

# Awareness and Perceived Need of Sexual and Reproductive Health Services among Higher Secondary School Adolescents in Post Disaster Setting of Sindhupalchowk District, Nepal

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**Abstract** Health care in developing countries are not prepared to provide services to adolescents due to inadequate awareness of adolescent health needs and are identified as a vulnerable and under-served population group. The aim of the study was to assess awareness and perceived need of Sexual and Reproductive Health (SRH) services among the adolescents (15-19 years) in higher secondary schools in post disaster setting in Sindhupalchowk district, Nepal. The descriptive cross-sectional study was based on a structured, self-administered questionnaire with a representative sample of 542 taken from 16 (30%) higher secondary schools of Sindhupalchowk district of Nepal by applying multistage-clustered sampling. Descriptive data was used to summarize the dependent variables. Bivariate analysis and multivariate analysis was done to find out the factors associated with awareness and perceived need of SRH services. Forty-seven percent of the adolescents have inadequate knowledge of SRH service. Nineteen percent of the students had ever felt the need to access SRH services. Grade XI students OR (0.34, 95% CI, (0.24, 0.5)), faculty p< 0.001, being male OR (0.66, 95% CI, (0.45-0.97)), age group 15 to 16 OR (0.46 (0.32-0.67)), near to family OR (0.42(0.28, 0.63)) were associated with SRH knowledge. Being male OR (2.12, 95% CI (1.3- 3.3)) and being poor OR (2.17 95% CI (1.2-3.7)) were associated with perceived need of SRH services. Adolescents have inadequate knowledge of SRH services. One fifth of the study subject who had perceived need, majority did not seek SRH services. For majority of adolescents' privacy and confidentiality, feeling of shyness played as a major perceived barrier.

**Keywords:** awareness, higher secondary school, perceived needs, post disaster setting, sexual and reproductive health

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## 1. Introduction

Sexual and reproductive Health (SRH) needs in the disaster setting has increased attention in the mid-1990s. Interagency group, which was formed in 1995, and it emphasized that in humanitarian setting there should be provision of reproductive health (RH) services [1]. Despite the call for universal access to reproductive health at the 4th International Conference on ICPD, sexual and reproductive health was omitted from the Millennium Development Goals and it remained neglected [2].

Although there is growing health needs of adolescents due to intrinsic and extrinsic factors, health services in developing countries are not prepared to provide appropriate

care due to inadequate awareness of adolescent health needs, and inadequate training and capacity of the service providers; adolescents have little knowledge about the need for their health services. They are scared of revealing personal issues to another person, so they themselves act as major obstacle for the services to be reached by them [3].

Worldwide more than 1.2 billion are adolescents: this indicates that roughly every sixth individual is an adolescent [4]. Adolescent period is often thought as a healthy group in health perspective as they are physically active [7]. Nevertheless, many adolescents die prematurely due to complications and other illnesses that are either preventable or treatable [5]. The Government of Nepal has identified adolescents and youth as a vulnerable and under-served population group that requires specific services and information to address their concerns,

problems, and needs. However, in Nepal only a limited number of programs and projects exist that specifically address this vulnerable population [6].

Investing on the health of adolescents can prevent deaths of 1.4 million adolescents that occur globally every year. Communication on adolescents' issues should be focused among the policy makers, development practitioners, academicians, news media, workers and other stakeholders including young people on reproductive and sexual health [8]. Though research and interventions on young people's sexual and reproductive health have been given a high priority in the world [9], there is very little published literature on young people's sexual and reproductive health issues in Nepal. Limited routine studies, research and organizational reports [10,11] suggest that there is extensive need of research on youth people.

Government is providing general health services from different health facilities and after this disaster, other organizations like United Nations (UN) agencies, Non-Government Organizations (NGOs) are providing SRH services in affected area including Sindhupalchowk district. For the proper planning of appropriate information and to enhance their knowledge on SRH services, it is essential to have knowledge on the level of awareness and their perceived needs and its associated factors. Likewise, understanding their perceived RH needs in order to tailor services to those needs remains a challenge for policy makers, since there has been no previous study focusing on this vulnerable group. The study will help the program managers and policy makers for creating effective communication strategy to reach to the adolescents, determines how best such interventions can be designed in the near future to meet the sexual and reproductive health needs of adolescents and also helps in making decision on how to create supportive environment for disseminating SRH information and services to the adolescent in school, community and in the districts.

## 2. Methods

This is a descriptive quantitative Cross sectional study.

### 2.1. Study Setting

The district lies in the central development region of Nepal which is 68 km North of the Capital city, Kathmandu lying between Latitude 27° 57' 4.32" N and Longitude 85° 41' 4.56" E. The total of population of the district is 2, 87, 897 with head quarter Chautara having area of 2542 sq km. The average family size is 4.32; life expectancy of 62 yrs, the average literacy rate is 59.58%. The district was highly affected due to earthquake of 2015, [12] so the district was selected for the study.

### 2.2. Study Participants

Class XI and XII in Nepal is considered as the higher secondary level. There is a separate board to supervise this level called Higher Secondary English Board (HSEB).

The study participants were from class XI and XII, who were studying in one of the Sixteen conveniently, selected higher secondary schools and who were present at the

time of conduction of the data collection period i.e. from Jan 2016 to Feb 2016.

**Table 1. Number of Students Participated From Each School**

Sample school	No selected	% of total	Sample school	No selected	% of total
1	18	3.32	9	35	6.46
2	26	4.80	10	34	6.27
3	36	6.64	11	28	5.17
4	29	5.35	12	32	5.90
5	40	7.38	13	38	7.01
6	40	7.38	14	40	7.38
7	37	6.83	15	30	5.54
8	43	7.93	16	36	6.64

To calculate sample size, estimation of prevalence was used. The anticipating utilization of SRH was considered as 33.8% (p), [13] taken from a school based study conducted in Nepal among the adolescent age 15-19 years. The design affects ( $\delta$ ) 1.5, 5 % non-response rate and 95% confidence level was taken. Thus, the minimum number of required sample for this study was 542.

Two-stage cluster sampling was used in the study. Conveniently 30% (Non-random) of 54 schools were selected i.e. 16 schools. In second stage, Simple random sampling was used to choose one section /class in a selected school and then all students from the selected class were taken in the study.

### 2.3. Study Instrument and Process of Administration

For the collection of data seven-page survey containing structured self-administered questionnaire was used. The tool was adopted from previous study done in Nepal (Perceived Sexual and Reproductive Health Needs and Service Utilization among Higher Secondary School Students in Urban Nepal) [14]. We first took permission to do study in each school. Before administering the questionnaire, the students were told the purpose of the study and were provided with full instruction for filling the questionnaire. Students were made assured by the researcher and the class teacher about the confidentiality and privacy of the information they would provide. Students were given an opportunity to ask questions which they had not understood, to the researcher and the researcher fulfilled the responsibility of clearing their doubts with appropriate explanation. From the selected class, permission was asked to provide us sufficient time to administer the questions.

### 2.4. Variables

**Dependent Variables:** - Awareness level and Perceived needs of SRH services are the dependent variables in the study.

**Independent variables:** -Socio-demographic variables (**Grade** of students, Sex, religion, Marital status, age, Ethnicity, Parental education/occupation, Living arrangement, Health service factors, wealth index, type of relationship with parents, Displacement with earthquake) for all dependent variables. Socio-demographic variable and

level of awareness was taken as independent variables for perceived need of SRH services while analyzing the data.

## 2.5. Plan for Analysis

Before data entry, questionnaires were checked for completeness. Those questionnaires, which were not complete and did not fall in inclusion criteria were rejected (21 out of 542). Data entry and data cleaning was done in Microsoft excel and then for analysis it was exported to SPSS 16. In order to find the awareness level, from the 20 SRH awareness questions, awareness median score was calculated. For all continuous variables mean, median, quartile deviation and Standard Deviation was calculated and for categorical variables frequency and percentage was calculated. Bivariate logistic regression analysis was used to identify the significant associations between the dependent and independent variables using chi-square test, likelihood ratio and fisher exact test and those variables which come significant in bivariate analysis were taken for multivariate logistic regression analysis. Association between the explanatory and dependent variable was assessed at p-value of 0.05 and 95% CI. Multi-co linearity test was done before subjecting the variables to multivariate analysis. The variance inflation factor was found to be 1 indicating no multi-co linearity issue. In order to find the relative effect of each of the significant variable, multivariate analysis was done with the relative effect of each of the variables remaining constant. Likelihood ratio test was used when > 20% of the cell had expected count less than 5 and Fisher exact test was used in 2\*2 table when >20% Of the cell had expected count less than 5.

## 2.6. Ethical Consideration

Ethical approval was obtained from the Institutional ethics committee K.S Hegde Medical Academy (KSHEMA), Nitte University. Approval and Written permission for the study was obtained from the District Education Office (DEO) of Sindhupalchowk district. From each selected schools, written permission was obtained to conduct the study. From the selected class, those students who were below 18 years of age were sent a parental consent form along with the letter from the school authority to give parental consent. Written consent was taken from these parents and from all the selected students. A copy of consent sheet was provided to each participant describing the title of the study, Name, address and contact number of the research scholar, guide and co-guide, purpose of study, voluntary participation, duration of study, confidentiality, privacy, sharing of the result, right to refuse or withdraw, benefit, assent procedure, certificate of consent and statement of researcher.

## 3. Results

### 3.1. Response Rate

Out of 542 questionnaires distributed in the study, 21 questionnaires were rejected due to exclusion criteria, so total response rate was 96% (521/542).

### 3.2. Socio-demographic Characteristics

The respondents were in the age group of 15-19 years, with mean age of 17.01 years' Standard deviation (S.D) 1.16 years. Out of selected classes, 53.2% of the participants were from class XI and rest from class XII. Majority of the students 40.7% were from Education faculty. One third of the sample were Males 32.4% (n=169), and rest were females 67.6% (352). Nearly 96% of the participants were not married. Majority (82%) of the respondents had less than or equal to two brothers or sisters. Majority of the students were from Janajati (janajati caste 27.1% and privileged Janajati 24.4%), followed by privileged Brahmin/Chettri caste (46.1%). The major religion which they follow was Hinduism (77%) followed by Buddhism (16.7%). Majority of the participants were living with both the parents 83.9% followed by one of the parent 9.9%. Regarding parental education, most of the fathers were educated to only informal education 47.4% followed by illiterate 23.7% and similarly 46.4% of the mothers were illiterate which was followed by informal education (42.2%).

Major occupation of their parents was agriculture and more than one third of the mothers' were mainly involved as home makers.

The wealth index used in this cross-sectional study is the measure that has been used in Nepal Demographic Health Survey (NDHS). At the first step we select fourteen household items from NDHS wealth index. Categorical variables to be used were transformed into separate dichotomous (1-2) indicators. These indicators examined using a principal components analysis to produce a common factor score for each household. The average of the items from principle component factors score were taken for each individual and that were divided into 5 quartiles and in each quartile almost equally (Nearly 20%) the students were distributed.

Regarding displacement due to earthquake, which occurred on 25<sup>th</sup> April 2015, almost 3/4th of the families were compelled to settle in temporary settlement for various duration.

### 3.3. SRH Awareness Characteristics

Mean awareness score was calculated based on answers to 20 items covering heard of SRH services, SRH service availability, sources of information and SRH service types. The average mean score of 29.44 with SD of 1.64 was obtained on a scale of 0 to 136. About 96% of the students had ever heard of SRH services. Among them, 93% of the students knew services are available at hospital/medical shops/ Government health care facilities followed by adolescents' youth club 49.5%. Regarding source of information, teacher/educational material are the major one accounting for 90% followed by Radio/TV 82.44%, newspaper 54.89% and same % by friends. Majority of the participants were aware of family planning services 78%, followed by STI diagnosis and services 66.87%, HIV counseling services about 65%, safe abortion services 40.92%. The results are displayed in the [Table 2](#).

**Table 2. Distribution of Awareness Related Characteristics on SRH Services Among the Students Aged 15-19 Years**

Awareness related characteristics	Frequency (n=521)	Percentage
<b>Ever heard of any SRH services</b>		
Yes	501	96.16
No	20	3.84
<b>Knowledge of availability of SRH services*</b>		
	n=501	
Hospital/ Medical /Health care canters	469	93.61
NGO	26	5.19
Adolescent and youth club	248	49.50
Temporary camp	42	8.38
<b>Source of information*</b>		
Family	101	20.16
Friends or peer	275	54.89
teacher or educational material	451	90.02
News papers	275	54.89
Radio/TV	413	82.44
FCHV	174	34.73
Poster/Pamphlets	149	29.74
<b>Knowledge of SRH services*</b>		
Family Planning services	394	78.64
HIV counseling services	325	64.87
STI diagnosis and services	335	66.87
Care of young pregnant mothers	229	45.71
Safe Abortion services	205	40.92
General health care information and counseling	232	46.31
Mental health services	79	15.77

\*- Multiple responses.

### 3.4. Perceived Need of SRH Services

The result shows that 19% had perceived need of SRH services. Among those who had perceived need 85% were unable to remember the time of the felt need of the services, one third felt the need within 3 months and another one third within 9 months. After the felt need of the SRH services, only one fourth responded to have utilized the services, majority 35% communicated with their friends while about one fifth of the subjects responded that they did nothing. The result is summarized in the [Table 3](#).

**Table 3. Distribution of Perceived Need Related Characteristics among the Study Subjects**

Perceived SRH needs	Frequency (n=501)	Percentage
<b>Ever felt need of SRH services</b>		
Yes	97	19.36
No	404	80.64
<b>Time of felt need</b>		
	n= 97	
Within 3 months	33	34.02
within 3-6 months	18	18.56
within 6-9 months	14	14.43
within 1 year	18	18.56
could not remember	14	14.43
<b>Response after felt need of SRH services</b>		
Did nothing	19	19.59
utilized services	25	25.77
talk with family members	14	14.43
talk with friends	34	35.05
Communicate with girlfriend/ boy friend	5	5.15
<b>Perceived Barrier to SRH services</b>		
Yes	230	44
No	291	56
<b>Perceived barriers*</b>		
Take too long time	52	22.61
It is too difficult to go	52	22.61
Too expensive services	19	8.26
Due to shyness	93	40.43
No confidentiality	90	39.13
Due to bad behaviour of the provider	5	2.17

\* Multiple responses.

### 3.5. Bivariate and Multivariate Analysis of Socio-demographic Variables and Awareness Level

Bivariate analysis is done with awareness level (Adequate and inadequate awareness) and the socio-demographic variables. The total awareness score obtained is cut into two i.e. 50 percentiles and those who fall below 50 percentiles was regarded as having inadequate knowledge and above 50% as adequate knowledge. The variables which were significant in bivariate analysis were taken for multivariate analysis. The result shown in the [Table 4](#).

**Table 4. Bivariate and Multivariate Analysis of Factors Associated with Awareness of SRH Services**

	Crude OR 95%CI	P-value of X <sup>2</sup>	Adjusted OR at 95% CI	p- value
Class				
XI	0.34 (0.24-0.5)	<0.001	.441 (0.28- 0.68)	<0.001
XII	1			
Faculty				
Humanities	0.36 (0.23-0.57)	<0.001	.632 (0.37-1.06)	.085
Science	0.19(0.6-0.65)		.253 (0.07-0.88)	.031
Management	0.42(0.27-0.65)		.685(0.42-1.11)	.129
Education	1			
Gender				
Male	0.66(0.45-0.97)	0.03	.735 (0.49-1.1)	.137
Female				
Age of Respondents				
15 -16	0.46(0.32-0.67)	0.001	.969 (0.61-1.5)	.890
17-19				
Family Relationship				
Distant	0.53(0.21-1.17)		.544 (0.23-1.24)	.150
Near	0.42(0.28-0.63)	<0.001	.516 (0.33-0.78)	.002
very close				1

p value < 0.05 is significant, p value <0.001 is highly significant, CI- Confidence interval, OR- Odds ratio, X<sup>2</sup>- Chi-square.

**Table 5. Factors associated with Perceived need of SRH services**

Variable	Yes	No	X2 value	OR	CI	AOR (CI)	p- value
<b>Gender</b>							
Male	45	117	0.001	2.12	1.3-3.3	2 (1.24-3.21)	<0.001
Female	52	287					1
<b>Awareness level</b>							
Poor	19	133		0.6	0.3-1.1	0.55(0.3-1.02)	0.06
Average	43	123	0.01	1.47	0.8-2.45	1.56(0.9-2.62)	0.1
Good	35	148					1
<b>wealth Quintile</b>							
Poor	46	121		2.17	1.2-3.7	2.13 (1.2-3.7)	0.01
Middle	26	140	0.005	1.06	0.58-1.92	1.17 (0.6-2.1)	0.62
Rich	25	143					1

p value < 0.005 is significant, CI- Confidence interval, OR- Odds ratio, AOR- Adjusted OR.

The result of bivariate analysis shows that Class XI students were less likely to have adequate knowledge OR (0.34, CI(0.24-0.5)), those in other than education faculty were less likely to have adequate knowledge OR less than 1, those in age group below 17 were less likely to have adequate knowledge than their counterparts OR (0.46 CI (0.32-0.67)), those who perceive that they were only near or distant with their family were less likely to have adequate knowledge OR less than 1. Other socio-demographic variables were not found significant. In multivariate analysis, only class and family relation were found significant.

### 3.6. Bivariate and Multivariate Analysis of Perceived Need and Independent Variables

Bivariate analysis was performed between the perceived need and socio-demographic variables and awareness level. Those variables, which were significant in bivariate analysis, were taken to multivariate analysis and the result is summarized in Table 5.

From the table above, bivariate analysis between the perceived need and socio-demographic variables gender and wealth quintiles are found to be significant. Males were 2 times more likely to have higher perceived need than those of female AOR 2(1.24-3.21) and those in poor wealth index quintile were 2.17 times more likely to have perceived need of SRH services OR 2.17 (1.2- 3.7). Other socio-demographic variables were not found significant. In multivariate analysis too gender and wealth quintile were found significant.

## 4. Discussion

### 4.1. Awareness Related to SRH Services

Two-third of the subjects have average or below knowledge on SRH services and the result is in line with the qualitative study and another secondary data review done in Nepal [15,16]. Mixed method study done in rural Nepal showed that adolescents had moderate SRH knowledge level [16]. Moreover, in displaced Syrian adolescents, the knowledge of services (SRH and other basic services) was found to be poor [17].

In our study, the component ever heard of any SRH services was found to be 96%, which is similar to the

study done in Bhaktapur 94%. 93.6% of the participants had known that SRH services are available at hospital, the result nearly matches (96.7%) with that study done in Bhaktapur [18]. Regarding the source of information on SRH services, teachers or educational material were the major source (90%), another study from Nepal showed it to be (79.6%) [18] and (75%) by a study of Nigeria [19] and Ethiopia 31.5% [20].

Another important source of information being Radio/TV for 82% for the adolescents and the results is found to be similar with the study of Ghana (78%) [21], India [22] and by a qualitative study done in Nepal [16].

Majority of the participants were aware of family planning services (78%), which is less as compared to the study of Bhaktapur (95%) [18] Followed by STI diagnosis and treatment 67% and the study of Ethiopia found it to be 57.8% [20].

Being female is found to be significant in having adequate knowledge than those of males OR 0.66, qualitative study done in Sri Lanka [23] and the study of Myanmar [24]. support the finding and also the study from Nigeria indicated that STI knowledge is higher in females [25] and the qualitative study from Sri Lanka found that boys were totally unaware of public health facilities which were providing the youth health services [23] and the result was contrasted with the study done in three humanitarian setting [26] and also from Nepal [27]. Level of awareness was significantly associated with and higher among those whose age is higher than 16 OR 0.46 and the similar finding was noted by a study done in Ethiopia  $p < 0.001$ . [28] It might be because with the increase in age they will be exposed to larger number of sources of SRH information and they may also learn from teachers, friends and other educational materials.

Those who were in close relationship with the parents had adequate knowledge of SRH services than those who were near OR 0.42 and very far (Distant) OR 0.53 and the finding was similar to the study in Ethiopia AOR 2.56 [28] and West Ethiopia OR 2.7 [29].

### 4.2. Perceived Need of SRH Services

Perceived need of SRH services was found to be 19.36% but the study of Bhaktapur found it to be 15% [22]. Unmet need of 40% by a study of Uganda [30] and 67% in Myanmar [24].

The most trusted person to share the perceived SRH need was friends (35%) and the finding is supported by the study of Sri Lanka [31].

One fifth of the students who had a perceived need did nothing to solve the problem, similar finding was shown by a study done in Uganda [31]. This shows the real tendency of the adolescents towards utilization of SRH services. The major reason found in this study for non-utilization was feeling of shyness to utilize the services.

Service provider are less concern to privacy and confidentiality of the service provided to adolescents (48%), and the various studies support this findings [31]. A study from Ethiopia showed that 30% of the providers had negative attitude towards providing SRH services to unmarried adolescents [32] and a qualitative study form Uganda shows that the services largely lack privacy and the centers mostly have few trained health workers who can provide effective adolescent friendly services. [31]

## 5. Conclusion

Majority of adolescents had average or below average level of knowledge of the SRH services. Majority of the adolescents, who had heard of SRH services, knew that the services are available at hospital or health care centers. Major source of information was school teachers or educational materials and many knew of FP services. The significant factors associated with the level of awareness of SRH services are grade of students, faculty, gender, age, and type of communication with the family.

One-fifth of the adolescents who had felt need of SRH services mostly communicated with their friends. Half the study subjects had perceived barrier to wards SRH services and barrier were feeling of non-confidential services and feeling of shyness.

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## Statement of Competing Interests

The authors declare that they have no competing interests.

## List of Abbreviations

AOR	Adjusted Odds Ratio
DEO	District Education Offices
FCHV	Female Community Health Volunteer
HIV	Human Immune Deficiency Virus
HSEB	Higher Secondary English Board
ICPD	International Conference on Population and Development
IEC	Information Education and Communication
NGO	Non-Governmental Organizations
OR	Odds Ratio
Q.D	Quartile Deviation
S.D	Standard Deviation
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infections
TV	Television
UN	United Nations

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