Int J Public Health
DOI 10.1007/s00038-017-0988-z

ORIGINAL ARTICLE

Sexual violence as a risk factor for family planning-related outcomes among young Burundian women

Yajna Elouard[1,3] · Carine Weiss[2,3] · Adriane Martin-Hilber[1,3] · Sonja Merten[2,3]

Received: 20 January 2017 / Revised: 12 April 2017 / Accepted: 1 June 2017

Abstract
Objectives The study aimed to examine associations between experience of sexual violence and family planning-related outcomes.
Methods A multi-stage cluster survey was conducted among a representative sample of 744 young women aged 15–24 in eight provinces in Burundi.
Results The prevalence of young women who reported having ever been physically forced to have sexual intercourse was 26.1%. Young women who had experienced sexual violence (ever) were 2.5 times more likely not to have used any modern contraceptives in the 12 months preceding the survey. They were also 2.3 times more likely to report that their last pregnancy was unplanned. Higher odds of not being able to negotiate contraceptive use with their partners were only reported by young women having experienced sexual violence in the 12 months prior to the survey when adjusted for confounders.
Conclusions Sexual violence was found to be significantly associated with contraceptive negotiation and use as well as unplanned pregnancy. Weak perceived ability to negotiate contraceptive use highlights gender inequalities leaving young women vulnerable to unprotected sex and thus unplanned pregnancies.

Keywords Sexual violence · Family planning-related outcomes · Young women · Burundi

✉ Carine Weiss
carine.weiss@unibas.ch

Yajna Elouard
yajna.elouard@swisstph.org

Adriane Martin-Hilber
adriane.martinhilber@unibas.ch

Sonja Merten
sonja.merten@unibas.ch

[1] Sexual and Reproductive Health Unit, Swiss Centre for International Health, Swiss Tropical and Public Health Institute, Socinstrasse 57, 4051 Basel, Switzerland

[2] Society, Gender and Health Unit, Epidemiology and Public Health, Swiss Tropical and Public Health Institute, Socinstrasse 57, 4051 Basel, Switzerland

[3] University of Basel, Petersplatz 1, 4003 Basel, Switzerland

Introduction

Sexual violence prevalence is high worldwide, specifically in the African continent. A recent review found that more than one-third (36.6%) of all women in the African region had experienced physical and/or sexual violence by their intimate partner and 11.9% of women had been sexually assaulted by someone other than a partner (WHO 2013). Young women are particularly at risk of experiencing sexual violence. Analyzing data from ten countries, Stöckl found that 19–66% of women aged 15–24 had reported physical and/or sexual violence by their intimate partner (Stöckl et al. 2014). In sub-Saharan Africa, sexual violence among young women has been recognized as a serious public health and human rights violation. This has heightened the need for more evidence on the prevalence of sexual violence, including associations between experience of sexual violence and sexual and reproductive health outcomes.

Sexual violence operates through multiple pathways to affect young women's health beyond the assault itself. Existing research has reported significant associations between sexual violence and a range of negative outcomes. Studies have reported a reduced likelihood of contraceptive

Published online: 13 June 2017

use among young women who experienced sexual violence (Gómez 2011; Kacanek et al. 2013; Koenig et al. 2004; Speizer et al. 2009). As a consequence, these women are also more likely to become pregnant without prior planning, which often means it is undesired (Gómez 2011; Koenig et al. 2004; Speizer et al. 2009).

Every fifth Burundian (20.3%) is between 15 and 24 years old (ISTEEBU et al. 2010). Young Burundians face multiple sexual and reproductive health challenges: low use of modern contraceptive methods by sexually active adolescents (15–19) and youth (20–24), respectively, 1.3 and 11.7%; high rates of marriages before the age of 18 (20.4%); and high rates of unintended pregnancy among adolescents and youth, with, respectively, 1.3% and 0.7% of pregnancies unwanted and 17.2 and 26.3% of pregnancies unplanned (ISTEEBU 2008; ISTEEBU et al. 2010). The main underlying suggested contributing factors are lack of sexuality education, cultural norms that discourage talking about sexuality, lack of access to sexual and reproductive health services, gender inequality and insufficient attention to violence (PNSR and UNFPA 2012).

Awareness of sexual violence is increasing in Burundi. Current data suggest an increase in the number of cases of violence affecting youth and children of both sexes (Niyonizigiye and Roux 2011). According to a 2013 survey conducted in five provinces, 77% of those who had reported sexual violence were under the age of 25 (Manca and Baldini 2013).

Globally, considerable research has been devoted to studying the association between sexual violence and family planning among women in general, but less attention has been paid to the health consequences on youth. Moreover, although a growing body of grey literature regarding sexual violence exists in Burundi, scientific literature remains scarce. Finally, research focusing on links between sexual violence and family planning-related outcomes are relatively limited on the African continent and non-existent in the Burundian context.

To build the evidence base on young people and inform interventions in Burundi, we hypothesized that exposure to sexual violence would be negatively associated with family planning-related outcomes increasing young women's vulnerability. The aim of this paper is to explore associations between experiences of sexual violence among young women (15–24) and four family planning-related outcomes, namely (i) use of information and counselling on family planning services; (ii) perceived ability to negotiate contraceptive use; (iii) use of modern contraceptive methods, and (iv) last pregnancy unplanned.

Methods

A multi-stage cluster survey was conducted among a representative sample of young people between March and May 2014 in eight provinces of Burundi (Bururi, Cankuzo, Gitega, Karusi, Makamba, Mwaro, Rutana and Ruyigi).

Sampling

A total of 107 clusters were randomly selected. An administrative enumeration area, the hill, as defined in the national census, was considered the primary sampling unit. A second stage was the random selection of a sub-hill and in a third step, a segment of 25 households was randomly selected. Eligibility criteria included being between 15 and 24 years old and having lived in the area for at least 3 months prior to the survey. If more than one eligible person was present in the household, the person to interview was selected at random. Non-responses were recorded if the selected respondent was unavailable after two follow-up visits or upon refusal to be included in the study.

A total of 2680 households were visited and in 52.5% of these households an eligible person was identified. Among those, the response rate was 83.9%, mainly explained by the absence of young people in the household at the time of the visits as they were working in the field or in school. Only 19 young people refused to be interviewed. The total sample of youth aged 15–24 interviewed in Burundi amounted to 1214 of which 744 were women.

Ethical considerations

Ethical approval was received by the Ethical Commission of North-Western and Central Switzerland on 31 October 2013 and by the Burundi National Ethics Committee on 14 January 2014 and statistically approved by the Ministry of Finances and Economic Development Planning (Visa No.VS201402CNIS) on 4 March 2014. A steering committee was established and presided by the Permanent Secretary of the Ministry of Health and Fight against AIDS.

Participation in the survey was voluntary and anonymous and required an informed consent from the interviewee. No identifying information was entered in the tablets and signed consent forms are securely stored.

Instrument

The survey instrument was primarily based on previously validated questions and answer choices, such as the Demographic Health Survey (DHS). The tablet-based (Open Data Kit) questionnaire was translated into Kirundi

and pilot tested twice. Data quality was assured by a field supervisor and through daily quality checks of data uploaded onto a server in Switzerland.

Measures

Exposure to sexual violence was defined as forced sexual intercourse at any time in the life span of the female respondent: *"Has anyone ever physically forced you to have sexual intercourse when you did not want to*?" (ICF International 2011). Four outcome variables of interest were examined among young women: (i) use of information and counselling on family planning services; (ii) perceived ability to negotiate contraceptive use; (iii) use of modern contraceptive methods, and (iv) last pregnancy unplanned. Use of information and counselling on family planning services (i) was assessed for the 12 months preceding the survey for the entire sample ($n = 744$). The ability to negotiate condom use during sexual intercourse (ii) was measured through the interviewee's self-reported perception: *"If my partner and I want to have sex and I want to protect myself I can always convince him/her to use protection [against pregnancy and Sexually Transmitted Infections (STI)]"* (Levinson 1986). Use of modern contraceptive methods (including female and male condom, vasectomy, sterilization, injection, pill, implants and intrauterine device) (iii) was assessed for the 12 months preceding the survey and at last sexual intercourse (ICF International 2011; ISTEEBU et al. 2012). These two outcomes (ii and iii) concerned a subgroup of young women who reported being sexually active ($n = 274$) although 12 missing responses were registered for the second outcome ($n = 262$). Unplanned pregnancy (iv) concerned those who were either pregnant at the time of the survey or already had a child ($n = 233$) and was assessed by asking the respondent whether she had planned her pregnancy with the current or previous child (ICF International 2011; ISTEEBU et al. 2012).

Analyses

All analyses were weighted and conducted using STATA 13.1®. For descriptive statistics the svy command was used to account for the study design in the description of socio-demographic characteristics and the outcome variables according to exposure to sexual violence. Based on the results of the weighted descriptive analysis, mixed-effect logistic regression analyses, including a random effect for location, were conducted to determine adjusted and unadjusted associations between experiences of sexual violence and the four selected outcomes.

The variables were reversed for three of the four outcomes in the logistic regression analysis assuming that a person who had experienced sexual violence was less likely to utilize services as well as to negotiate and use contraceptive methods.

Age, education, and marital status were included as control variables in the multivariate analysis.

Results

Sample characteristics

Among the 744 young women, 57.6% were between 15 and 19 and 42.4% between 20 and 24 years old. Close to half of the young women interviewed (47.2%) had primary education (whether completed or not), 39.2% reported currently attending or having completed secondary or tertiary school and 13.6% had no education (Table 1).

Prevalence of sexual violence

The prevalence of young women who reported having ever been physically forced to have sexual intercourse was 26.1%, while 11.3% reported having been physically forced in the previous 12 months (not shown in table).

Table 1 Sample characteristics ($n = 744$), Burundi 2014

	Total % (*n*)
Age	
15–19	57.6 (407)
20–24	42.4 (337)
Education	
No education	13.6 (122)
Primary	47.2 (383)
Secondary/tertiary	39.2 (239)
Marital status	
Married	13.2 (137)
In a relationship, living together	7.5 (69)
In a relationship, not living together	10.1 (73)
Single/widowed/divorced	69.3 (465)
Province	
Bururi	24.1 (146)
Cankuzo	7.3 (57)
Gitega	10.8 (103)
Karusi	15.0 (116)
Makamba	15.8 (110)
Mwaro	3.2 (30)
Rutana	11.5 (83)
Ruyigi	12.4 (99)
Sexual intercourse	
Had no sexual intercourse	67.8 (464)
Had sexual intercourse	32.2 (279)

Exposure to sexual violence (ever) was significantly higher among 20–24 year olds (31.3%), than among 15–19 year olds (21.8%) ($p = 0.008$). Experiences of sexual violence were more frequent among young women with secondary or tertiary education (31.6%) than among young women with primary education (24.3%) ($p = 0.008$). Sexual violence seems to occur more often among young women who are in a relationship (living together 31.3%; not living together 37.7%) than among those who are single (25.1%) or married (18.3%) ($p = 0.043$) (Table 2).

Prevalence of outcomes of interest

Information and counselling on family planning was generally low with less than two in ten young women (18.8%) reporting having used the service in the 12 months preceding the survey. Among those having used this service, 18.9% reported having experienced sexual violence.

Close to three in ten women (29.5%) reported that they rather or fully disagreed with the statement "*If my partner and I want to have sex and I want to protect myself I can always convince him/her to use protection (against pregnancy and STI)*".

Overall, 78.6% of participants had not used a modern contraceptive method in the 12 months preceding the survey. Significantly more young women reported having experienced sexual violence among this group compared to those who used a contraceptive method (35.1% vs. 13.4%; $p = 0.000$). No significant difference between the use of a contraceptive method at last sex and experience of sexual violence was observed (Table 3).

Nearly half of the participants (45.2%) reported their last or current pregnancy as unplanned. Among these, 37.1% reported having experienced sexual violence compared to 18.9% of women who reported a planned pregnancy ($p = 0.006$).

Table 2 Ever experienced sexual violence ($n = 744$), Burundi 2014

	Experience of sexual violence ever % (*n*)	Experience of sexual violence never % (*n*)
All	26.1 (177)	73.9 (567)
Age		
15–19	21.8 (84)	78.2 (323)
20–24	31.3 (92)**	68.7 (244)
Education		
No education	15.8 (19)	84.2 (103)
Primary	24.3 (87)	75.7 (296)
Secondary/tertiary	31.6 (71)**	68.4 (168)
Marital status		
Married	18.3 (24)	81.7 (113)
In a relationship, living together	31.3 (19)	68.7 (49)
In a relationship, not living together	37.7 (25)	62.3 (48)
Single/ widowed/divorced	25.1 (108)*	74.9 (357)
Province		
Bururi	33.3 (47)	66.7 (99)
Cankuzo	28.4 (13)	71.6 (44)
Gitega	19.1 (15)	80.9 (88)
Karusi	30.2 (34)	69.8 (82)
Makamba	24.5 (25)	75.5 (85)
Mwaro	26.1 (9)	73.9 (21)
Rutana	16.5 (14)	83.5 (69)
Ruyigi	21.9 (20)	78.1 (79)
Sexual intercourse		
Had no sexual intercourse	23.9 (104)	76.1 (360)
Had sexual intercourse	30.3 (72)	69.7 (206)

Chi-square test; * $p < 0.05$; ** $p < 0.01$

Associations between experiences of sexual violence and outcomes of interest

Young women who had experienced sexual violence (ever) were 2.6 times more likely not to have used any modern contraceptives in the 12 months preceding the survey compared to women who had never experienced it (OR 2.6, 95% CI 1.22–5.32). They were also 2.6 times more likely to report that their last pregnancy was unplanned (OR 2.6, 95% CI 1.31–4.97). When adjusting for socio-demographic variables the results did not vary (AOR 2.5, 95% CI 1.15–5.24 and AOR 2.3, 95% CI 1.08–4.93, respectively).

Young women who had experienced sexual violence in the 12 months prior to the survey were 5.2 times more likely to report not having planned their last pregnancy compared to those who had never experienced it (OR 5.2, 95% CI 1.71–15.47). Young women who had experienced sexual violence more than 12 months prior to the survey were found to be 2.5 times more likely not to have used modern contraceptives in the 12 months preceding the survey compared to women who had never experienced sexual violence (OR 2.5, 95% CI 1.00–6.28). When adjusting for socio-demographics, the associations remained (AOR 3.9, 95% CI 1.13–13.4 and AOR 2.6, 95% CI 1.04–6.78, respectively). Higher odds of not being able to negotiate contraceptive use with their partners were only reported by young women having experienced sexual violence in the 12 months prior to the survey when adjusted for confounders (AOR 2.7, 95% CI 1.02–7.22) (Table 4).

Table 3 Sexual and reproductive health outcomes according to prevalence of sexual violence experience, Burundi 2014

	Total *N* (%)	Experience of sexual violence ever %	Experience of sexual violence never %
Outcome 1 ($n = 744$)			
Use of information and counselling on family planning services (previous 12 months)			
No	569 (81.2)	19.1	80.9
Yes	175 (18.8)	18.9	81.1
Outcome 2 ($n = 262$)			
Perceived ability to negotiate contraceptive use: if my partner and I want to have sex and I want to protect myself I can always convince him/her to use protection (against pregnancy and sexually transmitted infections)			
Fully/rather agree/undecided	186 (70.5)	22.6	77.4
Rather/fully disagree	76 (29.5)	31.6	68.4
Outcome 3 ($n = 274$)			
Use of modern contraceptive methods (previous 12 months)			
No	204 (78.6)	35.1	64.9
Yes	70 (21.4)**	13.4	86.6
Use of modern contraceptive methods (at last sexual intercourse)			
No	204 (77.2)	32.4	67.6
Yes	70 (22.8)	22	78.0
Outcome 4 ($n = 233$)			
Last pregnancy unplanned			
No	143 (54.8)	18.9	81.1
Yes	90 (45.2)*	37.1	62.9

Chi-square test; * $p < 0.05$; ** $p < 0.000$

Discussion

This study provides insight into prevalence of sexual violence and its relationship to information and counselling on family planning services, contraceptive negotiation, contraceptive use and unplanned pregnancies in Burundi, a first of its kind for the country. Over a quarter (26.1%) of the young women interviewed reported having experienced sexual violence at some point in their life, which is higher than those reported by young women in Uganda, Liberia and South Africa (11–21%) in similar studies (Callands 2013; Erulkar 2004; Gari et al. 2013; Koenig et al. 2003; Zablotska et al. 2009). Such figures are evidence of the level of human rights abuse young women suffer in these settings, and offer some explanation for the concomitant sexual and reproductive health challenges they generally face in the region (Kacanek et al. 2013; Koenig et al. 2004; Speizer et al. 2009).

Interestingly, among those who reported never having had sexual intercourse, 23.9% reported having experienced sexual violence. Two Knowledge, Attitude and Practice surveys conducted by the Swiss Tropical and Public Health Institute in the Province of Ngozi (Burundi) in 2009 and 2010 found similar reporting (Pose et al. 2011). We posit a few possible explanations for consideration. Firstly, it could be that the participant felt less judgment would be passed since she was a victim; secondly, that a woman who experienced rape but never had an intimate relationship does not consider herself to be sexually active and finally, that she felt progressively more comfortable with the interviewer and answered the second question more truthfully.

Use of information and counselling on family planning service was found to be low. Our study found that only 18.8% of those interviewed had used the service. This is similar to results from a study conducted in Ethiopia (17.6%) which also included both sexually experienced and inexperienced adolescents (Tegegn and Gelaw 2009). No significant association between experiences of sexual violence and service utilization was found in our study. Access

Table 4 Associations between sexual and reproductive health outcomes and experience of sexual violence, Burundi 2014

	Outcome 1 ($n = 744$)	Outcome 2 ($n = 262$)	Outcome 3 ($n = 274$)		Outcome 4 ($n = 233$)
	Use of information and counselling on family planning services	Perceived ability to negotiate contraceptive use	Use of modern contraceptive		Last pregnancy unplanned
	Has not used information and counselling on family planning service, in the last 12 months	"If my partner and I want to have sex and I want to protect myself I cannot always convince him to use protection (against pregnancy and sexually transmitted infections)"	Has not used modern contraceptive methods, in the last 12 months	Has not used modern contraceptive methods at last sexual intercourse	Last pregnancy unplanned
Sexual violence ever					
Crude odds ratios					
Never experienced sexual violence	1	1	1	1	1
Experience of sexual violence (ever)[a]	1.4 (0.85–2.27)	1.7 (0.87–3.27)	2.6 (1.22–5.32)*	1.4 (0.71–2.81)	2.6 (1.31–4.97)*
Adjusted odds ratios					
Never experienced sexual violence	1	1	1	1	1
Experience of sexual violence (ever)[b]	1.5 (0.82–2.65)	1.7 (0.87–3.38)	2.5 (1.15–5.24)*	1.3 (0.66–2.71)	2.3 (1.08–4.93)*
Sexual violence in the last 12 months and more than 12 months ago					
Crude odds ratios					
Never experienced sexual violence[a]	1	1	1	1	1
Sexual violence in the last 12 months[a]	1.9 (0.91–4.33)	2.4 (0.98–6.00)	2.6 (0.87–7.85)	1.4 (0.54–3.6)	5.2 (1.71–15.47)*
Sexual violence more than 12 months ago[a]	1.1 (0.59–1.97)	1.3 (0.57–2.95)	2.5 (1.00–6.28)*	1.2 (0.53–2.51)	1.8 (0.82–3.92)
Adjusted odds ratios					
Never experienced sexual violence[b]	1	1	1	1	1
Sexual violence in the last 12 months[b]	1.3 (0.54–3.30)	2.7 (1.02–7.22)*	2.2 (0.68–6.82)	1.3 (0.47–3.52)	3.9 (1.13–13.4)*
Sexual violence more than 12 months ago[b]	1.5 (0.76–3.06)	1.3 (0.55–2.91)	2.6 (1.04–6.78)*	1.1 (0.51–2.48)	1.8 (0.76–4.36)

[a] Crude OR

[b] OR adjusted for age, education, marital status

* $p < 0.05$

barriers to sexual and reproductive health services, including family planning, for young people have been well documented. These include financial barriers, not knowing where to avail services, lack of confidentiality and judgmental attitudes from health professionals (Biddlecom et al. 2007; Mbeba et al. 2012). Our results suggest the necessity to scale up youth-friendly health services, which have been promoted in Burundi since the beginning of the century.

Young women who had experienced sexual violence in the 12 months preceding the survey were more likely to report not being able to negotiate contraceptive use with their partner. After the experience of sexual violence, young women may feel disempowered making it more difficult to negotiate contraceptive use. Interestingly, in Liberia, Callands et al. found that accepting attitudes towards (physical) violence from sexual partners among young women was associated with the ability to negotiate safe sex (the ability to refuse sex and negotiate condom use), although the authors did not offer explanations (Callands et al. 2013).

In general, the use of modern contraceptive methods at last sexual intercourse was low (22.8%) compared to other studies which found prevalence rates of condom use among similar age groups of 54% among university students in Ethiopia and 51.7% in a national survey from South Africa (Dida et al. 2015; Speizer et al. 2009). Contraceptive use during the 12 months preceding the survey was associated with sexual violence experience while contraceptive use at last sexual intercourse was not. A possible explanation could be that the modern contraceptive method used was a condom and that it was not used consistently. A study in Johannesburg, Durban and Harare found that experience of violence was associated with condom non-adherence which was defined as not always using one since the last visit or not using it at the most recent sexual intercourse (Kacanek et al. 2013).

Participants who had experienced sexual violence in the 12 months preceding the survey were more likely to report an unplanned pregnancy. Our results support the findings of previous studies investigating sexual violence as a risk factor for low contraceptive use and unplanned pregnancies, such as Speizer et al.'s research in South Africa (Speizer et al. 2009). A South African cohort among 15–18 year olds both found significant associations between sexual violence and unwanted pregnancies (Christofides et al. 2014).

Violence against women is strongly associated with gender inequalities in Burundian society where violence is highly normalized and remains a serious medical and social problem. Male polygamy is widely accepted within communities and women have limited rights and decision-making power in households. Inequality exists at different levels of the household, particularly in relation to sex which women may not be able to refuse. Coercive sex is common, not only within marriage but also among young girls who are more vulnerable (Niyonizigiye and Roux 2011). In Sommers' discussion paper, a government official was quoted saying: "We only call it sexual violence if the girl becomes pregnant" (Sommers 2013). This implies that there is an important lack of understanding of sexual violence. It also suggests that it is only with a pregnancy, which may affect her family and its reputation, that violence is perceived as such. It is likely that many cases therefore remain unreported and hidden. In fact, as seen in our results, experience of violence 12 months prior to the survey was associated with unplanned pregnancies while experience of violence more than 12 months ago was not. Sommers' results could offer a possible explanation, namely that young women who were pregnant following the forced intercourse were more likely to remember it as forced as opposed to those who were forced but did not suffer any negative consequence. As such, the pregnancy may have happened first and the interpretation of violence later. Another explanation could be that of reverse causality, that is to say that young girls may use violence as an acceptable explanation for an unplanned pregnancy in a setting of such rigid moral norms.

Acceptance of violence within societies is another underlying factor. According to the latest Burundi DHS, close to 73% of women think a man has the right to beat his wife if she goes out without telling him or if she burns the food (ISTEEBU et al. 2012). Other studies conducted in Africa show high acceptance of and tolerance to violence against women; a major public health concern (Callands 2013; Gari et al. 2013; Glover et al. 2003; Koenig et al. 2003). Women who experience violence may be less likely to seek help after an assault when they may need care for assault-related wounds, to prevent an unwanted pregnancy or STI, including HIV (Callands 2013; Gari et al. 2013; Hindin 2014; Koenig et al. 2003). As shown in our results, sexual violence experience was found to be a risk factor for contraceptive negotiation and use which may be mirrored in high rates of unplanned pregnancies such as in our sample.

Young women with a lower socio-economic status in Burundi were found to be less likely to have experienced sexual violence (Swiss TPH 2015). This may be due to underreporting because they were less empowered to do so, they were more tolerant towards violence or because they were less informed regarding the possibility to report the offence. Poverty has been found to be a determinant of sexual violence as well as sexual reproductive health outcomes (WHO 2002). Sommers' study in Burundi and Umubeyi's in Rwanda corroborate this, although the latter was conducted among women of all age groups and

focused on partner violence (Sommers 2013; Umubyeyi et al. 2014). Poverty may also be a consequence of violence, as the experience thereof may lead to marginalization of young women, leading to impoverishment (WHO 2002). Our results show that experience of violence was more frequent among women with tertiary or secondary education (31.6%) as well as primary education (24.3%), compared to those with no education at all (15.8%). In fact, in the three countries of interest, namely Burundi, the Democratic Republic of the Congo and Rwanda, not having any formal education was protective of partner violence among young women, which could be linked to lower reporting (Swiss TPH 2015).

Although not always sufficient, laws are a first step to criminalizing acts of violence. The Burundian Penal code was revised in 2009 and established rape, sexual slavery, forced prostitution, forced pregnancy, forced sterilization, and other generalized and systematic acts of violence against civilians as crimes against humanity (République du Burundi 2009). The framework exists, yet very few cases of violence are reported and even fewer are condemned (ACORD 2010; Comlan 2014; Manca and Baldini 2013; Sommers 2013; WAP/RAP and Fontaine-ISOKO 2011; Zicherman 2007). In fact, among the 51 study participants in Manca and Baldini's study, only two saw their rapist condemned in a court of law (Manca and Baldini 2013). Stigmatization and discrimination experienced by young women in Burundi is not only a serious health threat, but hinders young women's capacity to report their case. The fact that the perpetrator is often known to the young woman increases the fear of reporting an event.

This study has several limitations. Firstly, the true prevalence of sexual violence may be higher than reported here as there is a high likelihood of underreporting, similarly to other studies (ACORD 2010; Manca and Baldini 2013; Sommers 2013; WAP/RAP and Fontaine-ISOKO 2011; Zicherman 2007). Moreover, questions about attempted sexual violence, other sexual acts or less severe forms of sexual violence were not asked. We did not assess the timing of the exposure and therefore the timing for example of an unplanned pregnancy might have been before the actual act. For the question on the intention to become pregnant a recall bias may occur due to the self-reported nature of the question and the probability of young women's perception to change over time (Santelli et al. 2003). We therefore conducted a sensitivity analysis to assess whether the association of having experienced sexual violence in the 12 months preceding the survey showed any association with service utilization in the previous 12 months. Some sub-groups may have been too small to allow for the detection of any associations. Finally, the current analyses are cross-sectional and, thus, do not allow for assessment of the chronology of the associated events or inferences regarding causality. Longitudinal data regarding the relations of sexual violence to different family planning-related outcomes are needed to provide clarity regarding the observed associations.

Conclusion

Sexual violence was found to be significantly associated with contraceptive negotiation and use as well as with unplanned pregnancy. Weak perceived ability to negotiate contraceptive use highlights gender inequalities where women may not have the power to demand contraceptive use. Experience of sexual violence and gender inequalities exacerbated among young women leaves them vulnerable to further unprotected sex and thus unplanned pregnancies.

Addressing violence against women is multi-faceted and includes legal, medical and psychological aspects. Legal and policy frameworks must be respected and protected by duty bearers. Moreover, the health system should provide curative as well as preventive care and health professionals should be trained to identify victims of violence who visit other services. Comprehensive sexuality education and the availability and access to youth-friendly health centers are crucial in addressing sexual violence and its negative outcomes. Teachers and parents have a strong role to play and should equip young men and women to fight against violence. Preventive measures should be embedded in the community in order to reduce acceptance of gender inequalities leading to violence. Further research, specific to the Burundian context, is needed to determine the underlying root causes of gender inequalities and disparities leading to violence and more importantly what measures can be undertaken to effectively tackle these.

Acknowledgements The authors wish to thank all the young Burundians who accepted to participate in the study. They would like to thank their colleagues Carolyn Blake, Jana Gerold, Nina Ndabihore and Joëlle Schwarz for their contributions: Carolyn Blake, Nina Ndabihore and Joëlle Schwarz for the design and conception of the study; Nina Ndabihore for the training of the data collection team; Carolyn Blake, Joëlle Schwarz and Nina Ndabihore for data collection supervision, and Carolyn Blake, Jana Gerold and Joëlle Schwarz for their comments on the manuscript. They would like to thank the Burundi Institute of Statistics and Economic Studies and all the supervisors and enumerators who collected the data. This publication was made possible thanks to funding from the Dutch Ministry of Foreign Affairs (Grant no. 24912) for the 'Making Sexual and Reproductive Health Work for the Next Generation' program.

Authors contributions Yajna Elouard participated in the conception and design, training of the data collection team, data collection supervision, interpretation of data and drafted the manuscript. Carine Weiss participated in the conception and design, training of the data collection team, analysis, interpretation of data and drafting of the manuscript. Adriane Martin-Hilber participated in the conception of the design. Sonja Merten developed the design, supervised the

analysis and revised the manuscript critically. All authors read and approved the final manuscript.

Compliance with ethical standards

Financial competing interest This research was part of a baseline survey for the 'Making Sexual and Reproductive Health Work for the Next Generation' program implemented in Burundi, the Democratic Republic of the Congo and Rwanda. The Dutch Ministry of Foreign Affairs-funded program (Grant no. 24912) is led by a consortium of several partners, including Cordaid, as the lead, and the Swiss Tropical and Public Health Institute, responsible for all monitoring and evaluation activities.

Non-financial competing interest The authors declare that they have no non-financial competing interests.

Authors' information Yajna Elouard is based in Burundi as the Coordinator of the program.

References

ACORD (2010) Faire Valoire la Loi: Burundi: un Audit sur les Pratiques Judiciares en Matière de Violence Sexuelle. Agence de Coopération et de Recherche pour le Développement

Biddlecom AE, Munthali A, Singh S, Woog V (2007) Adolescents' views of and preferences for sexual and reproductive health services in Burkina Faso, Ghana, Malawi and Uganda. Afr J Reprod Health 11:99–100

Callands TA, Sipsma HL, Betancourt TS, Hansen NB (2013) Experiences and acceptance of intimate 389 partner violence: associations with sexually transmitted infection symptoms and ability to 390 negotiate sexual safety among young Liberian women. Cult Health Sex 15(680–694):391. doi:10.1080/13691058.2013.779030

Christofides NJ, Jewkes RK, Dunkle KL, McCarty F, Shai NJ, Nduna M, Sterk C (2014) Risk factors for unplanned and unwanted teenage pregnancies occurring over two years of follow-up among a cohort of young South African women. Glob Health Action 7:1–9

Comlan E (2014) La prise en compte des violences basées sur le genre au Burundi: analyse des perceptions et obstacles. Impunity Watch. http://www.impunitywatch.org/docs/IW_Rapport_Final_Violence_basees_sur_le_genre_au_B1.pdf. Accessed 12 June 2017

Dida N, Darega B, Takele A (2015) Reproductive health services utilization and its associated factors among Madawalabu University students, Southeast Ethiopia: cross-sectional study. BMC Res Notes 8:8. doi:10.1186/s13104-015-0975-5

Erulkar AS (2004) The experience of sexual coercion among young people in Kenya. Int Family Plan Perspect 30:182–189. doi:10.1363/3018204

Gari S, Malungo JRS, Martin-Hilber A, Musheke M, Schindler C, Merten S (2013) HIV testing and tolerance to gender based violence: a cross-sectional study in Zambia. PloS One 8:1–9

Glover EK, Bannerman A, Pence BW, Jones H, Miller R, Weiss E, Nerquaye-Tetteh J (2003) Sexual health experiences of adolescents in three Ghanaian towns. Int Family Plan Perspect 29:32–40. doi:10.2307/3180999

Gómez AM (2011) Sexual violence as a predictor of unintended pregnancy, contraceptive use, and unmet need among female youth in Colombia. J Womens Health 20:1349–1356. doi:10.1089/jwh.2010.2518

Hindin MJ (2014) Adolescent childbearing and women's attitudes towards wife beating in 25 sub-Saharan African countries. Matern Child Health J 18:1488–1495. doi:10.1007/s10995-013-1389-4

ICF International (2011) Demographic and health surveys methodology-questionnaires: household, woman's, and man's. MEASURE DHS Phase III, Calverton

ISTEEBU (2008) Enquête Nationale d'Évaluation des Conditions de vie de l'Enfant et de la Femme au Burundi-2005. Institut de Statistiques et d'Études Économiques du Burundi (ISTEEBU), Bujumbura

ISTEEBU, MSPLS, ICF International (2010) Enquête Démographique et de Santé Burundi 2010. Institut de Statistiques et d'Études Économiques du Burundi (ISTEEBU) et Ministère des Finances et de la Planification du Développement Économique Institut National de Santé Publique (INSP) et Ministère de la Santé Publique et de la Lutte contre le Sida ICF International Calverton, Maryland, USA

ISTEEBU, MSPLS, International I (2012) Enquête Démographique et de Santé Burundi 2010. Institut de Statistiques et d'Études Économiques du Burundi (ISTEEBU), Ministère de la Santé Publique et de la Lutte contre le Sida [Burundi] (MSPLS). ICF International, Bujumbura

Kacanek D et al (2013) Intimate partner violence and condom and diaphragm nonadherence among women in an HIV prevention trial in Southern Africa. J Acquir Immune Defic Syndr 64:400–408

Koenig MA et al (2003) Domestic violence in rural Uganda: evidence from a community-based study. Bull World Health Organ 81:53–60

Koenig MA, Zablotska I, Lutalo T, Nalugoda F, Wagman J, Gray R (2004) Coerced first intercourse and reproductive health among adolescent women in Rakai, Uganda. Int Family Plan Perspect 30:156–163

Levinson RA (1986) Contraceptive self-efficacy: a perspective on teenage girls' contraceptive behavior The. J Sex Res 22:347–369. doi:10.1080/00224498609551314

Manca MC, Baldini I (2013) Enquete CAP (connaissances, aptitudes, pratiques) en matiere de violences sexuelles dans 5 provinces du Burundi

Mbeba RM, Mkuye MS, Magembe GE, Yotham WL, Ao Mellah, Mkuwa SB (2012) Barriers to sexual reproductive health services and rights among young people in Mtwara district, Tanzania: a qualitative study. Pan Afr Med J 13:13

Niyonizigiye D, Roux EL (2011) A view on the current situation regarding sexual violence in Burundi. The role of the church and possible avenues for intervention. Technical report

PNSR, UNFPA (2012) Rapport d'évaluation de l'offre des services conviviaux aux adolescent(e)s et jeunes par les centres de santé « amis des jeunes » , l'ABUBEF et les centres des jeunes au Burundi. Ministère de la Santé publique et de la Lutte contre le Sida Parce que chacun compte Programme national de santé de la reproduction (PNSR), UNFPA

Pose B, Zahorka M, Secula F, Schwarz J, Niyomwungere C-F (2011) Rapport final de l'étude CAP sur la santé sexuelle des jeunes. Programme d'appui au système de santé (PASS) au Burundi Province de Ngozi, districts sanitaires de Ngozi, Kiremba et Buye

République du Burundi (2009) Loi NO 1/05 du 22 Avril 2009 Portant Révision du Code Pénal Burundais

Santelli J et al (2003) The measurement and meaning of unintended pregnancy. Perspect Sex Reprod Health 35:94–101. doi:10.1111/j.1931-2393.2003.tb00111.x

Sommers M (2013) Adolescents and violence lessons from Burundi. University Antwerpen, Antwerpen

Speizer IS, Pettifor A, Cummings S, MacPhail C, Kleinschmidt I, Rees HV (2009) Sexual violence and reproductive health outcomes among South African female youths: a contextual analysis. Am J Public Health 99:S425–S431. doi:10.2105/Ajph.2008.136606

Stöckl H, March L, Pallitto C, Garcia-Moreno C, Team WHOM-cS (2014) Intimate partner violence among adolescents and young women: prevalence and associated factors in nine countries: a cross-sectional study. BMC Public Health 14:751. doi:10.1186/1471-2458-14-751

Swiss TPH (2015) Adolescent and youth sexual and reproductive health survey—Burundi Country Report: Basel, Swiss TPH

Tegegn A, Gelaw Y (2009) Adolescent Reproductive Health Services in Jumma City: accessibility and utilization. Ethiop J Health Sci 19:91–102

Umubyeyi A, Mogren I, Ntaganira J, Krantz G (2014) Women are considerably more exposed to intimate partner violence than men in Rwanda: results from a population-based, cross-sectional study. BMC Women's Health 14(1):99

WAP/RAP, Fontaine-ISOKO (2011) Security Council Resolution 1325: Civil Society Monitoring Report 2011: Burundi. Women and Allies Peacebuilders Network WAP/RAP and Fontaine-ISOKO for Good Governance and Integrated Development

WHO (2002) World Report on violence and health. WHO, Geneva

WHO (2013) Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and nonpartner sexual violence. WHO, Geneva

Zablotska IB et al (2009) Alcohol use, intimate partner violence, sexual coercion and HIV among women aged 15–24 in Rakai, Uganda. Aids Behav 13:225–233. doi:10.1007/s10461-007-9333-5

Zicherman N (2007) Addressing sexual violence in post-conflict Burundi FMR (forced migration review) Briefs 27