeed, when understanding the situation, health professionals need to take time, explaining why the situation is wrong, reassuring women, and telling them they are not guilty. They have to write a specific medical certificate, which includes what is reported by patients and what is observed after medical examination. They have to direct patients towards stakeholders such as psychologists, lawyers, and social workers and suggest that the assaults could be reported to the police. Considering that pregnancy follow-up takes time and because health professionals have already a great deal of information to give without dealing with DV, the time allowed should be reconsidered at policy level.

In a study, physicians evoked a feeling of frustration because they could not help patients as they would have liked to: "I have heard women say 'but I love him'," "I find they defend their partner or don't want what I am offering" (Beynon et al. 2012). The lack of short-term efficacy of disclosure and care is an important issue, as well as the violence of the stories disclosed by patients, which may induce lots of negative feelings among health professionals: anger, revolt, despair, discomfort, helplessness…. The Royal Australian College of General Practitioners (RACGP) made recommendations mentioning the importance of self-care for health professionals who screen and care for women victims of domestic violence (RACGP 2014).

It is noticeable that very few patients in both groups, one out of ten, declared they wished to be screened for DV. This rate seems to be lower than that observed in some previous studies showing that women were in favor of routine screening (Gielen et al. 2000; Glass et al. 2001). The way the question was formulated ("Would you have wished to talk about domestic violence?") implies that women who were not victims of DV may have found the screening useless. Some patients spontaneously added some notes in this question, such as "no need," "no because I'm not concerned, but it would be important to do so if I were," or "no but it is important to inform every pregnant woman." We probably should have asked if patients would consider that screening for DV needs to be routinely performed. Other explanations were the need to be in a trusting relationship with the health professional, the fear their partner knew about the screening, the fear that health professionals may share the information with others, and a feeling of shame, as shown in a recent study exploring pregnant women's experience of screening (Creedy et al. 2019). As for the trusting relationship, it is obviously not the case when fulfilling a questionnaire about DV. Even if we asked patients to answer the questionnaire all alone, some of them may have fulfilled it with their partner, which situation did not allow them to answer "yes" to this question.

Limitations should be considered about this study. It was a monocentric study, which implies that results cannot be extrapolated to other populations. Patients in this study were different from other French women because of a higher socio-economic status comparing with national data from the INSEE (National Institute of Statistics and Economic Studies) ($P < 0.01$).

Another limitation was the memory bias. Many women fulfilled the second survey 1 month after the last pregnancy follow-up, so they may have forgotten they had been screened for DV, all the more so they were primiparous in most cases. Health professionals give a lot of information about pregnancy during follow-up, so women may have good reasons to forget that questions were asked on DV, especially if they are not victims of violence.

Finally, women who refused to answer the survey without their husbands were excluded, which may induce an underestimation of women victims of DV. Our study excluded women who did not speak French and depended on their husbands such as foreign women who felt isolated in a country far from their

family, women in an irregular situation and afraid of justice and police (Alaggia et al. 2009, Tison 2015, Borges Jelinic 2019), and women who did not dare to separate from their husband because of a victimization phenomenon (Daligand 2015). This limitation may weaken the study's results.

The low proportion of health professionals who received the formation was another limitation: if more people attended it, we might have found a difference in terms of screening for domestic violence after the intervention.

Key issues to enhance screening for DV may include the following: educating every health student to screen for DV and deal with it; promoting longer and various interventions about DV; allowing more time for pregnancy follow-up and receiving each patient alone at least once; addressing the question of domestic violence in all medical records; implementing national guidelines; strengthening connections between stakeholders; and identifying "mentors," i.e., more experienced practitioners in each obstetrical department. Institutions have to prioritize the issue of DV to support health professionals dealing with it.

Conclusion

A brief intervention on domestic violence did not improve the screening for domestic violence in a monocentric study in an obstetrics department in Paris. Asking directly the patients about the screening being performed or not instead of health professionals allowed us to obtain a screening for domestic violence rate closer to the real one than in previous studies. Barriers to screen for domestic violence remain, such as the presence of the partner, the lack of training on screening and caring for women victims, the lack of time, and the hard feelings that disclosure of domestic violence may induce in health professionals. Nevertheless, pregnancy seems to be a favorable period to screen for domestic violence because women will benefit from a frequent medical follow-up with the opportunity to create a special link with practitioners, necessary to disclose intimate problems. That is why we should continue to educate medical students and health professionals to this frequent phenomenon and make their involvement noticeable for patients, making it easier for them to report domestic violence. Major key issues to enhance screening would be more complete interventions, health professional initial and continuous education, and policy support.

Acknowledgments The authors would like to thank Maxence Lagalle for methodological help.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Informed consent Patients received written information with investigator contact details. If they consented to be included, they fulfilled the survey. In case of refuse, they did not receive the questionnaires or did not give it back to the investigator.

Ethical approval Procedures performed in this study were in accordance with the ethical standards of the institution committee, and ethical approval was given by the institutional review board CEPAR: 2018-03.

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