

## Awareness regarding Safe Abortion among Adolescent Girls in Rural area of Mahottari district of Nepal

Jitendra Kumar Singh <sup>1)\*</sup>, Poonam Kumari Sah<sup>1)</sup>, Shambhu Prasad Kushwaha<sup>2)</sup>,  
Bishnu Bahadur Bajgain<sup>3)</sup>, Sanjay Chaudhary<sup>4)</sup>

*Department of Community Medicine, Janaki Medical College, Tribhuvan University, Janakpur, Nepal<sup>1)</sup>,*

*District Public Health Office, Dhanusha, Janakpur, Nepal<sup>2)</sup>,*

*Department of Health Care Management, National Open College, Pokhara University, Lalitpur 44700, Nepal<sup>3)</sup>,*

*Department of Surgery, Janaki Medical College, Tribhuvan University, Janakpur, Nepal<sup>4)</sup>*

### = Abstract =

**목적** : 이 연구는 네팔의 마호타리 지방에 거주하고 있는 사춘기 소녀들의 낙태에 대한 인식 수준을 평가하기 위해 수행하였다.

**방법** : 이 연구는 지역사회 기반 단면연구로서 2019년 1월부터 3월까지 네팔의 마호타리 지역의 농촌 마을 사춘기 소녀 412명 대상으로 실시하였다. 대상자는 10세에서 19세까지의 사춘기 소녀로서 다단계집락추출 방법으로 선정하였고, 사춘기 소녀의 낙태에 대한 인식 수준에 미치는 요인을 알기위해다변량로지스틱회귀을 시행하였다.

**결과** : 조사 결과 사춘기 소녀의 45.6%가 안전한 낙태에 대해 높은 인식도를 가지고 있었다. 결혼한 청소년의 인식도는 미혼의 청소년보다 높았고(OR = 2.16, 95 % CI : 1.01-4.87), 중등교육 이상을 받은 청소년의 인식도가 높았다(OR = 2.21, 95 % CI : 1.13-3.04). 또한 월 소득이 10,000 ~ 20,000 루피(NRs)와 그 이상이 되는 경우 10,000 루피에 비해 각각 2.33 배(OR=2.33, 95 % CI : 1.07-3.55), 3.17 배(OR=3.17, 95 % CI : 2.19-8.94)터 높았다.

**결론** : 이 연구를 통해 낙태에 대한 전반적인 지식 수준은 낮았다. 결혼상태, 교육수준, 가족수입과 같은 사회경제적 요인이 낙태에 대한 인식수준과 관련이 있어, 이를 통해 원치 않는 임신, 낙태 및 그로 인한 합병증을 줄이기 위해 낙태에 대한 인식 수준을 높일 수 있도록 노력하여야 한다.

**핵심단어** : 낙태, 사춘기, 인식, 네팔

\* Received June 3, 2019; Revised June 25, 2019; Accepted June 30, 2019.

\* Corresponding author : Dr. Jitendra Kumar Singh, Department of Community Medicine, Janaki Medical College, Tribhuvan University, Janakpur, Nepal, Email: [jsingdj@gmail.com](mailto:jsingdj@gmail.com), Phone: +977-9841462885.

## Introduction

Globally, it is estimated that 11 percent of births are given by adolescent girls of age 15-19 annually, and 95 percent of these births are in low-income countries [1]. Each year, about 210 million women around the world become pregnant. Among them, about 75 million pregnancies (36%) are unplanned and or unwanted [2]. Unplanned or unwanted pregnancy is one of the leading causes of maternal mortality and morbidity in South Asia. For example, 30% of pregnancies in Bangladesh, 21% in India, 35% in Nepal are unplanned [3]. World Health Organization (WHO) estimated an annual twenty-two million unsafe abortions happen globally, almost all of which take place in developing countries [4]. About 14% of unsafe abortions in developing countries are among women under 20 years [3].

After the legalization of abortion in 2002, Nepal has made significant progress in providing safe abortion care services to Nepali women by establishing comprehensive abortion care at public sector facilities [5, 6]. However, unsafe abortion remains a public health problem in Nepal. An estimated 14% of maternal deaths at health care facilities were reported due to abortion [7]. Despite the availability of legal abortion services in Nepal, the number of abortions performed outside registered facilities by unregistered providers is estimated to be high. In Nepal, the prevalence of premarital sex has been reported as 39% among college males and 12% among college females. The Nepal Adolescent and Young Adult Survey 2000 reported that almost one-fourth of sexually active unmarried young people were involved in risky sexual practice and unexpected opportunity is the most commonly described reason for risky sexual behaviour [2].

The adolescent period is a very crucial period of life, and they are in the transition phase so because of love

and curiosity they may involve in sexual intercourse and due to the lack of knowledge and awareness in deciding what is irrational that could force them to adopt many unsafe experiences. Unsafe sex among adolescent predisposes them to unwanted pregnancies, unsafe abortions, and pregnancy-related complications. Complications from unsafe abortion lead to maternal deaths and several other morbidities related to abortion worldwide, placing high risk and leading to severe physical, psychological, and financial consequences for adolescent girls [8]. The adolescent in rural areas are less informed, less experienced for accessing reproductive health services. Rural adolescent often lack basic health information, knowledge and access to affordable, confidential health services for reproductive health [9]. Considering the importance of adolescent 's health in preventing unintended pregnancy and unsafe abortion, this study aimed to assess the level of awareness on safe abortion among adolescent girls in a rural area of Mahottari district of Nepal.

## Methods

The study design was community-based cross-sectional and study was carried out in rural areas of Mahottari district, Province 2 of Nepal between January and March 2019. The study population includes adolescent girls aged 10 to 19 years living in Bardibas municipality of Mahottari district province 2 of Nepal. The total population of the municipality was 66358 [10], and the district was 627,580 [11]. Adolescent girls who gave consent for the study were included in the study. Adolescent girls who were physically or mentally ill and unable to participate in the study were excluded from the study.

### Sample size and sampling procedure

The sample size was calculated by using the formula  $n = z^2pq/d^2$ . Where,  $z$  is the standard normal distribution equals 1.96 at 95% confidence level and  $p$  is the percentage of adolescent girls who think abortion is legal in Nepal (42.1%) taken from Nepal Demographic and Health Survey 2016 [12, 13]. Considering 5% of permitted error, the sample size came to 374. Assuming 10% of non-response, the final sample size was determined as 412.

Multistage random sampling was adopted. First, Bardibas municipality was selected randomly out of five municipalities in Mahottari district. Second, from the selected municipality, three rural wards were selected randomly. Third, the list of households and the adolescent population in the wards was obtained from the office of the municipality. All the households were numbered serially, and households were selected by use of systematic random sampling procedure. Then, the adolescent girls were selected from selected households. If there were more than one adolescent girl in one house, then one respondent was selected by the use of the simple random technique.

### Data collection, mining and analysis

Data were collected from respondents by face to face interview using a semi-structured questionnaire adopted from Nepal Demography and Health Survey 2016 [13] and other studies [14, 15]. Pretesting of the questionnaire was done in a similar population of the neighboring municipality (Bijalpura village) with 10% samples, and modification was done where necessary. Raw data was checked on the spot to detect errors and corrected on the same day to make sure that the data were accurately filled. The collected data were processed and analyzed by using the different descriptive and analytical, statistical method.

### Scoring of the awareness responses from questionnaire:

Assessment of awareness among adolescent girls was assessed based on the following fifteen major parameters on safe abortion (Supplementary file 1). One score (0 or 1) was assigned for each parameter by asking the respondents for their awareness regarding abortion. For awareness, we assigned score 0 for each of the incorrect response and scored 1 for each of the correct response. As the score of these parameters ranged between 0 and 1, the total possible maximum score is 15 for awareness on safe abortion. The sum of scores for all the parameters for each participant was calculated and taken as the level of awareness. The median for awareness was calculated. The total scores for each respondent were then split in the median. If the correct responses were more than the median score, the respondents' awareness was considered "High." If the correct responses were less than or equal to the median, the awareness was considered "Low" [13, 16, 17].

Age of Adolescent girls was categorized as, 10-13 years, 14-16 years, and 17-19 years. Education was recorded as primary or lower secondary and secondary and above. Ethnicity/caste was based on the caste system in Nepal and was divided into three major groups based on available literature and similarities between the caste/ ethnic groups: upper caste (Brahmin, Chhetri, and Rajput and non-dalit terai caste group like Yadav, Koiri, Sudi/Teli), Adibasi/Janajati and Dalit. Religion was categorized as Hindu and Muslims/others (Christian, Boudha). Types of family categorized as nuclear and joint. Marital status was coded as married and unmarried. Family monthly income was recorded as, less than 10,000, between 10,000 to 20,000 and more than 20,000 in Nepali currency. Awareness in terms of high and low category was taken as the dependent variables. Age, caste,

religion, education, marital status, types of family and family income was taken as explanatory variables.

### Statistical Analysis

The association between independent variables and the level of awareness among adolescent girls was examined using univariate logistic regression analysis. Then, the effect of each of the explanatory variables was adjusted for all other variables together in a multivariable logistic regression model. All the significant factors ( $p < 0.05$ ) in univariate logistic regression analysis were included in the multivariable logistic regression analysis with backward elimination methods. Data were analyzed using Statistical Package for Social Sciences Version 23.0 for Windows.

Ethical approval was obtained from Ethics Committee of Janaki Medical College, Janakpur, Nepal (Approval number: 23-2075/2076). Informed consent was taken from the participant and confidentiality was maintained.

### Results

Out of 412 respondents, most of the respondents (44.2%) were from age group 17 to 19 years. Majority of respondents (91.3%) were from Hindu community and (71.8%) belong to upper and non-dalit terai caste group. Furthermore, 89.1% of the respondents were unmarried and more than half (51.2%) of the respondents had secondary and higher education. More than half (57.8%) of respondents belongs to joint family and forty three percent of the respondents had monthly income in Nepali rupees of between the groups 10,000-20,000.

After summing all the points obtained (out of a possible total of 15) for awareness on safe abortion, the maximum score obtained was fourteen points and the minimum was five points. The mean was 9.6 and

the median was 10.0. Among all (412) adolescent girls, 88 (21.4%) were categorized as having very low level of awareness about safe abortion (5 to 7 points), 136 (33.0%) had low level of awareness (8 to 10 points) and 188 (45.6%) had high level of awareness (11 to 14 points). In summary, just over half of the adolescent girls (54.4%; 224) had low level of awareness regarding safe abortion and (45.6%; 188) presented high level of awareness. Categorizing the level of awareness regarding safe abortion as low ( $\leq$ median; 10 points) and high ( $>$ median; 11 to 14 points), the associations between level of awareness about safe abortion and the adolescent socio-demographic characteristics is presented in table 1.

The result of multivariable analysis is shown in Table 2. In our study, we found no evidence of any association between level of awareness about safe abortion with age and types of family of the adolescent girls in multivariable analysis after adjusting potential confounders. However, marital status, educational status and family income were significantly associated with level of awareness on abortion among of the adolescent girls. The odds of higher awareness among the married adolescent were 2.16 times (AOR=2.16; 95% CI: 1.01-4.87) greater than unmarried adolescent whereas the odds of higher awareness among the adolescent girls who had education of secondary level and higher were 2.21 times (AOR=2.21; 95%CI: 1.13-3.04) more than those who had primary or lower secondary level of education. Similarly, the adolescent girls who had monthly family income of 10,000-20,000 and more than 20,000 were 2.33 times (AOR = 2.33; 95% CI: 1.07–3.55) and 3.17 times (AOR = 3.17; 95% CI: 2.19–8.94) more likelihood to have high aware regarding abortion than those who had family income of less than 10,000 per month.

Table 1. Association of Socio-demographic Characteristics and Awareness on Safe Abortion among Adolescent Girls.

Characteristics	Total, N=412(%)	Awareness		OR (95%CI)	p-value
		High (n=188,%)	Low (n=224,%)		
Age Group					
10-13 years	55(13.3)	19(34.5)	36(65.5)	Reference	-
14-16 years	175(42.5)	70(40.0)	105(60.0)	1.26(0.67-2.37)	0.469
17-19 years	182(44.2)	99(54.4)	83(45.6)	2.26(1.20-4.23)	0.010
Religion					
Muslim	376(91.3)	14(38.9)	22(61.1)	Reference	-
Hindu	36(8.7)	174(46.3)	202(53.7)	1.35(0.67-2.72)	0.396
Caste / Ethnicity					
Dalit	47(11.5)	17(36.2)	30(63.8)	Reference	-
Adibasi/ janjati	69(16.7)	27(39.1)	42(60.9)	1.1.3(0.52-2.44)	0.747
Upper and non-dalitterai caste group	296(71.8)	144(48.6)	152(51.4)	1.67(0.88-3.16)	0.113
Marital Status					
Unmarried	367(89.1)	157(42.8)	210(57.2)	Reference	-
Married	45(10.9)	31(68.9)	14(31.1)	2.96(1.52-5.75)	0.0001
Educational Status					
Primary and Lower Secondary	196(47.6)	67(34.2)	129(65.8)	Reference	-
Secondary and above	216(52.4)	121(56.0)	95(44.0)	2.45(1.64-3.65)	<0.0001
Types of Family					
Nuclear	174(42.2)	97(40.8)	141(59.2)	Reference	-
Joint	238(57.8)	91(52.3)	83(47.7)	1.59(1.07-2.36)	0.020
Family Income per month (Nepali rupees)					
Less than 10,000	92(22.3)	21(22.8)	71(77.2)	Reference	-
Between 10000 to 20000	176(42.7)	77(43.8)	99(56.3)	2.62(1.48-4.65)	0.0009
More than 20000	144(35.0)	90(62.5)	54(37.5)	5.63(3.11-10.18)	<0.0001

※ Univariate logistic regression was applied to show the association.

Table 2. Multivariable Logistic Regression Model for Awareness regarding Safe Abortion among Adolescent Girls.

Characteristics	Adjusted OR	95%CI	p-value
Age Group			
10-13 years	Reference	Reference	-
14-16 years	1.12	0.37-2.99	0.543
17-19 years	1.96	0.81-5.17	0.091
Marital Status			
Unmarried	Reference	Reference	-
Married	2.16	1.01-4.87	0.0003
Educational Status			
Primary and Lower Secondary	Reference	Reference	-
Secondary and Higher	2.21	1.13-3.04	< 0.0001
Types of Family			
Nuclear	Reference	Reference	-
Joint	1.33	(0.67-2.68)	0.097
Family Income per month (Nepali rupees)			
Less than 10,000	Reference	Reference	-
Between 10000 to 20000	2.33	1.07-3.55	0.0007
More than 20000	3.17	2.19-8.94	< 0.0001

※ Adjusted for Age, Marital Status, Educational Status, Types of Family and Family Income per month.

## Discussion

The study identified the most important issues on adolescent health. Nepal made abortion legal in September 2002. The government began providing comprehensive abortion care services in March 2004. The abortion law allows women to terminate their pregnancy under the following three conditions: (i) pregnancies of 12 weeks' gestation or less for any woman according to her own decision, (ii) pregnancies of 18 weeks' gestation if the pregnancy is a result of rape or incest, and (iii) pregnancies of any duration with the recommendation of an authorized medical practitioner if the life of the mother is at risk, if her physical or mental health is at risk, or if the fetus is deformed. However, the law prohibits abortions done without the consent of the woman, selective sex abortions, and abortions performed outside the legally permissible criteria [13, 18].

The current study identified less than one fourth of the adolescent girls had very low level of awareness

having score 5 to 7 points, one third of the adolescent girls had low level of awareness with score 8 to 10 points and less than half of the adolescent girls had high level of awareness having score between 11 to 14 points out of 15 points. Moreover, the study found that only 45.6% of adolescent girls had high level of awareness regarding safe abortion. This study revealed comparatively higher proportion of adolescent girls who had higher level of awareness regarding safe abortion than that of studies conducted in Nepal [13], India [16], Latvia [19] and Zambia [20], but lower than the studies from Nepal [21], Ethiopia [22] and India [23]. However, the finding is supported by the several other studies from Nepal [14] and India [24]. These disparities in the study might be because of difference in educational level among the adolescent girls.

Our finding showed two times higher odds of awareness among married adolescent than an unmarried adolescent. In concurrent with the current study, other several studies, [14, 25, 26] have described

the association between marital status of women and level of awareness regarding safe abortion. This shows ever-married women were more aware regarding safe abortion where never-married women expected more negative responses from having a safe abortion.

In this study, adolescent girls who had an education of secondary level or more had a higher level of awareness on safe abortion than those who had a primary or lower secondary level of education. The finding is line with other studies [13, 25, 27, 28] that showed that a higher level of education is positively associated with a higher level of awareness on safe abortion.

The adolescent girls who had a monthly family income of 10,000-20,000 and more than 20,000 were 2.33 times and 3.17 times more likelihood to have high aware regarding safe abortion than those who had a family income of less than 10,000 per month. The finding is concurrent with the findings of the other studies [13, 22, 25]. Thus, the study identified marital status, level of education and monthly family income are important factors associated with the level of awareness regarding safe abortion among adolescent girls in rural areas of Mahottari district of Nepal.

### Limitation of study

The study was based on only adolescent girls who were present in the study area at the time of survey, so it may not be truly representative of all adolescent girls of Mahottari district. All the responses were self-reported therefore the result may bias. The study was conducted within the limited time period.

### Summary

This study aimed to assess the level of awareness on safe abortion among adolescent girls in rural area of Mahottari district of Nepal. A community based cross-sectional study was conducted in rural areas

of Mahottari district of Southern Nepal between January and March 2019. A sample of 412 adolescent girls was selected using multi-stage cluster sampling. Multivariable logistic regression model was adapted to explore level of awareness among adolescent girls. This study found that 45.6% of adolescent girls had high awareness regarding safe abortion. The odds of awareness among the married adolescents was higher (AOR=2.16; 95% CI: 1.01-4.87) than unmarried adolescent whereas the odds of awareness among the adolescents who had education of secondary level and more had higher (AOR=2.21; 95%CI: 1.13-3.04) than those who had primary or lower secondary level of education. Similarly, the adolescents who had monthly family income of Nepalese Rupees (NRs.), 10,000-20,000 and more than NRs. 20,000 were respectively, 2.33 times (AOR = 2.33; 95% CI: 1.07-3.55) and 3.17 times (AOR = 3.17; 95% CI: 2.19-8.94) more likelihood to have high awareness regarding safe abortion than those their counterparts. The study showed that overall level of knowledge towards safe abortion was found low. Socio-demographic factors like marital status, level of education, and family income were the factors independently associated with level of awareness on safe abortion. Therefore, efforts should be exerted towards arising and improving the awareness of abortion care which may reduce unwanted pregnancy, abortion and other complications related to abortion.

### REFERENCES

1. Mangiaterra V, Pendse R, McClure K, Rosen J. Adolescent pregnancy. Department of making pregnancy safer(MPS). 2008;1
2. Adhikari R. Factors affecting awareness of emergency contraception among college students in Kathmandu, Nepal. *BMC women's health* 2009;9(1):27

3. Subedi S. Knowledge, attitude and practices of emergency contraception among youths of Parbat District. *JHAS*. 2012;2(1):50-3
4. World Health Organization. Safe Abortion: Technical and Policy Guidance for Health Systems, Geneva: WHO, 2012. Available from: [http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/70914/1/9789241548434_eng.pdf). 2012
5. Thapa S. Abortion law in Nepal: the road to reform. *Reproductive Health Matters* 2004;12(sup24):85-94
6. Samandari G, Wolf M, Basnett I, Hyman A, Andersen K. Implementation of legal abortion in Nepal: a model for rapid scale-up of high-quality care. *Reproductive health* 2012;9(1):7
7. Pradhan A, Suvedi B, Barnett S, Sharma SK, Puri M, Poudel P, et al. Nepal maternal mortality and morbidity study 2008/2009. Family Health Division, Department of Health Services, Ministry of Health and Population, Government of Nepal, Kathmandu, Nepal. 2010
8. Ahman E, Shah I. Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2008. 2011
9. Tegegn A, Yazachew M, Gelaw Y. Reproductive health knowledge and attitude among Adolescent : a community based study in Jimma Town, Southwest Ethiopia. *Ethiopian Journal of Health Development* 2008;22(3)
10. Education in Figures 2017 (At a glance). Ministry of Education, Science and Technology, (Statistics, Policy and Research Section), Governemnt of Nepal, 2017
11. Central Bureau of Statistics Nepal. National Population and Housing Census 2011 (National Report). Kathmandu, Nepal: Government of Nepal National Planning Commission Secretariat Central Bureau of Statistics Kathmandu, Nepal; 2012
12. Israel GD. Determining sample size. 1992
13. Ministry of Health and Population, New ERA, ICF International. Nepal Demographic and Health Survey 2016 Kathmandu, Nepal and Rockville, Maryland, U.S.A.: Ministry of Health and Population, New ERA and ICF International; 2017
14. Andersen KL, Khanal RC, Teixeira A, Neupane S, Sharma S, Acre VN, et al. Marital status and abortion among young women in Rupandehi, Nepal. *BMC women's health* 2015;15(1):17
15. Sjöström S, Essén B, Sydén F, Gemzell-Danielsson K, Klingberg-Allvin M. Medical students' attitudes and perceptions on abortion: a cross-sectional survey among medical interns in Maharastra, India. *Contraceptio* 2014;90(1):42-6
16. George RR, Devendraakhilesh P, Iahmo T, Moray KV, Cherian AG, Prasad JH. Why are abortions the answer? Prevalence, knowledge and attitude towards induced abortions among women attending a secondary level health care facility in Tamil Nadu, Southern India *International Journal of Community Medicine and Public Health* 2017;4(2):532-6
17. Acharya D, Singh JK, Adhikari S, Jain V. Association between sociodemographic characteristics of female community health volunteers and their knowledge and performance on maternal and child health services in rural Nepal. *Journal of multidisciplinary healthcare* 2016;9:111
18. Ministry of Health and Population. Annual Report, 2016/2017. In: Service DoH, editor. Kathmandu, Nepal: Department of Health Services; 2018
19. Melgalve I, Lazdane G, Trapenciere I, Shannon C, Bracken H, Winikoff B. Knowledge and attitudes about abortion legislation and abortion methods among abortion clients in Latvia. *The European journal of contraception & reproductive health care* 2005;10(3):143-50



20. Cresswell JA, Schroeder R, Dennis M, Owolabi O, Vwalika B, Musheke M, et al. Women's knowledge and attitudes surrounding abortion in Zambia: a cross-sectional survey across three provinces. *BMJ open* 2016;6(3):e010076
21. Tuladhar H, Risal A. Level of awareness about legalization of abortion in Nepal: A study at Nepal Medical College Teaching Hospital. *Nepal Med Coll J* 2010;12(2):76-80
22. Bitew S, Ketema S, Worku M, Hamu M, Loha E. Knowledge and attitude of women of childbearing age towards the legalization of abortion, Ethiopia. *J Sci Innov Res* 2013;2(2):2320-4818
23. Bobhate P, Shrivastava S. A cross sectional study of knowledge and practices about reproductive health among female Adolescent in an urban slum of Mumbai. *Journal of Family and Reproductive Health* 2011:117-24
24. Mittal K, Goel MK. Knowledge regarding reproductive health among urban adolescent girls s of Haryana : official publication of Indian Association of Preventive & Social Medicine. *Indian journal of community medicine* 2010;35(4):529
25. Thapa S, Sharma SK, Khatiwada N. Women's knowledge of abortion law and availability of services in Nepal. *Journal of biosocial science* 2014;46(2):266-77
26. Johnston HB. Abortion practice in India: a review of literature: Centre for Enquiry into Health and Allied Themes Mumbai; 2004
27. Reichelt PA, Werley HH. Contraception, abortion and venereal disease: Teenagers' knowledge and the effect of education. *Family Planning Perspectives* 1975:83-8
28. Kavanaugh ML, Bessett D, Littman LL, Norris A. Connecting knowledge about abortion and sexual and reproductive health to belief about abortion restrictions: findings from an online survey. *Women's Health Issues* 2013;23(4):e239-e47