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Knowledge and Attitude on Sexual and Reproductive Health among Migrant and Non-Migrant Adolescent Girls

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ABSTRACT

Background: Adolescent girls in Nepal, particularly those from migrant backgrounds, face barriers in accessing accurate sexual and reproductive health (SRH) information and services. Migration status may influence SRH knowledge, attitudes, and behaviors; however, comparative data within urban school settings are limited. To assess and compare SRH knowledge and attitudes among migrant and non-migrant adolescent girls in high schools of Biratnagar, Nepal.

Methods: A descriptive cross-sectional study was conducted among 200 participants (100 migrants, 100 non-migrants) using stratified quota sampling. Data were collected via a structured questionnaire and analyzed in SPSS v25 with descriptive and inferential statistics (Chi-square test).

Results: Significant disparities were found between the two groups. Migrant girls demonstrated markedly lower awareness of contraceptive methods (e.g., 0% knew about implants and IUDs), STI symptoms (27.5%), and menstrual hygiene practices. They also reported lower comfort in discussing SRH topics with peers, parents, and health professionals. In contrast, non-migrant girls exhibited higher knowledge levels and more positive attitudes toward SRH services and education.

Conclusions: The study highlights a critical gap in SRH awareness and attitude between migrant and non-migrant adolescent girls in Biratnagar. Tailored interventions, including inclusive school-based education, culturally sensitive outreach, and peer-led initiatives, are recommended to address these inequities and promote SRH equity among vulnerable adolescent populations.

Keywords: Adolescents; migrants; non-migrants; sexual and reproductive health.

INTRODUCTION

Adolescence is a pivotal stage for developing lifelong health behaviors, with sexual and reproductive health (SRH) being a key determinant of overall wellbeing. Globally, improving adolescent health has been recognized as a priority for sustainable development and universal health coverage.[1,2] International frameworks emphasize the importance of comprehensive SRH information and services to reduce preventable morbidity and mortality among young people worldwide.[1-3]

In Nepal, adolescent sexual and reproductive health remains a significant public health concern. Studies have documented ongoing gaps in SRH knowledge and limited utilization of adolescent-friendly health services, despite national strategies aimed at improving access.[4] Evidence from diverse districts in Nepal highlights inadequate awareness of modern contraceptive methods, limited understanding of sexually transmitted infections, and persistent sociocultural barriers to accessing SRH information and services among adolescent populations.[6-8]

Migration is an important social determinant of adolescent health. Globally, migration has been associated with disruptions in education, weakened social support networks, and challenges in accessing health information and services, particularly for vulnerable subgroups.[9-11] Within Nepal, internal

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migration to urban centers has increased in recent years,[12] yet little is known about how migration status shapes adolescent SRH knowledge and attitudes. While existing studies in Nepal have examined adolescent SRH knowledge and service utilization, these investigations have largely focused on general adolescent populations without stratifying findings by migration status.[4-7]

In cities like Biratnagar, an urban metropolitan city which experience high rates of internal migration from rural Nepal and cross-border migration from India, adolescent girls often face compounded challenges in accessing reliable SRH information and services. Understanding differences in SRH knowledge and attitudes between migrant and non-migrant adolescent girls is critical for identifying vulnerable subgroups and informing targeted interventions. Therefore, this study aimed to assess and compare SRH knowledge and attitudes among migrant and non-migrant adolescent girls attending high schools in Biratnagar, Nepal.

METHODS

A descriptive cross-sectional study was conducted in two high schools; one public (Gograha Secondary School) and one private (Araniko Awasiya Secondary School) in Biratnagar Metropolitan City, Province No. 1, Nepal. These schools were selected purposively based on their mixed enrollment of migrant and non-migrant students to enable direct comparison between the two groups. Inclusion of one public and one private institution was intended to reflect socioeconomic diversity within the urban school setting. The selection was also guided by feasibility considerations, administrative approval, and accessibility for data collection within the study timeline. Although the schools represent two major types of secondary education institutions in Biratnagar, they were not randomly selected and therefore may not be fully representative of all schools in the metropolitan area. Findings should thus be interpreted in the context of similar urban school environments.

Adolescent girls aged 16–19 years, enrolled in Grades 11 and 12, were eligible. A total of 200 participants were included: 100 migrants (relocated from another place, residing in Biratnagar for ≥6 months) and 100 non-migrants (born and raised in Biratnagar). This age group was chosen because it represents older adolescents who are more likely to have reached puberty, attended SRH lessons in school, and be exposed to relevant health information. This group also aligns with national adolescent health policies targeting 10–19 years old, with a focus on the older cohort for reproductive health interventions.

A stratified quota sampling technique was employed to ensure equal representation of migrant and non-migrant adolescent girls. Stratification was performed based on migration status, categorized as migrant and non-migrant according to school admission records and verified through self-report.

Two high schools in Biratnagar were purposively selected due to their mixed enrollment of migrant and non-migrant students. Eligible participants were adolescent girls aged 16–19 years enrolled in Grades 11 and 12. Within each school, students were grouped by migration status, and equal quotas were assigned to both strata to allow balanced comparison.

Participants were recruited consecutively within each migration stratum until the required quota was achieved. Random sampling was not applied at the participant level.

Based on the sample size calculation assumptions, the minimum required sample size per group was approximately 88 participants, resulting in a minimum total sample size of 176 participants. The final sample size of 200 participants exceeded the calculated minimum requirement and was therefore considered adequate to detect statistically significant differences between migrant and non-migrant groups.

Data were collected using a structured, self-administered questionnaire consisting of closed- and open-ended questions. The questionnaire was developed based on an extensive literature review and existing validated instruments related to adolescent sexual and reproductive health (SRH). Items were adapted to reflect the local context of Biratnagar and the study objectives.

The original tool was prepared in English and subsequently translated into Nepali to ensure clarity and comprehension among participants.

Content validity was established through expert review. A panel of experts in adolescent health, sexual and reproductive health, and survey methodology reviewed the questionnaire for relevance, clarity, completeness, and cultural appropriateness. Their recommendations were incorporated into the final version of the tool.

Face validity was also ensured during pilot testing to confirm that questions were understandable and

appropriately interpreted by the target population.

Pilot testing was conducted among 20 adolescent girls (10 migrants and 10 non-migrants) who were not included in the final study sample. The pilot aimed to identify ambiguities, assess clarity, and determine the average time required to complete the questionnaire. Necessary revisions were made based on participant feedback.

Reliability was assessed through pilot testing to ensure consistency and clarity of responses. Internal consistency reliability using Cronbach's alpha was not calculated, as the questionnaire primarily consisted of knowledge-based and categorical response items rather than scaled constructs.

The study received ethical approval from the Nepal Health Research Council (NHRC), Ref. No: 352-2024. Formal permission was also obtained from the selected schools prior to data collection.

Written informed consent was obtained from all participants aged 18 years and above. For participants below 18 years of age, written informed consent was obtained from parents or legal guardians, and written assent was obtained from the adolescents themselves.

Participation was entirely voluntary. Participants were informed about the purpose of the study, the confidentiality of their responses, and their right to decline participation or withdraw from the study at any time without any consequences.

Confidentiality and anonymity were strictly maintained. The questionnaire did not contain any identifying information such as names, roll numbers, or contact details. Data were collected in a private setting without the presence of teachers or other students to ensure privacy. Completed questionnaires were securely stored and accessed only by the researcher.

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics (frequencies, percentages) was calculated to summarize the demographic characteristics of the participants, their knowledge about SRH, and their attitudes towards SRH.

Inferential analysis was conducted to compare knowledge and attitudes between migrant and non-migrant adolescent girls. The Pearson Chi-square test was used to assess the association between migration status and categorical outcome variables.

Since all primary study variables were categorical in nature, testing for normality was not required.

Before performing the Chi-square test, assumptions were assessed, including independence of observations and adequacy of expected cell counts. In instances where expected frequencies were insufficient, interpretation was made cautiously.

No multivariate analysis was performed. The study primarily aimed to compare SRH knowledge and attitudes between migrant and non-migrant groups. Therefore, potential confounding variables such as age, parental education, and school characteristics were not controlled through regression modeling. This is acknowledged as a limitation of the study.

RESULTS

The table 1 below, presents the socio-demographic characteristics of the study participants (n = 200) using descriptive statistics, specifically frequency and percentage distribution. This is a fundamental univariate analysis technique that helps to summarize and describe the basic features of a dataset in a simple, clear format.

Most participants were older adolescents, with 26.5% aged 19 years, and a significant majority (73.5%) being Class 12 students. The educational levels of parents indicate a disparity, with fathers exhibiting higher educational attainment (18% holding a bachelor's degree or higher) compared to mothers (7%). This gap may reflect broader societal norms and expectations regarding gender roles in education. Household income was predominantly in the medium category (73%).

Table 1. Socio Demographic Distribution of Participants.

Variables	Frequency (n=200)	Percentage (%)
Age (Years)		
16	52	26.0
17	44	22.0
18	51	25.5
19	53	26.5
Class of Participants		
Class 11	53	26.5
Class 12	147	73.5
Migration Status		
Migrant	100	50.0
Non-Migrant	100	50.0
Father's Educational level		
Bachelor's Degree or Higher	36	18.0
High-School	34	17.0
No Education	31	15.5
Primary	29	14.5
Secondary	70	35.0
Mother's Educational level		
Bachelor's Degree or Higher	14	7.0
High-School	38	19.0
No Education	38	19.0
Primary	36	18.0
Secondary	74	37.0
Household Income		
Low	54	27.0
Medium	146	73.0
High	0	0

Table 2 below, presents the distribution of knowledge regarding different contraceptive methods among migrant and non-migrant adolescent girls, along with the results of the Pearson Chi-square test used to assess the statistical significance of group differences.

All participants knew about condoms. However, significant disparities were noted in awareness of oral contraceptives (41% migrants vs. 50% non-migrants, $p<0.001$), implants (0% vs. 50%, $p<0.001$), and IUDs (0% vs. 50%, $p<0.001$).

Table 2. Knowledge about Contraception methods.

Variable	Total (n)(%)	Migrants (n) (%)	Non-Migrants (n)(%)	Chi-Square	df	P-Value
Heard about Condoms						
Yes	200(100%)	100(50%)	100(50%)	.[a]	—	—
No	0 (0%)	0 (0%)	0 (0%)			
Heard about Oral Contraceptives						
Yes	182(91%)	82(41%)	100(50%)	19.780[a]	1	.000
No	18(9%)	18(9%)	0(0%)			
Heard about Implants						
Yes	100(50%)	0(0%)	100(50%)	200.000[a]	1	.000
No	100(50%)	100(50%)	0(0%)			
Heard about IUDs						
Yes	100(50%)	0(0%)	100(50%)	200.000[a]	1	.000
No	100(50%)	100(50%)	0(0%)			

Table 3 below, presents participants' knowledge of common STIs and knowledge of STI symptoms, and compares responses between migrant and non-migrant adolescent girls using the Pearson Chi-square test. This test evaluates whether observed differences between the two groups are statistically significant.

All participants (100%) reported having heard about HIV, with no variation across groups. For syphilis, 98% had heard of it, with near-equal awareness between migrant (48.5%) and non-migrant (49.5%) girls. The difference was not statistically significant (p = .312). In contrast, awareness of gonorrhea showed a significant difference (p = .009). Only 39% were migrants had heard of it compared to 45.5% being non-migrants. A more pronounced disparity was found in knowledge of chlamydia, with 22.5% migrants and 41% non-migrants reporting awareness. This difference was statistically significant (p < .001). Only 27.5% were migrant girls who could correctly identify at least one symptom of STI, compared to 49.5% being non-migrants (p < 0.01).

Table 3.Knowledge of Sexually Transmitted Infections and STI symptoms.

Variable	Total (n)(%)	Migrants (n) (%)	Non-Migrants (n)(%)	Chi-Square	df	P-Value
Heard about HIV Yes No	200(100%) 0 (0%)	100(50%) 0 (0%)	100(50%) 0 (0%)	.[a]	—	—
Heard about Syphilis Yes No	196(98%) 4(2%)	97(48.5%) 3(1.5%)	99(49.5%) 1(0.5%)	1.020[a]	1	.312
Heard about Gonorrhoea Yes No	169(84.5%) 31(15.5%)	78(39%) 22(11%)	91(45.5%) 9(4.5%)	6.452[a]	1	.009
Heard about Chlamydia Yes No	127(63.5%) 73(36.5%)	45(22.5%) 55(27.5%)	82(41%) 18(9%)	29.533[a]	1	.000
Knowledge of STI symptoms Yes No	154(77%) 46(23%)	55(27.5%) 45(22.5%)	99(49.5%) 1(0.5%)	54.658 [a]	1	.000

Table 4 below, presents the distribution of menstrual hygiene knowledge among migrant and non-migrant adolescent girls, revealing significant differences across several key hygiene practices. Pearson's Chi-square test was employed to assess the association between migrant status and each variable.

All the participants (100%) reported using sanitary pads. Due to the lack of variation, no statistical test was applied to this variable. A significant association was observed between migrant status and knowledge regarding the importance of changing pads regularly (42.5% migrants while 50% were non-migrants) (p < 0.001). Among those practicing proper hand hygiene, 50% were non-migrants, whereas only 36% were migrants. The practice of using clean underwear during menstruation also varied significantly, 50% were non-migrants and 46% were migrants (p = 0.004).

Table 4. Knowledge of Menstrual Hygiene.

Variable	Total (n)(%)	Migrants (n) (%)	Non-Migrants (n)(%)	Chi-Square	df	P-Value
Using Sanitary Pads Yes No	200(100%) 0(0%)	100(50%) 0(0%)	100(50%) 0(0%)	.[a]		
Changing Pads Regularly Yes No	185(92.5%) 15(7.5%)	85(42.5%) 15(7.5%)	100(50%) 0(0%)	16.216[a]	1	.000
Washing hands before and after changing pads Yes No	172(86%) 28(14%)	72(36%) 28(14%)	100(50%) 0(0%)	32.558[a]	1	.000
Using Clean Underwear Yes No	192(96%) 8(4%)	92(46%) 8(4%)	100(50%) 0(0%)	8.333[a]	1	.004

Table 5, shown below outlines the differences in attitudes toward SRH between migrant and non-migrant adolescent

girls. All associations were examined using Pearson's Chi-square test, and the findings highlight a pronounced disparity.

Table 5. Distribution of participants according to Attitude about sexual and Reproductive health.

Variable	Total (n)(%)	Migrants (n) (%)	Non-Migrants (n)(%)	Chi-Square	df	P-Value
Acceptability of Contraception Use				107.541[a]	1	.000
Yes	125(62.5%)	27(13.5%)	98(49%)			
No	75(37.5%)	73(36.5%)	2(1%)			
Acceptability to seek SRH information				160.360[a]	1	.000
Yes	111(55.5%)	11(5.5%)	100(50%)			
No	89(44.5%)	89(44.5%)	0(0%)			
Acceptability to seek SRH services				180.952[a]	1	.000
Yes	105(52.5%)	5(2.5%)	100(50%)			
No	95(47.5%)	95(47.5%)	0(0%)			
Acceptibility of Pre-marital sex				42.836[a]	1	.000
Yes	58(29%)	50(25%)	8(4%)			
No	142(71%)	50(25%)	92(46%)			
Comfort discussing SRH with peers				192.291a	4	.000
Comfortable	55(27.5%)	2(1%)	53(26.5%)			
Neutral	1(0.5%)	1(0.5%)	0(0%)			
Uncomfortable	51(25.5%)	51(25.5%)	0(0%)			
Very comfortable	47(23.5%)	0(0%)	47(23.5%)			
Very uncomfortable	46(23%)	46(23%)	0(0%)			
Comfort discussing SRH with parents	53(26.5%)	6(3%)	47(23.5%)	178.717a	4	.000
Comfortable	45(22.5%)	0(0%)	45(22.5%)			
Neutral	51(25.5%)	51(25.5%)	0(0%)			
Uncomfortable	8(4%)	0(0%)	8(4%)			
Very comfortable						
Very uncomfortable	43(21.5%)	43(21.5%)	0(0%)			
Comfort discussing SRH with health professionals				171.404a	4	.000
Comfortable	59(29.5%)	7(3.5%)	52(26%)			
Neutral	2(1%)	2(1%)	0(0%)			
Uncomfortable	47(23.5%)	47(23.5%)	0(0%)			
Very comfortable	49(24.5%)	1(0.5%)	48(24%)			
Very uncomfortable	43(21.5%)	43(21.5%)	0(0%)			
SRH in School curriculum				.a		
Yes	200(100%)	100(50%)	100(50%)			
No	0(0%)	0(0%)	0(0%)			

A highly significant association was found ($p < 0.001$), with only 13.5% being migrants accept contraception use whereas 49% non-migrants accept. Acceptance of accessing SRH information varied substantially ($p < 0.001$), with only

5.5% were migrants expressing acceptance, versus 50% being non-migrants. All non-migrants (50%) found SRH services acceptable, showcasing a strong acceptance of available health services in contrast to only 2.5% being migrants, this was significantly different ($p < 0.001$). Migrant and non-migrant views on premarital sex diverged significantly ($p < 0.001$), with 25% being migrants expressing acceptance, compared to only 4% being non-migrants. Comfort in discussing SRH with peers was 1% migrants and 50% i.e. all non-migrants were comfortable/ very comfortable ($p < 0.001$). 3% of the total, were migrants who felt comfortable/ very comfortable talking to their parents about SRH issues, whereas 27.5% were non-migrants felt so. Similarly, only 4% were migrants who were comfortable/ very comfortable speaking with healthcare providers versus 50% being non-migrants. All participants (100%) agreed that SRH should be included in the school curriculum. Given the uniformity of responses, statistical testing was not applicable.

DISCUSSION

This study highlights substantial disparities in sexual and reproductive health (SRH) knowledge and attitudes between migrant and non-migrant adolescent girls in Biratnagar. While awareness of condoms and HIV was universal among participants, migrant girls demonstrated markedly lower awareness of modern contraceptive methods, STI symptoms, and menstrual hygiene practices. These findings are consistent with earlier studies showing that migration often disrupts access to health messaging and increases barriers to health-seeking behaviors.[9,10]

The finding that 100% of migrant girls had never heard of implants or IUDs, compared to significantly higher awareness among non-migrants, suggests structural and social exclusion rather than simple informational gaps. Although both groups attend the same urban schools, the findings indicate that equal physical access does not translate into equal informational or social access.[9,10] In the Nepalese context, communication about SRH remains culturally sensitive, and limited parent-adolescent communication often exacerbated by the cultural isolation of migration further contributes to these reproductive health inequities.[6] This mirrors national data indicating that public health messaging may remain narrowly focused on HIV, leaving broader reproductive health issues unaddressed for vulnerable cohorts.[4]

The disparity in attitudes was equally pronounced. Migrant girls reported significantly lower comfort levels discussing SRH with parents, peers, or healthcare providers.[6,7] Such barriers likely reflect a lack of familiarity with urban health systems and reduced trust in providers.[9,10] Since the sample size for these comparisons was rigorously determined using Cohen's (1988) effect size approach[13] to ensure statistical power, these identified gaps represent significant public health concerns that require targeted interventions.

Given that all participants supported the inclusion of SRH in the school curriculum, there is a clear mandate for standardized, comprehensive sexuality education.[14] Efforts must move beyond one-size-fits-all programming to include culturally sensitive outreach and peer-led initiatives specifically designed for migrant adolescents to ensure migration does not remain a determinant of health inequity.

A key strength of this study is the balanced comparison between migrant and non-migrant adolescents within the same urban school setting, which minimizes contextual variability related to geographic location. The use of equal group sizes enhanced comparability and statistical power for detecting differences.

However, several limitations should be acknowledged. The study employed a non-random, stratified quota sampling method within two purposively selected schools, which may limit generalizability beyond the study setting. Additionally, only school-going adolescents were included; out-of-school girls, who may be even more vulnerable were not represented. The analysis was limited to bivariate comparisons using Chi-square tests, and potential confounding variables such as age and parental education were not controlled through multivariate modeling. Finally, self-reported responses may be subject to social desirability bias, particularly given the sensitive nature of SRH topics.

CONCLUSIONS

This study demonstrates that migration status is a significant determinant of SRH knowledge, attitudes, and practices among adolescent girls in Nepal. Migrant adolescents consistently showed lower awareness of essential SRH topics, less supportive attitudes toward seeking information and services, and weaker menstrual hygiene practices.

These disparities stem from broader educational and social disadvantages, such as interrupted schooling and reduced access to reliable information and support

systems. As a result, migrant girls may face greater challenges in making informed decisions about their SRH.

Addressing these inequalities requires coordinated, multi-level strategies that involve families, schools, communities, and the health system. Improving adolescent SRH cannot rely on isolated interventions; it requires coordinated efforts that ensure adolescents particularly those who are mobile or marginalized receive consistent, reliable, and culturally sensitive information and support.

By addressing these gaps, we can contribute to reducing inequities and improving the overall health and wellbeing of adolescent girls, particularly those experiencing the challenges of migration.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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