Global Scientific JOURNALS

GSJ: Volume 11, Issue 5, May 2023, Online: ISSN 2320-9186
www.globalscientificjournal.com

KNOWLEDGE, ATTITUDE AND ACCEPTABILITY TOWARDS SAFE ABORTION AMONG FEMALE ADOLESCENTS IN NYARUGENGE DISTRICT, RWANDA

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Abstract

Introduction: An abortion is considered safe if it is done with methods recommended by the World Health Organization and appropriate to the pregnancy duration, and if the person providing or supporting the abortion is trained. If either of these conditions are not met, the abortion is unsafe. In Rwanda, the amended law N° 01/2012/OL has extended the circumstances in which safe abortion could be practiced including rape, forced marriage, incest and maternal health. . Safe abortion services are underuse in Rwanda in general and in Nyarugenge District in particular. According to Gender Based Violence Monitoring Service [GBVMS] (2021), only a few cases of induced abortion in Rwanda are conducted in health facilities and assisted by health specialist. This study aimed to determine knowledge, attitude and acceptability towards safe abortion among female adolescents in Nyarugenge district, Rwanda.

Methods: Cross-sectional research design with quantitative approach was used to collect data from a target population of all under 18 female adolescents of Nyarugenge District. A descriptive statistic (mean, percentage and frequencies**)**, bivariate (Chi-square test with α=0.05) and multiple logistic regression (95% CI and AOR) were carried out to test the factors influencing safe abortion acceptability using statistical packages for social sciences (SPSS v22.0). The significance level was set at P-value equal to $\leq$0.05 and confidence level of 95%. This study involved 394 of female adolescents as a total sample size recruited by using random sampling technique within two youth centers of Nyarugenge District from 30th August 2022 up to 28th October 2022.

Results: Socio-demographic characteristics of study population showed that the group of 17-18 years old was dominated by the group of 14-16 with 52.8% and 75.1% of the respondents were single mothers. The participants having done secondary school were majority with 47.5% and 65.2% of the respondents were people of middle class whereas the rich were 11.2% and 23.6% were poor. 47.5% were Protestants followed by Catholic members who were 37.6%.The findings on knowledge level revealed that the respondents with high level of knowledge were 61.7% while

the respondents with low level of knowledge were 38.3%. Those who had positive attitude were 57.6%. The respondents with low level of safe abortion acceptability were 60.4%. Concerning the factors influencing safe abortion acceptability, bivariate analysis showed that being an adolescent mother presented a relationship with high level of acceptability on safe abortion. Also, the higher the level of education, the higher the level of safe abortion acceptability with 58.3%, X^2=14.413, p<0.012. Multivariable analysis showed that being rich was 6 times more likely associated to safe abortion acceptability, AOR(CI)=6.175(1.117-13.331), p<=0.001. Having a low level of knowledge on safe abortion was 7 times less likely associated to safe abortion acceptability, AOR(CI)=0.150(0.050-0.420), p<=0.001. Having negative attitude was 10 times less likely associated to safe abortion acceptability, AOR(CI)=0.098(0.021-0.253), p<=0.001.
Conclusion: Therefore, , The government should put in place a program helping to sensitize the female adolescent on the legal framework on safe abortion as it was found that 65.7% do not know the circumstances in which safe abortion is legal in Rwanda. Also, the parliament should ease the conditions for safe abortion because 38.1% of the respondents said that they would recommend to the Parliament to do so.

Key words: Knowledge, Attitude, Acceptability, Safe Abortion, Clandestine abortion, Female Adolescent and factor associated.

Introduction

Abortion is the termination of a pregnancy by removal or expulsion of an embryo or fetus. An abortion that occurs without intervention is known as a miscarriage or "spontaneous abortion"; these occur in approximately 30% to 40% of pregnancies (Blayo, 2018). When deliberate steps are taken to end a pregnancy, it is called an induced abortion, or less frequently "induced miscarriage". The unmodified word abortion generally refers to an induced abortion. The reasons why women have abortions are diverse and vary across the world. Reasons include maternal health, an inability to afford a child, domestic violence, and lack of support, feeling they are too young, wishing to complete education or advance a career, and not being able or willing to raise a child conceived as a result of rape or incest (Evina, 2018).

The practice of induced abortion is on the rise these days in the world. Indeed, in a study conducted in 2019 on all forms of abortion, The Allan Guttmacher Institute (2019) estimated that 44 million induced abortions occur every year worldwide. This corresponds to between 20 and 32 abortions per 100 known pregnancies (The Allan Guttmacher Institute, 2019). The practice of abortion is illegal in most developing countries, which explains the frequent recourse to clandestine or unsafe abortion, which are those abortions carried out in conditions of insufficient hygiene and safety. Nearly 15 million of such abortions are performed each year in these countries, which means 97% of the total number of unsafe abortions worldwide (Gautier, 2020).

The World Health Organization reports that 4.3 million unsafe abortions (WHO, 2020) occurred in Africa in 2019, with the bulk recorded in East Africa (1,700,000) and Africa West (1,200,000 abortions). These regional differences can be explained according to the WHO (2020) by the variety of legal frameworks. For example, Tunisia and South Africa allow abortion on demand, which explains the high level of abortion in these countries. In addition, women resort to abortion much more to end unplanned pregnancies.

The Guttmacher Institute (2019) estimated that in developing countries of the 183 million pregnancies that occur each year, 37% are unintended and approximately 20% end in abortion. In Africa, around 30% of the 40 million pregnancies are unintended and 12% are terminated by abortion (WHO, 2020). Among these abortions, less than 10% are performed safely since they are performed in authorized health facilities.

In Rwanda, few studies have been done on abortion due to its illegal nature, its social perception and its prohibition by several religions. Yet it is recognized that abortion is not a marginal phenomenon in Rwanda, which is perhaps unsurprising when one considers that almost one in three women (37%) have unmet needs for contraception (Basinga, 2017). The survey carried out on the conditions of safe motherhood and abortions in the city of Kigali in 2017 made it possible to estimate at 19% the proportion of adolescent women in this city who had recourse to at least one induced abortion (Basinga, 2017). Normally, it was known that abortion is an illegal act in Rwanda. The Government of Rwanda provided heavy penalties for anyone found guilty of acts of abortion. However, recently, the law was amended in order to reduce the penalties provided in the previous texts but also to open a window of safe abortions under certain conditions. From 2012, induced abortion is approved if it results from rape, incest or forced marriage (Government of Rwanda, 2012). This means that a pregnancy which falls within the categories of that provided for by Organic Law N° 01/2012/OL, can be aborted in a safe way with the help of a Doctor. Despite the visible evolution in the legislative texts, the Rwandan population remains skeptical about the practice of abortion (GBVMS, 2021). This is why this study is being undertaken in order to assess the knowledge, attitude and acceptability towards safe abortion among under 18 female adolescents basing the survey in Nyarugenge District.

Materials and methods

Research Setting

The research was done in two youth centers of Nyarugenge District (Club RAFIKI in Rwezamenyo Sector and Maison des jeunes Kimisagara in Kimisagara Sector). Nyarugenge District is one of the District in Kigali City, Capital of Rwanda

Research Design

The researcher used a cross-sectional research design and adopted a quantitative research approach. So, researcher chose cross-sectional study design because main objective of the study was to determine the knowledge, attitude and acceptability towards safe abortion among female adolescents.

Target Population

The target population of this study consisted of all under 18 female adolescents of Nyarugenge District aged between 14 and 18. According to the annual report of this District, female adolescents aged between 14 and 18 years old were 26,147 persons (Nyarugenge District, 2021).

Sample size and sampling technique

Using cross sectional study, random sampling technique were used to select participants of the study among female adolescents who attended two selected youth centers depending on the attendance and those who fit with the inclusion criteria from 30th August 2022 up to 28th October 2022.

The Sample size was delivered from population of 26,147 female adolescents respondents and was calculated by using Yamane's formula at a confidence interval of 95% and margin of error of 5% as described below where:

$$n= \frac{N}{1+Ne^2}$$

If

With N= Population = 26,147 and e= Margin error /error of tolerance = (0.05)

$$n= \frac{26,147}{1+26,147(0.05)^2} = 393.9=394$$

This means 394 female adolescents living in Nyarugenge District.

Data Collection instrument

Data was directly collected from the selected respondents using a questionnaire. The English to Kinyarwanda pre-translated questionnaires were prepared in advance to allow clear explanation and participant selection.

It helped in assessing the knowledge, attitude and acceptability towards safe abortion among under 18 female adolescents of Nyarugenge District. Only closed questions were structured concerning objective one and three of this study. Concerning objective two, Likert scale questions were used to describe the attitude of female adolescents of Nyarugenge District towards safe abortion. Therefore, 394 questionnaires were distributed to under 18 female adolescents.

Data Analysis

The data coding was processed to categorize the level of knowledge, attitude, and acceptability towards safe abortion and then collected data were entered into Statistical Package for Social Sciences (SPSS) version 22.0 for being analyzed. Data cleaning and were done then descriptive analysis (frequencies, mean and percentage) was done for all independent variables. Chi square test with $\alpha = 0.05$ (bivariate analysis) was done to assess association of independent variable and dependent variable and significant variables in bivariate analysis were further subjected to multivariate binary logistic regression analysis (adjusted odd ratios, 95% CI and P value ≤ 0.05) were done to measure strength of association between independent variables and outcome variable. Results were presented using tables and figures.

Ethical Consideration

Mount Kenya University provided introduction letter to conduct research in Nyarugenge District catchment area. Researcher submitted research introduction letter to Nyarugenge District administration. Nyarugenge District provided approval letter of conducting research in Nyarugenge District catchment area. Data collectors ensured that all participants were explained objectives of the study and its implication and accepted voluntarily to participate and signed informed consent. Names of respondents were not written to questionnaires to keep identity confidential**.**

Results

Socio-demographic Characteristics of Respondents

As indicated in table 1, the group of 14-16 years old dominated the group of 17-18 with 52.8%. Most of the marital status were adolescent mothers with 75.1%. The education level showed that the participants with secondary school were majority with 47.5% followed by 33.2% of primary education participants. The majority of the respondents are people of middle class with 65.2% whereas the rich are 11.2% and 23.6% of poor. The majority of the respondents were Protestants with 47.5% followed by Catholic members who were 37.6%.

Table 1: Socio-Demographic Characteristics of Respondents

Variables	Frequency	Percentage
Age		
14-16	208	52.8
17-18	186	47.2
n	**394**	
Status		
Adolescent mother	296	75.1
Single	98	24.9
n	**394**	
Education		
Not educated	76	19.3
Primary	131	33.2
Secondary	187	47.5
n	**394**	
Wealth index		
Poor	93	23.6
Middle	257	65.2
Rich	44	11.2
n	**394**	
Religion		
Catholic	148	37.6
Protestant	187	47.5
Muslim	29	7.4
No religion	30	7.6
n	**394**	

Source: Primary data, 2022

Level of knowledge regarding safe abortion among adolescents in Nyarugenge District

Table 2 demonstrated the study findings where 76.1% knew that safe abortion is conducted in health facilities while 12.9 said that it could be conducted at school. 75.6% knew that safe abortion is performed by a health specialist trained for that purpose while 9.4% think that community health workers could do it. 7.9% knew vacuum aspiration as a method of safe abortion, 11.9% knew dilatation and curettage and 24.1% knew mediation abortion while 21.6% said that traditional means could be used to conduct safe abortion. Around 56.3% estimated that the preferable time to perform safe abortion is in the 1st trimester, 23.1% said it is in the 2nd trimester while 20.8% said it is in the 3rd trimester. 16.0% also reported that rape and incest are among the reasons for what safe abortion is legal in Rwanda, mother's or fetus' health was evoked by 18.3% and 12.4% said that poverty could be a reason of safe abortion. 34.8% admitted that profuse bleeding is among the consequences of unsafe abortion, 19.3% said that unsafe abortion could lead to death and 18.8% said that unsafe abortion could lead to infertility. Concerning the level of knowledge, the mean cut off was calculated as follows: 12/2=6 correct answers out of 12. Those who have more than 6 correct answers are considered to have high level of knowledge while those who have less than 6 correct answers were consider to have low level of knowledge. The same scoring technique was used by Yaqing, Panpan and Qisheng (2011).

Table 2: Level of knowledge on safe abortion of respondents

Variables	Frequency	Percentage
Where is safe abortion service conducted?		
Health facility	300	76.1
At school	51	12.9
At the District office	29	7.4
Any other area	14	3.6
Who perform safe abortion?		
Health specialist trained for that purpose	298	75.6
Teacher	44	11.2
Community health workers	37	9.4

Any other person	15	3.8
Which safe method of abortion do you know?		
Vacuum aspiration	31	7.9
Dilatation & Curettage	47	11.9
Medication Abortion	95	24.1
Traditional means	85	21.6
Eat very hot food	121	30.7
Do not know	15	3.8
When is the preferable time to perform safe abortion?		
1st trimester	222	56.3
2nd trimester	91	23.1
3rd trimester	82	20.8
For what reason is abortion legal in Rwanda?		
Rape and incest	63	16.0
Mother's or fetus' health	72	18.3
Poverty	49	12.4
Illiteracy	83	21.1
Do not know	127	32.2
What are the consequences of unsafe abortion?	137	34.8
Profuse bleeding	137	34.8
Death	76	19.3
School drop out	29	7.4
Infertility	74	18.8
Do not know	78	19.8

Source: Primary data, 2022

Attitudes towards safe abortion among adolescents in Nyarugenge District

The findings of this study as depicted in table 3 showed that 38.8% agreed followed by 30.2% with uncertainty on the following assertion: Safe and voluntary abortion should be legal and accessible for all. About 68.8% strongly agreed that a woman under 18 requesting safe abortion services can have access to those services if she is eligible according to the law. About 30.7% disagreed that safe abortion is acceptable if she is financially unable to raise the child, and this was followed by 29.2% of people who were uncertain. About 37.6% agreed and followed by 37.3% of respondents who strongly agreed that safe abortion is acceptable to prevent mother's life or fetal anomaly.

About 47.5% strongly agreed, followed by 20.8% who disagreed that it is acceptable for a woman to choose safe abortion because of rape or incent. About 39.3% strongly agreed, 29.7% of uncertain people while 19.5% agreed that safe abortion services should be available at health centre and hospital. About 40.1% strongly agreed and 30.2% agreed that a woman has the right to terminate her pregnancy if she wishes. About 40.4% were uncertain and 24.9% agreed that adolescent female have the right to terminate pregnancies any time they want.

Likert scale and respective score were used; for strongly disagree (0), Disagree (1), Uncertain (2), Agree (3) and Strongly agree (4) for questions 1,2,4,5,6 and for strongly disagree (4), Disagree (3), Uncertain (2), Agree (1) and Strongly agree (0) for questions 3,7 and 8,the mean cut off was calculated as follows:(0+1+2+3+4)/5=2. Therefore, those who had more than 2 were considered to have positive attitude while those who had less than 2 were considered to have negative attitude. (Dukuzumuremyi et al., 2020)

Table 3: Attitude towards safe abortion of the respondents

	Strongly disagree n(%)	**Disagree n(%)**	**Uncertain n(%)**	**Agree n(%)**	**Strongly agree n(%)**
Safe and voluntary abortion should be legal and accessible for all	40(10.2)	3(0.8)	119(30.2)	153(38.8)	79(20.1)
A woman under 18 requesting safe abortion services can have access to those services if she is eligible according to the law	39(9.9)	75(19.0)	76(19.3)	81(20.6)	123(68.8)
Safe abortion is acceptable if she is financially unable to raise the child	5(1.3)	121(30.7)	115(29.2)	76(19.3)	77(19.5)
Safe abortion is acceptable to prevent mother's life or fetal anomaly	8(2.0)	11(2.8)	80(20.3)	148(37.6)	147(37.3)

It is acceptable for a woman to choose safe abortion because of rape or incent	7(1.8)	82(20.8)	43(10.9)	75(19.0)	187(47.5)
Safe abortion services should be available at health centre and hospital	6(1.5)	39(9.9)	117(29.7)	77(19.5)	155(39.3)
A woman has the right to terminate her pregnancy if she wishes	19(4.8)	39(9.9)	59(15.0)	119(30.2)	158(40.1)
Adolescent female have the right to terminate pregnancies any time they want	38(9.6)	60(15.2)	159(40.4)	98(24.9)	39(9.9)

Source: Primary data, 2022

Acceptability of safe abortion among adolescents in Nyarugenge District

The findings of this study on objectives three regarding the acceptability as shown in table 4 demonstrated that 60.2% did not accept to go for safe abortion if they had an unwanted pregnancy. Only 39.8% would do so. 42.1% would recommend their college to go for safe abortion if she had an unwanted pregnancy. Based on the current legal status, only 38.1% of the respondents would recommend to the Parliament to make easier the conditions for safe abortion and only 40.4% of the respondents would recommend adolescent female to prefer safe abortion instead of resorting to unsafe abortion.

The maximum score for acceptability was 4. The mean score for acceptability was 4/2=2. Participants with scores below the mean were considered as having poor safe abortion acceptability while those with a score above the mean were considered as having good safe abortion acceptability. Alternatively, the level of safe abortion acceptability responses was classified and ranked to the high level of acceptability (Accept more than 2 items) and low level of acceptability (Accept less than 2 items) (Amponsah-Tabi et al., 2023).

Table 4: Acceptability of safe abortion of the respondents

Variables	Frequency	Percentage

If you have an unwanted pregnancy, would you go for safe abortion?		
Yes	157	39.8
No	237	60.2
If your colleague has an unwanted pregnancy, would you recommend her to go for safe abortion?		
Yes	166	42.1
No	227	57.6
Based on the current legal status, would you recommend to the Parliament to make easier the conditions for safe abortion?		
Yes	150	38.1
No	244	61.9
Would you recommend adolescent female to prefer safe abortion instead of resorting to unsafe abortion?		
Yes	159	40.4
No	235	59.6

Source: Primary data, 2022

Factors influencing acceptability of safe abortion among adolescents in Nyarugenge District

The findings of this study showed that the relationship of six factors (status, education, wealth index, religion, level of knowledge and attitude) toward safe abortion acceptability, were statistically significant with $p<0.05$. Being an adolescent mother presented a good relationship with high level of acceptability on safe abortion with 44.9%, $X^2=14.181$, $p<0.014$; the higher the level of education, the higher the level of safe abortion acceptability with 58.3%, $X^2=14.413$, $p<0.012$; also, wealth index presented a good relationship with safe abortion acceptability with 45.9%, $X^2=16.922$, $p<0.019$; religion presented a good relationship with safe abortion acceptability with 69.4%, $X^2=23.814$, $p<0.010$; the higher the knowledge, the higher the level of safe abortion acceptability with 63.7%, X^2=46.754, $p<0.001$. The positive attitude was also associated with the high level of safe abortion acceptability with 70%, $X^2=43.341$, $p<0.001$.

Table 5: Bivariate analysis of factors associated to safe abortion acceptability of the respondents

Particulars	Safe abortion acceptability		Chi-square	P-value
	High n(%)	Low n(%)		
Age			0.808	**0.369**
14-16	78 (37.5)	130 (62.5)		
17-18	78 (41.9)	108 (58.1)		
Status			14.181	**0.014**
Adolescent mother	133 (44.9)	163 (55.1)		
Single	23 (23.5)	75 (76.5)		
Education			14.413	**0.012**
Not educated	12 (15.8)	64 (84.2)		
Primary	35 (26.7)	96 (73.3)		
Secondary	109 (58.3)	78 (41.7)		
Wealth index			16.922	**0.019**
Rich	36 (38.7)	57 (61.3)		
Middle	118 (45.9)	139 (54.1)		
Poor	12 (24.6)	32 (75.4)		
Religion			23.814	**0.010**
Catholic	100(69.4)	44(30.6)		
Protestant	24(12.8)	163(87.2)		
Muslim	6(18.2)	27(81.8)		
No religion	26(86.7)	4(13.3)		
Level of Knowledge			46.754	**0.001**
High knowledge	149(63.7)	85(36.3)		
Low Knowledge	7(4.4)	153(95.6)		
Attitude				
Positive attitude	147(70)	63(30)	43.341	**0.001**
Negative attitude	9(4.9)	175(95.1)		

Source: Primary data, 2022

Using the goodness of fit of the model, the findings of this study as shown in table 6 demonstrated that adolescent mothers were three-fold significantly associated to safe abortion acceptability with AOR(CI)=3.376(0.223-0.632), p<0.019. Also, having done secondary school was 4 times more likely than being not educated associated to safe abortion acceptability, AOR(CI)=4.453(3.770-14.735), p<=0.012. Being rich was 6 times more likely than being poor associated to safe abortion acceptability, AOR(CI)=6.175(1.117-13.331), p<=0.001. Being Muslim was 5 times less likely

than having no religion associated to safe abortion acceptability, AOR(CI)=0.260(1.787-4.742), p<=0.001. Having a low level of knowledge on safe abortion was 7 times less likely than having a high level of knowledge associated to safe abortion acceptability, AOR(CI)=0.150(0.050-0.420), p<=0.001. Having negative attitude was 10 times less likely than having positive attitude associated to safe abortion acceptability, AOR(CI)=0.098(0.021-0.253), p<=0.001.

Table 6: Multivariate analysis of socioeconomic factors associated safe abortion acceptability

Particulars	AOR	95% C.I		P-value
		Lower	Upper	
Status				
Adolescent mother	3.376	0.223	0.632	**0.019**
Single	Ref.			
Education				
Secondary	4.453	3.770	14.735	**0.012**
Primary	3.833	2.362	6.219	**0.016**
Not educated	Ref.			
Wealth index				
Rich	6.175	1.117	13.331	**0.001**
Middle	5.156	1.113	11.237	**0.001**
Poor	Ref.			
Religion				
Catholic	1.142	0.906	2.345	0.074
Protestant	0.460	1.168	4.558	**0.024**
Muslim	0.260	1.787	4.742	**0.010**
No religion	Ref.			
Level of Knowledge				
Low knowledge	0.150	0.050	0.420	**0.001**
High Knowledge	Ref.			
Attitude				
Negative attitude	0.098	0.021	0.253	**0.001**
Positive attitude	Ref.			

Source: Primary data, 2022

DISCUSSION

The main objective of this study was to determine knowledge, attitude and acceptability towards safe abortion among female adolescents in Nyarugenge District, Rwanda. The study revealed that more than half of the respondents possessed high level of knowledge and positive attitude towards

safe abortion. However, more than half of the respondents have low level of acceptability towards safe abortion. These results can be well explained that Government of Rwanda put in in place a program helping to sensitize the female adolescents on the legal framework on safe abortion as it was found that 65.7% do not know the circumstances in which safe abortion is legal in Rwanda. The parliament should ease the conditions for safe abortion because 38.1% of the respondents said that they would recommend to the Parliament to do so and then, There must be a close collaboration between the Ministry of Health planners and its partners especially UNFPA to sensitize the women so that they can take advantages of the opportunity given to them by the current legal framework on safe abortion as it was found that 58% of them have affirmed that they do not know where this service is provided to the women in need and have little knowledge on the consequences they would face in case of unsafe abortion. Women are not yet aware of the circumstances of safe abortion and the acceptability is still at low level.

This study findings on level of knowledge revealed that the respondents with high level of knowledge were 61.7% while the respondents with low level of knowledge were 38.3%.
This knowledge results were frankly reported as low level of knowledge in comparison with the study carried out by Ganatra et al. in 2017 in London. In this study, the authors revealed that the level of knowledge that women have on circumstances accepted by the legal framework for safe abortion is globally not high. With regard to the place where safe abortion is performed, the hospital center was mentioned by the vast majority of women (80%). Concerning the knowledge of the type of person qualified to support women in safe abortion, almost all the women know that the doctor (specialist or general practitioner) is the person most qualified to carry out such an intervention. The reason for this discrepancy might be due to differences in level of living between Rwandans and European people.

Also, the finding of the present study is lower compared to the one conducted by Paluku et al. (2013) in Uganda on “Knowledge and attitudes about induced abortions among female youths attending Naguru Teenage Information and Health Centre”. According to these authors, 82.4% of female adolescents had good knowledge of safe abortion. The reason for this discrepancy might be due to differences in study participants; only first year students were included in these studies, whereas in our study, the study participants included all adolescent female regardless of their education level. It is a fact that as the year of study increases, the level of knowledge of female

adolescents also increases. Moreover, the variation might be occurred due to differences in access to health information in different settings.

On the other hand, the findings of this study show a higher level of knowledge compared to those found in Zambia. For example, in a study conducted by Cresswell et al in 2014, it was found that in three provinces of Zambia, only 16% of women were aware of the abortion legal criteria applicable since 1972. The possible explanation might be the fact that the present study concerned only female adolescent living in urban area while the one conducted in Zambia concerned those living in rural areas.

The findings on attitude level showed that the respondents with positive attitude were 57.6% while the respondents with negative attitude were 42.4%. The level of the present findings on positive attitude towards safe abortion is higher than the level found in a study done by Cresswell in Zambia in 2016 entitled "Women's knowledge and attitudes surrounding safe abortion in Zambia: a cross-sectional survey across three provinces". Here, the author found that many women are firmly against safe abortion, even if they are pushed to do so by their partner. Indeed, 71% of the women that participated to his survey have negative attitude against safe abortion. The reason for this variation may be due to cultural beliefs and socioeconomic status.

The present results differ also from Basinga's findings. According to him, the surveyed Rwandan women reject safe abortion with regard to their children and their relatives. In their survey, only about 16% presented positive attitude towards safe abortion. These findings are lower compared to the present findings which showed a relatively high level of positive attitude (42.4%). The reason for this variation may be due to the fact that the present study concerned only female adolescent living in urban area while the one conducted by Basinga concerned those living in rural areas.

Also, the findings of the present study are higher than the one conducted by Desalegn et al. (2015) on "knowledge, attitude and factors associated with safe abortion among first year students in Mekelle University, Tigray, Ethiopia". These authors showed that nearly half of the female adolescents (42.8%) have a positive attitude towards safe abortion. The reason for this variation may be due to cultural beliefs and socioeconomic status.

The findings on the level of acceptability towards safe abortion showed that the respondents with high level of safe abortion acceptability were 39.6% while the respondents with low level of safe abortion acceptability were 60.4%. Compared to other studies, the level of acceptability is lower with regard to the acceptability of safe abortion in a study which was carried out by Bearak in London in 2017. The author found that in general, the vast majority of women (78%) are aware of the legislation allowing women to resort to safe abortion and 69% of them agree with the chances given to them to abort in safety. The reason for this variation may be due to cultural beliefs and socioeconomic status.

The present results differ from Berer's ones. According to him, the vast majority of the women surveyed declare themselves against abortion. Also, the majority of them (68%) they are not ready to resort to safe abortion in any case. They differ also from Sully's findings in terms of the percentage of those who accept safe abortion as means of beneficiating from the evolution of legal aspects. In its survey, it was found that the vast majority of the women are against safe abortion. Indeed, 78% of the women who answered the questionnaire said that they against safe abortion (Sully et al., 2018).This may be because the chance of females who are in relation to be exposed to sexual intercourse and getting unwanted pregnancy is high, their knowledge of the solution also increase.

Concerning the factors influencing safe abortion acceptability, in the present study, bivariate analysis showed that being an adolescent mother presented a good relationship with high level of acceptability on safe abortion. These results differ from the ones found by Cresswell, J.A. et al. (2016). In their study, they found no difference between the level of safe abortion acceptability between younger and elder women in terms of safe abortion acceptability with 48.3%, X^2=0.413, p<0.156.

The present findings are almost the same as those found by Umuhoza et al. in 2013. They found that health index health index is linked to the level of safe abortion acceptability as 62% of the participants in the category of rich people said that they can accept safe abortion while only 28% in the category of poor people said that they can accept safe abortion. Indeed, there is a visible difference between the two categories of participants in terms of safe abortion acceptability and the two studies found the same situation. The justification for this might be because participants

who have good income get access to information through media, education, and peer education, which may lead to having provided knowledge and accepting safe abortion.

Conclusion

This study was done to determine knowledge, attitude and acceptability towards safe abortion among female adolescents in Nyarugenge District, Rwanda. The study revealed that more than half of the respondents possessed high level of knowledge and positive attitude towards safe abortion. However, more than half of the respondents have low level of acceptability towards safe abortion. The low level of knowledge and negative attitude were highly associated to low level of safe abortion acceptability.

Limitations of the study

The research was conducted in youth centers of Nyarugenge district area in City of Kigali and it is located in urban setting, its findings might not be generalized to all settings. It was cross-sectional study conducted only in Nyarugenge District.

Acknowledgement

Author humbly appreciated Mount Kenya University staffs who supported this research, female adolescents who participated in the study, Club RAFIKI and Maison des jeunes Kimisagara and Nyarugenge District Administration for conducting research authorization.

Funding: No funding sources

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