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Some reproductive and sexual health indicators in rape victims in Ukraine

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Abstract: The objective was to study the demographics and some reproductive health indicators in Ukrainian women who reported having been raped. On the basis of responses to a questionnaire, we evaluated factors associated with a history of rape by a case-referent approach, using women reporting rape (n=177) as the dependent variable in comparison to those without such an experience (n=1444). Women reporting rape were more often younger than those without a history of rape. There was an association between a history of rape and three or more induced abortions. Rape victims were more likely to have a history of sexually transmitted infections and pelvic inflammatory diseases. A history of rape was more often associated with smoking and previous drug use. Women who had experienced rape more often reported more than one sexual partner during the last six months as well as during the previous year. On the other hand, these women reported sexual intercourse less frequently than did those without a history of rape. Rape victims more often reported sexual harassment at where they work or socialize as well as sexual abuse in childhood or within their family. Thus, a history of rape was common and associated with several negative health indicators. Sexual violence needs to be acknowledged in all parts of the Ukrainian society as a serious threat that requires urgent attention for the improvement of women's reproductive and general health and human rights.

Keywords: Rape, reproductive and sexual health indicators, Ukraine

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1 Introduction

Sexual violence against women is common in most societies. In national studies on sexual violence conducted in Sweden, Canada, Finland, Switzerland, Great Britain, and the United States, between 2% and 15% of women report having been a regular or occasional victim of either attempted or actual rape by a sexual partner at some time in their lives [1–3]. Most international prevalence figures on violence cannot be compared because of inconsistencies in the way that violence is conceptualized and measured [4] and because of the use of measures to minimize the underreporting of violence. Moreover, it is difficult to compare most international prevalence data on violence because of different methods used to obtain them.

Ukraine is one of the largest countries in Eastern Europe, with a population of 48.2 million, and it regained its independence following the dissolution of the Soviet Union in 1991. Since then, the country has experienced increased economic, political, social, and health problems.

According to a 2003 United Nations' Report on Violence against women in 1994-2003, in Ukraine, the problem of violence against women is extremely pressing and pervasive [5]. Although statistics compiled by the United Nations Development Program in 1999 indicated that the number of reported and attempted rapes had decreased in Ukraine over the previous few years, surveys indicated that the majority of rapes go unreported to the police because women are ashamed or fear being blamed, not believed, or otherwise mistreated [5]. The State Department of the United States noted in its 2003 Human Rights Country Report that, according to past surveys conducted by women's groups, between 10% and 15% of Ukrainian women had been raped at some point in their lives [6] Violence against women has not received extensive media coverage, despite the efforts of human rights groups to highlight the problem; therefore, much of the violence against women in Ukraine remains unreported.

Sexual violence is thought to have both direct and indirect effects on women's reproductive health [7] Some studies have suggested a potential direct effect of sexual violence on reproductive health. [8–12] Sexual violence has a profound impact on physical and mental health [8, 9] and has been associated with an increased risk of sexual and reproductive health problems, including unwanted pregnancy [10] and sexually transmitted infections (STI) [11], including HIV [12]. More commonly, sexual violence has been associated with behavioural risk factors that can increase the likelihood of adverse reproductive health outcomes [9].

The aim of this study was to investigate some reproductive and sexual health indicators in Ukrainian women of reproductive age who reported a history of rape in their lifetimes and to compare differences in pregnancy outcomes, histories of STI and pelvic inflammatory diseases (PID), and current gynaecological complaints between women who have and have not reported being raped. We also examined risk-taking behaviour, some aspects of sexual life, and experience of other types of sexual violence by those reporting a history of rape.

2 Statistical methods and Experimental Procedures

This report is based on data obtained from a survey on reproductive health and behaviour of Ukrainian women. A hospital-based study was conducted in five women's clinics in the Donetsk Region of Ukraine in 1996. Three clinics were in large cities and two clinics were in smaller towns, in which they were the only clinics. We confirmed that the age profile of the study population was similar to the overall official regional population profile for 1996.

All women (n = 1993) of fertile ages (15-49) who attended the study clinics for the first time during February, March, September, and October, 1996 and were not infertile or climacteric were asked to participate in the study and to complete an anonymous self-administrated questionnaire. Fifteen percent of them refused participation (n = 299). Therefore, 1694 women completed the questionnaire. Among the respondents, 297 were non-pregnant women attending a gynaecologist for routine check-up, 919 women were undergoing an induced abortion, and 478 were pregnant women who planned to continue their pregnancy and were receiving antenatal care.

A 192-item survey was handed out at the clinics. Women were given the questionnaire before they met the doctor as one part of the general procedures of the clinic. The women could complete the questionnaire either in the waiting room or at home. All women were told about the study by the clinic medical staff and that participation was voluntary, and they were assured anonymity. They were instructed how to complete the questionnaire and to place it in a sealed box provided in each clinic. Only the research team and none of the clinic staff had access to the questionnaires.

The questionnaire, which had been tested in a pilot study on 104 women, obtained information on the woman's demographic and personal characteristics, attitudes towards abortion as a birth control method, and previous experience with pregnancies, abortions, STI, and PID as well as gynaecological complaints at the time of survey. Questions were also asked on sexual experience, contraceptive use, and contraceptive preferences for the future, as well as on sources of sexual education/information. The questionnaire asked three questions about lifetime experience of different types of sexual violence: rape ("Have you ever been raped?"), sexual abuse in childhood or in the family ("Have you ever been subject of sexual coercion or sexual humiliation in childhood (up to 18 years old) and/or in the family but not rape?"), and sexual harassment at work or in social situations ("Have you ever experienced sexual harassment without sexual coercion where you work or socialize")

We previously have reported on abortion rates, contraceptive practices, contraceptive intentions, and factors behind future contraceptive preferences as well as factors behind pregnancy termination [13, 14].This part of the study focused on rape and did not analyze other forms of sexual abuse. Under the article 152 of the Ukraine Criminal Code, rape is defined as "sexual intercourse by force, threat of force, or by taking advantage of the victim's helplessness" [15]. The interpretation of the word "rape" in the current study, however, was left to the respondents because it was assumed that Ukrainian women have a

general understanding of what rape is (i.e., penile-vaginal penetration by force or threat of force outside of marriage). In Ukraine during the 1990s, spousal rape was not considered violence against women and people have not believed in the concept of marital rape because of the very meaning of marriage (Iryna Mogilevkina personal communication with friends, patients and obstetrician and gynaecologists). Only since 2001 has the criminal code of Ukraine outlawed rape and "forced sex with a materially dependent person," which may allow for prosecution of spousal rape.

For this study, all data obtained were analysed together, even though the percentage of women who reported a history of rape was slightly different for the three groups (non-pregnant women visiting a gynaecologist for routine check-up, women undergoing an induced abortion, and pregnant women who planned to continue their pregnancy and were receiving antenatal care) (Table 1).

Table 1 History of rape in the study population, n (%).

History of rape	Primary reason for attending Women's Clinic		
	Induced Abortion (n = 919)	Antenatal Care (n = 467)	Routine gynaecological check-up (n = 292)
No rape	769 (83.7)	416 (87.0)	259 (87.2)
Reported rape	93 (10.1)	51 (10.7)	33 (11.1)
No answer to questions on rape	57 (6.2)	11 (2.3)	5 (1.7)

The JMP (SAS Institute, Cary, NC, 1994) program package was used for data management and analysis. Computed descriptive statistics included proportions. Factors associated with a history of being raped were evaluated using a case-referent approach by calculating odds ratios (ORs), with women reporting rape as the dependent variable in comparison with those not reporting having been raped. Associations between a history of rape and factors behind it were estimated by logistic regression analyses. The reference group for each variable was selected as that in which the frequency for rape was lowest according to published data. The results are presented as univariate ORs and adjusted ORs (aORs), which were adjusted for the primary reason for attending the clinic at the time of interview (non-pregnant, abortion, or antenatal care) and age (<25, 25-34, and ≥35) with 95% confidence intervals. A P-value <0.05 was considered to indicate statistical significance.

The study was approved by the local ethics committee at the Institute of Medical Problems of the Family, Donetsk State Medical University, Donetsk, Ukraine.

3 Results

Among 1694 women who completed the questionnaire, 73 did not respond to the question on the history of rape (4.3%) and were therefore excluded. The frequency of rape in the

study population (n=1621) was 10.9%. Data on women who reported a history of having been raped (n=177) and women without such an experience (n=1444) were compared with respect to demographic and social characteristics, previous pregnancy experience, history of STI and PID, current gynaecological complaints, risk-taking behaviour, and sexual experience.

Table 2 ORs and aORs for rape in relation to socio-demographic characteristics in Ukraine, 1996 (n = 1621).

Indicator	Women reporting history of rape (n = 177)	Women reporting no history of rape (n = 1444)	OR (95%CI)	aOR (95%CI) adjusted for the primary reason for attending the clinic and age
			Age	
25–34	55 (31.1)	574 (39.8)	1.0 (Ref.)	1.0 (Ref.)
<25	110 (62.2)	659 (45.6)	1.74 (1.24-2.47)	1.76 (1.25-2.49)
≥35	12 (6.8)	211 (14.6)	0.59 (0.3-1.09)	0.58 (0.29-1.08)
			Education*	
University	51 (28.81)	506 (35.04)	1.0 (Ref.)	1.0 (Ref.)
9 years	16 (9.04)	64 (4.43)	2.50 (1.31-4.55)	1.96 (1.01-3.64)
11 years	110 (62.15)	871 (60.32)	1.26 (0.89-1.80)	1.12 (0.79-1.62)
			Marital status*	
Married/cohabiting	121 (68.36)	1122 (77.70)	1.0 (Ref.)	1.0 (Ref.)
Single	55 (31.07)	319 (22.09)	2.59 (1.32-4.98)	2.17 (1.04-4.41)
			Housing situation	
Own apartment	96 (54.24)	915 (63.37)	1.0 (Ref.)	1.0 (Ref.)
Sharing apartment	70 (39.55)	412 (28.53)	1.62 (1.16-2.25)	1.38 (0.98-1.93)
No answer	11 (6.21)	117 (8.10)	0.9 (0.44-1.65)	0.90 (0.44-1.67)
			Income	
> US$27 per person per month	89 (50.28)	669 (46.33)	1.0 (Ref.)	1.0 (Ref.)
< US$27 per person per month	42 (23.73)	326 (22.58)	0.97 (0.65-1.42)	0.97 (0.65-1.43)
No answer	46 (25.99)	449 (31.09)	0.77 (0.53-1.12)	0.79 (0.54-1.16)

* No answer excluded (< 1% of respondents).
Ref. – reference group

3.1 Socio-demographic characteristics

The age of survey participants for women reporting rape was 24.3 ± 5.5 years (mean ± SD; range, 16 to 41 years). For those without a history of rape, the mean age was 26.5 ± 6.5 years (range, 15 to 48 years), and for non-responders, the mean age was 27.0 ± 6.5 years (range, 17 to 42 years). There was no significant difference in age between those without a history of rape and non-responders; however, women reporting a history of rape

were significantly younger than those without a history of rape and the non-responders.

With respect to age categories, women younger than 25 years more often reported a history of rape. Among the women in this age group, 13.8% were rape victims and 3.9% were non-responders. Among women aged 25-34 years, 8.4% reported rape and 4.3% were non-responders. Among women 35 years and older, 5.1% reported rape and 5.9% were non-responders.

Estimated odds for rape were 1.8 times higher for women under 25 years than for women 25-34 years of age, with no confounding effect in the adjusted model (Table 2). The odds for rape were 2.0 times higher among those with a basic education than those reporting a university education, and 2.3 times higher for single women than for married/cohabiting women, with no confounding effect when adjusted for the primary reason for attending the clinic and for age. Estimated odds for rape did not differ with respect to different housing situations or reported income.

3.2 Reproductive history

Estimated odds for rape were similar with respect to parity (Table 3), but the odds of rape were 3.4 times higher for women reporting history of three or more induced abortions than for women without a history of induced abortion when adjusted for the primary reason for attending the clinic and for age.

Table 3 ORs and aORs for rape in relation to reproductive history (current pregnancy is not included for those visiting for antenatal care or for an induced abortion) in Ukraine in 1996 (n = 1621).

Indicator	Women reporting history of rape (n = 177)	Women reporting no history of rape (n = 1444)	OR (95%CI)	aOR (95%CI) adjusted for the primary reason for attending the clinic and age
			Parity	
0	101 (57.06)	612 (42.38)	1.0 (Ref.)	1.0 (Ref.)
1	55 (31.07)	540 (37.40)	0.62 (0.43-0.87)	0.71 (0.47-1.05)
2	17(9.60)	255 (17.66)	0.40 (0.23-0.67)	0.57 (0.29-1.07)
3+	4 (2.26)	37 (2.56)	0.66 (0.19-1.68)	1.07 (0.29-3.14)
			History of induced abortion	
0	72 (40.68)	588 (40.75)	1.0 (Ref.)	1.0 (Ref.)
1	37 (20.90)	293 (20.30)	1.03 (0.67-1.56)	1.18 (0.76-1.82)
2	52 (29.38)	488 (33.82)	0.87 (0.60-1.27)	1.36 (0.86-2.14)
3+	16 (9.04)	74 (5.13)	1.77 (0.94-3.13)	3.44 (1.71-6.69)

Ref. – reference group

3.3 Treatable sexually transmitted infections, PID, and gynaecological complaints

A history of STI was more common among women reporting a history of rape (Table 4).

Table 4 ORs and aORs for rape in relation to history of treatable sexually transmitted infections, gynaecological complaints at the time of interview, risk-taking behaviour, and other types of sexual violence (as reported by responders) in Ukraine in 1996 (n = 1621).

Indicator	Women reporting history of rape (n = 177)	Women reporting no history of rape (n = 1444)	OR (95%CI)	aOR (95%CI) adjusted for the primary reason for attending the clinic and age
		Gonorrhoea history*		
No	166 (93.79)	1408 (97.5)	1.0 (Ref.)	1.0 (Ref.)
Yes	10 (5.65)	25 (1.73)	3.39 (1.53-6.98)	3.0 (1.34-6.28)
		Genital warts history*		
No	153 (86.44)	1383 (95.78)	1.0 (Ref.)	1.0 (Ref.)
Yes	24 (13.56)	50 (3.46)	4.34 (2.56-7.19)	4.54 (2.67-7.59)
		Chlamydia history*		
No	158 (89.27)	1344 (93.07)	1.0 (Ref.)	1.0 (Ref.)
Yes	17 (9.60)	72 (4.99)	2.01 (1.21-3.42)	1.92 (1.05-3.32)
		Genital herpes history*		
No	163 (92.09)	1380 (95.57)	1.0 (Ref.)	1.0 (Ref.)
Yes	8 (4.52)	40 (2.77)	1.69 (0.72-3.49)	1.83 (0.77-3.82)
		Trichomonas history*		
No	131 (74.01)	1299 (89.96)	1.0 (Ref.)	1.0 (Ref.)
Yes	43 (24.29)	127 (8.80)	3.36 (2.26-4.93)	3.62 (2.41-5.37)
		Syphilis history*		
No	169 (95.48)	1386 (95.98)	1.0 (Ref.)	1.0 (Ref.)
Yes	8 (4.52)	39 (2.70)	1.68 (0.72-3.48)	1.68 (0.71-3.51)
		STI history*		
No	102 (57.63)	1133 (78.46)	1.0 (Ref.)	1.0 (Ref.)
Yes	73 (41.24)	281 (19.46)	2.89 (2.07-4.00)	2.98 (2.12-4.16)
		PID history*		
No	113 (63.84)	1041 (72.09)	1.0 (Ref.)	1.0 (Ref.)
Yes	59 (33.33)	314 (21.75)	1.73 (1.23-2.42)	1.87 (1.32-2.65)
No answer	5 (2.82)	89 (6.16)	0.52 (0.18-1.18)	0.56 (0.19-1.29)
		Dyspareunia (complaint)*		
No	141 (79.66)	1230 (85.18)	1.0 (Ref.)	1.0 (Ref.)
Yes	35 (19.77)	180 (12.47)	1.70 (1.12-2.51)	1.57 (1.03-2.34)

* No answer excluded (< 5% of respondents).

Table 4 (continued) ORs and aORs for rape in relation to history of treatable sexually transmitted infections, gynaecological complaints at the time of interview, risk-taking behaviour, and other types of sexual violence (as reported by responders) in Ukraine in 1996 (n = 1621).

Indicator	Women reporting history of rape (n = 177)	Women reporting no history of rape (n = 1444)	OR (95%CI)	aOR (95%CI) adjusted for the primary reason for attending the clinic and age
		Urethritis (complaint) *		
No	148 (83.62)	1335 (92.45)	1.0 (Ref.)	1.0 (Ref.)
Yes	29 (16.38)	92 (6.37)	2.84 (1.79-4.41)	3.06 (1.91-4.81)
		Abnormal vaginal discharge (complaint) *		
No	50 (28.25)	627 (43.42)	1.0 (Ref.)	1.0 (Ref.)
Yes	126 (71.19)	801 (55.47)	1.97 (1.41-2.80)	1.83 (1.30-2.62)
		Drank alcohol last 2 weeks		
No	85 (48.02)	713 (49.38)	1.0 (Ref.)	1.0 (Ref.)
Yes	68 (38.42)	416 (28.81)	1.37 (0.97-1.93)	1.39 (0.97-1.99)
No answer	24 (13.56)	315 (21.81)	0.64 (0.39-1.01)	0.71 (0.43-1.12)
		Smoker*		
No	96 (54.24)	1057 (73.20)	1.0 (Ref.)	1.0 (Ref.)
Yes	79 (44.63)	321 (22.23)	2.71 (1.96-3.74)	2.62 (1.86-3.69)
		Ever used drugs		
No	152 (85.88)	1348 (93.35)	1.0 (Ref.)	1.0 (Ref.)
Yes	19 (10.73)	22 (1.52)	7.66 (4.02-14.47)	7.36 (3.80-14.21)
No answer	6 (3.39)	74 (5.12)	0.72 (0.28-1.55)	0.75 (0.29-1.62)
		More than one sexual partner last 6 months		
No	115 (64.97)	1053 (72.92)	1.0 (Ref.)	1.0 (Ref.)
Yes	53 (29.94)	280 (19.39)	1.73 (1.21-2.45)	1.65 (1.14-2.36)
No answer	9 (5.08)	111 (7.69)	0.74 (0.34-1.43)	0.83 (0.38-1.60)
		More than one sexual partner last year*		
No	100 (56.50)	1033 (71.54)	1.0 (Ref.)	1.0 (Ref.)
Yes	76 (42.94)	378 (26.18)	2.08 (1.50-2.86)	1.96 (1.40-2.73)
		History of sexual harassment at place of work or socializing*		
No	42 (23.73)	879 (60.87)	1.0 (Ref.)	1.0 (Ref.)
Yes	129 (72.88)	501 (34.70)	5.39 (3.77-7.84)	5.13 (3.58-7.48)
		History of sexual abuse during childhood and/or in the family*		
No	101 (57.06)	1352 (93.63)	1.0 (Ref.)	1.0 (Ref.)
Yes	72 (40.68)	54 (3.74)	17.84 (11.92-26.92)	17.50 (11.60-26.60)

* No answer excluded (< 5% of respondents).

Table 4 (continued) ORs and aORs for rape in relation to history of treatable sexually transmitted infections, gynaecological complaints at the time of interview, risk-taking behaviour, and other types of sexual violence (as reported by responders) in Ukraine in 1996 (n = 1621).

Indicator	Women reporting history of rape (n = 177)	Women reporting no history of rape (n = 1444)	OR (95%CI)	aOR (95%CI) adjusted for the primary reason for attending the clinic and age
	Intercourse less than once a week			
No	72 (40.68)	737 (51.04)	1.0 (Ref.)	1.0 (Ref.)
Yes	91 (51.41)	587 (40.65)	1.59 (1.14-2.21)	1.51 (1.09-2.10)
No answer	14 (7.91)	120 (8.31)	1.19 (0.63-2.12)	1.24 (0.65-2.22)
	Satisfied with her sexual life*			
Yes	116 (65.54)	1135 (78.60)	1.0 (Ref.)	1.0 (Ref.)
No	60 (33.90)	280 (19.39)	2.10 (1.49-2.93)	2.22 (1.56-3.14)

* No answer excluded (< 5% of respondents).

Estimated odds for rape were 3.0 times higher for those with a history of gonorrhoea, 4.5 times higher for those with a history of genital warts, 1.9 times higher for those with a history of Chlamydia, and 3.6 times higher for those with a history of trichomonas than for women not reporting these STIs, with no confounding effect.

Overall, rape victims were 3 times more likely to have a history of STI (41.2% vs.19.5%; aOR, 2.99; 95%CI, 2.14-4.17). Moreover, those with a history of rape more often reported a history of PID (33.3% vs. 21.8%; aOR, 1.87; 95%CI, 1.32-2.67).

Odds for rape were 1.6 times higher among women reporting dyspareunia, 3.1 times higher among those reported urethritis, and 1.8 times higher among women with abnormal vaginal discharge than among those without such a gynaecological complaints at the time of the survey

3.4 Risk-taking behaviour

There was no difference in alcohol drinking during the two weeks before the interview between women with a history of rape and those without such a history; however, the odds for rape were 2.7 times higher among smokers and 7.4 times higher among those having used drugs compared to women without such habits, with no confounding effect in the adjusted model.

3.5 Sexual activity

Women who had experienced rape more often reported more than one sexual partner during the last six months as well as during the last year; however, those who had

experienced rape reported sexual intercourse less frequently than those without a history of rape. Sexual intercourse less than once a week was more often reported by rape victims than by those without a rape history (51.4% vs. 40.7%; aOR, 1.5; 95%CI, 1.80-2.10), and this association remained when adjusted for marital status (aOR, 1.43; 95%CI, 1.02-2.01). Moreover, women who had been raped were more often unsatisfied with their sexual life (33.9% vs. 19.4%; aOR, 2.22; 95%CI, 1.56-3.14).

3.6 Other types of sexual violence

Estimated odds for rape were 5 times higher among women reporting sexual harassment where they work or socialize and 17 times higher among women reporting sexual abuse during childhood and/or in the family than in those without such an experience.

3.7 Non-responders

In the study population, there were 73 (4.4%) non-responders to the question about the history of rape. Those who did not respond to the questions regarding rape were similar to the women without a history of rape with respect to age, education, cohabitation, and parity. They were also similar to those without a history of rape with respect to other characteristics (Table 5).

Nevertheless, those who did not respond to the question about the history of rape were more often non-responders to other questions related to sexual matters.

4 Discussion

There were two major findings in this study. First, 1 in 10 women attending the Women's Clinics in one of the largest industrial regions of Ukraine reported having been raped at some time in their lives. Second, a history of rape was associated with an increased risk of STI.

Sexual violence against women has become increasingly recognized as a global health and human rights issue and a serious obstacle to the achievement of gender equality [16]. This is a serious public health problem affecting millions of women each year worldwide. It is driven by many factors in a range of social, cultural, and economic contexts and it is often concealed from health care professionals by women.

Comparison of the study sample with the official regional abortion and pregnancy data for 1996 demonstrated a similar age distribution for those attending the clinic for induced abortion and for antenatal care, suggesting that our sample was representative of women in the region [13, 14]. Non-pregnant women in the study population had a similar age distribution as the women visiting for an abortion.

The strength of this study includes the recruitment of consecutive women and a large enough sample size to test for associations between a history of rape and both demographic and reproductive health characteristics. One limitation of this study was the low

Table 5 Some characteristics of non-responders to the question regarding rape history with respect to history of treatable sexually transmitted infections, gynaecological complaints at the time of interview, risk-taking behaviour, and other types of sexual violence (n=73).

Indicator	Answer choice		
	Yes n (%)	No n (%)	No answer n (%)
Gonorrhoea history	2 (2.74)	65 (89.04)	6 (8.22)
Genital warts history	3 (4.11)	62 (84.93)	8 (10.96)
Chlamydia history	2 (2.74)	58 (79.45)	13 (17.81)
Genital herpes history	3 (4.11)	58 (79.45)	12 (16.44)
Trichomonas history	4 (5.48)	56 (76.71)	13 (17.81)
Syphilis history	2 (2.74)	58 (79.45)	13 (17.81)
STI history	9 (12.33)	51 (69.86)	13 (17.81)
PID history	8 (10.96)	44 (60.27)	21 (28.77)
Dyspareunia (complaint)	6 (8.22)	63 (86.30)	4 (5.48)
Urethritis (complaint)	6 (8.22)	65 (89.04)	2 (2.74)
Abnormal vaginal discharge (complaint)	35 (47.95)	36 (49.32)	2 (2.74)
Drank alcohol last 2 weeks	9 (12.33)	16 (21.92)	48 (65.75)
Smoker	6 (8.22)	35 (47.95)	32 (43.84)
Ever used drugs	2 (2.74)	36 (49.32)	35 (47.95)
More than one sexual partner last 6 months	More than one 15 (20.55)	One 29 (39.73)	29 (39.73)
More than one sexual partner last year	More than one 19 (26.03)	One 32 (43.84)	22 (30.14)
History of sexual harassment at work and social place	6 (8.22)	10 (13.70)	57 (78.08)
History of sexual abuse during childhood and/or in the family	7 (9.59)	12 (16.44)	54 (73.97)
Intercourse less than once a week	13 (17.81)	26 (35.62)	34 (46.58)
Satisfied with her sexual life	13 (17.81)	0	60 (82.19)

number of questions on sexual violence. It is important to note that we did not collect information on the time of rape or consequences, such as medical or psychological sequelae, whether the perpetrator was prosecuted, or whether the relationship continued. The questions on sexual violence did not specify the circumstances of these experiences or identify the relationship with the perpetrator; however, the results from our study regarding the frequency of rape are in accordance with other data on rape from Ukraine [6].

One complication is that surveys do not measure the actual number of women who have been abused but rather the number of women who are willing to disclose abuse. It is always possible that results are biased by underreporting and perhaps, less likely, by over-reporting.

As it is sited by Minna Piispa, Liz Kelly in 1988 has noted that surveys underestimate the prevalence of violence against women because women tend to forget or minimize violence [17]. Women are far more likely to deny or minimize experiences of violence due to shame, fear of reprisals, self-blame, or loyalty to the abuser. Also, forced sex by a partner may not be considered rape by many women. Despite the apparent frequency of violent relationships, rape by a partner is one of the least likely assaults to be reported to health care and/or police [18]. Over-reporting is not known to be a problem in research on violence [19] because, in many societies, to be identified as a victim of abuse is so shameful that few women report abuse when it has not actually occurred.

Another trade-off of estimating prevalence of violence using a survey primarily designed for other purposes (as in our case) is the risk that violence will be significantly underreported because methods for enhancing disclosure are not used. Such underreporting is likely to dilute associations between potential risk factors and health outcomes, leading to results that are falsely negative [4].

Moreover, using a so-called "emic" approach when relying on exclusively women's own definition of abuse can significantly underestimate the true occurrence of violence because women that experience violence may not identify this behaviour as abusive, either because they are accustomed to it or because such behaviour is considered normal in their culture.

Because of a high non-response rate for some other questions in the non-responder group (those who did not answer question regarding history of rape), we could not determine whether these women were similar to those not reporting a history of rape. This may have lead to an underestimation of some potential risk factors. On the other hand, it is possible that the non-responders are ashamed to disclose details about their sexual life; however, we believe that our findings were not severely affected because the rate of non-response to questions on the history of rape was low.

Previous data from the World Health Organization, originating from individual reports from several countries, have pointed out that being young is one of the factors increasing a woman's vulnerability to sexual violence [1], which is in accordance with our findings. Coid et al., however, found in a study of primary care attendants in East London that only an age over 30 years and non-married status were associated with an increased risk of rape and sexual assault [18].

The reverse age gradient for prevalence of rape is likely a function of differential underreporting of a crime that may not have meant "rape" to older women. It is possible that older women in our study reported rape less often than younger women because the older women may not interpret what has happened to them as "violent" and/or they feel too ashamed to discuss it. Another explanation may be that younger women speak more freely about the sensitive issues such as sexuality and problems with their partner and can therefore are more willing to disclose violence. Despite this possibility, violence

remains a topic that women victims generally find difficult to speak about [17].

Another possible explanation for the more frequent reporting of rape by younger women in this study is a real increase in sexual violence directed against younger women, possibly because of increased poverty and insecurity in Ukraine since 1991. The younger women may have a cohort effect from the dissolution of the Soviet Union and subsequent disruption and loss of economic and social infrastructure. Sexual violence is more likely to occur where beliefs in male sexual dominance are strong, where gender roles are rigid, and in a country with high rates of other types of violence, which is the case in Ukraine [6].

Our finding of an association between a history of rape and lower educational status is in contrast to some other published data. Krug et al. showed that women are at increased risk of sexual violence when they become more educated and thus more empowered. This is probably due to greater empowerment bringing more resistance by women to patriarchal norms, so that men resort to violence in an attempt to regain control [1], on the other hand it is possible that empowered women are more likely to report rape.

It is known that poor women are more at risk for rape in the course of their daily tasks than those who are better off [1]. Our data did not confirm this, which might be explained by the very low cut-off limit for income used in our study. This "cut-off" income was officially quoted as the minimal salary for basic needs during that period but was probably far too low to discriminate between poor and better-off individuals. On the other hand, because nearly a third of the respondents did not answer questions on income, the variable is probably undermeasured and therefore not meaningful.

Gender-based violence is associated with serious health problems, including injuries, gynaecological disorders, mental health disorders, adverse pregnancy outcomes, and STIs [4]. The psychological consequences of abuse can be even more serious than its physical effects. Erosion of women's self-esteem following the experience of abuse puts them at greater risk of a variety of mental health problems, including depression, anxiety, phobias, post-traumatic stress disorders, and alcohol and drug abuse [4].

A frequent consequence of sexual violence is unwanted pregnancy [20]. We were not able to find a link between history of rape and a history of unwanted pregnancy. Nevertheless, an association was found between a history of rape and a history of multiple induced abortions.

We found a similar association between a history of rape and increased risk of STIs and other gynaecological complaints. This has previously been described by Krug et al. [1]. In Ukraine, which has an prevalence of HIV among pregnant women around 1%, sexual violence can further increase women's vulnerability to this virus [21]. Women affected by violence may be unable to protect themselves against infection by HIV [22]. Moreover, women with violent male partners are reported to be at increased risk of HIV infection [12]. Thus, gender-based violence is increasingly cited as an important determinant of women's HIV risk.

Use of alcohol and other drugs may lead to increased vulnerability to sexual violence. Data from our study confirmed previous findings suggesting an association between con-

suming drugs [23] and excessive smoking [24] with sexual violence. On the other hand, it cannot be ruled out that women resort to drug consumption and smoking as a consequence of abuse.

We found an association between reporting of more than one sexual partner during the last 6 months or last year and history of rape, which is in accordance with data showing increased vulnerability to sexual violence among women with multiple sexual partners [25]. It is, however, not clear whether having more sexual partners is a cause or consequence of rape [1]. Both could be true because there are the variables examined in the study change before and after rape.

Sexual violence does not occur in isolation, which was apparent in the present study; those who had experienced rape had more often experienced other types of sexual abuse in childhood and within their family as well as where they work or socialize. Thus, our data are in accordance with those reported by Coid et al. [18] and Dunkle et al. [26].

In conclusion, our study highlights the magnitude of sexual violence and especially rape in Ukraine and helps identify the reproductive health care needs of women with a history of rape. Implementing measures to increase the awareness of violence and possibly screening during the everyday activities of health care providers can help meet the urgent needs of this subgroup of women.

Women of reproductive age often visit health providers, creating an excellent opportunity to screen for and intervene in violence against women [27]. To support and protect women's reproductive health and rights, obstetrician-gynaecologists and other providers of family planning and abortion services should actively seek information from patients regarding their experiences of violence [28]. In a cross-sectional study performed in Scandinavia, most victims of abuse were not identified by their gynaecologists. It was concluded that this could increase the risk that abused patients are not treated according to their actual needs [29]. If we fail to identify women who are experiencing violence, we have, at best, missed a major opportunity to help them obtain the services they need and potentially improve their health and safety [21].

Sexual violence must be acknowledged in all parts of the Ukrainian society and needs urgent attention to improve women's reproductive and general health and to protect their human rights. Unfortunately, rape is not always considered a form of violence against women in the Ukrainian community. Data from the Ukrainian Institute of Social Research has shown that rape is considered as a form of violence against women by 56% of female and by 50% of male survey respondents [30]. According to a Country Report on Human Rights Practices, there are few state-run hot lines, shelters, and other forms of practical support for victims of abuse in Ukraine. Municipal authorities in Kiev run a women's centre, the only municipally supported shelter [6] in a country with a population of approximately 50 million. Nongovernmental organizations attempt to provide services for abused women through the establishment of women's support centres in nine cities. In such a situation, healthcare practitioners are gatekeepers who must work with the legal authorities to establish social support that will help prevent sexual violence, avoid its damage and consequences, and transform the concept to eradicate it from peaceful

human coexistence [31]. Until effective interventions are developed and instituted in Ukraine, we can expect the short- and long-term consequences of rape to continue take a toll on women's reproductive health.

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