ORIGINAL ARTICLES

Parent–adolescent communication on sexual and reproductive health: a cross-sectional study at an ethnic minority boarding high school in northern Vietnam in 2025

Le Tu Hoang[1*], Le Mai Anh[2], Le Dinh Minh Hieu[3], Pham Huong Anh[4]

ABSTRACT

Background: Evidence on parent–adolescent sexual and reproductive health (SRH) communication is limited for ethnic minority boarding school settings in Vietnam. This study described SRH communication and assessed differences by gender and ethnicity.

Methods: In 2024, we conducted a cross-sectional survey among all 814 students at an ethnic minority boarding high school in Ba Vi district, northern Vietnam. Students self-reported SRH communication frequency with parents (never/rarely/sometimes/often). Group differences were examined using Chi-square/Fisher's exact tests.

Results: Among 814 students (52.8% female), "never" predominated for topics related to prevention of unplanned pregnancy, as well as for premarital sex and STIs. Puberty communication differed by gender: 32.8% of males vs 23.7% of females reported never discussing puberty changes (p=0.01). For gender-specific topics, 66.9% of males never discussed wet dreams, while 30.5% of females reported often discussing menstrual issues (p<0.001). Females more often reported never discussing multiple sexual partners than males (76.5% vs 69.8%; p=0.048). Communication patterns were broadly similar between Kinh and non-Kinh students. The most common reasons for no SRH communication were "Other" (46.4% males; 49.3% females), difficulty speaking (12.2%; 17.0), shame (10.4%; 12.1), and lack of time (15.9%; 8.1).

Conclusions: In this ethnic minority boarding high school in Ba Vi (northern Vietnam), parent–student SRH communication was limited, particularly for topics relevant to prevention of unplanned pregnancy (e.g., contraception and condom use). Students should receive sufficient, age-appropriate SRH information through strengthened school-based sexuality education and coordinated school–family strategies that support access to accurate pregnancy-prevention guidance for both boys and girls.

Keywords: *adolescent; parent–adolescent communication; sexual and reproductive health; unplanned pregnancy prevention; Vietnam.*

INTRODUCTION

Adolescent sexual and reproductive health (SRH) remains a salient public health issue in Vietnam because risk behaviors and their consequences persist during the high school years. National survey analyses have reported a measurable burden of teenage pregnancy

Corresponding author: *Le Tu Hoang*
Email: lth2@huph.edu.vn
[1] Faculty of Fundamental Sciences, Hanoi University of Public Health, Hanoi 10000, Vietnam.
[2] Hanoi Amsterdam High School, Hanoi 10000, Vietnam.
[3] University of Medicine and Pharmacy, Vietnam National University, Hanoi 10000, Vietnam.
[4] School of Communication, Northwestern University, IL 60208, USA

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in Vietnam and identified correlates such as early sexual debut, education, and ethnicity (1). Empirical studies among Vietnamese youth also document risky sexual behavior and incomplete condom use, underscoring persistent gaps in prevention (2). Among adolescents presenting for induced abortion in Vietnam, recent clinical research has further highlighted poor reproductive health knowledge and unsafe sex practices, indicating that preventable SRH harms continue to occur in real-world settings (3).

Parent–adolescent communication is widely considered a potentially protective component of SRH prevention because it can shape knowledge, norms, and decision-making skills. A large meta-analysis found that parent–adolescent sexual communication is associated with safer sex behaviors, including contraceptive and condom use, with stronger associations often observed for communication involving mothers and for girls (4). These findings support the relevance of strengthening family communication as part of broader adolescent SRH strategies, particularly when adolescents may otherwise depend on peers or informal media for information.

However, evidence from Vietnam indicates that parent–adolescent discussion of sexuality is often limited and constrained by discomfort and restrictive perceptions of adolescent sexuality. In Vietnamese parent–youth relationship, parental reproductive health knowledge has been linked to greater comfort, and comfort to higher frequency of communication, yet overall communication remains limited, highlighting a skills-and-knowledge pathway that may be amenable to intervention (5). Qualitative evidence from rural and ethnic minority contexts in northern Vietnam suggests that parents may be reluctant to acknowledge adolescent sexuality and therefore limit open discussion, with communication shaped by stigma, fear of judgment, and gendered expectations that constrain adolescents' access to accurate information (6, 7).

Structural and cultural constraints may compound SRH information gaps for ethnic minority adolescents in northern Vietnam, including stigma, fear of judgment, and gender norms that can limit adolescents' confidence and ability to seek or use contraception (6, 7). In ethnic minority boarding school contexts, these constraints may be intensified by reduced day-to-day contact between parents and students, making direct conversations, especially on sensitive topics such as puberty, relationships, and pregnancy prevention, less feasible through routine in-person interaction. Understanding whether, how often, and which SRH topics are discussed with parents in this environment is therefore important for program design: if parent–student communication is limited, students must reliably receive sufficient, age-appropriate SRH information through school-based education and youth-appropriate channels; if specific barriers and subgroup differences exist, schools and local health actors can tailor complementary strategies for parental engagement (e.g., structured discussion prompts during home visits or parent meetings) while ensuring that core SRH content does not depend solely on parents (4, 6, 7). However, quantitative evidence describing topic-specific parent–adolescent SRH communication patterns and perceived barriers among students in ethnic minority boarding high schools remains limited.

This study aims to: 1) Describe the frequency and topic content of parent–adolescent communication on SRH among high school students in an ethnic minority boarding school in northern Vietnam; and 2) Examine differences in SRH communication patterns by gender and ethnicity and to describe

students' reported reasons for lack of SRH communication with parents.

METHODS

Study design and objects

A cross-sectional quantitative study was conducted among high school students at a boarding high school for ethnic minority students located in Ba Vi district, a mountainous area in northern Vietnam. The school enrolls students from both Kinh and ethnic minority backgrounds, primarily from rural and remote areas. Data collection was carried out from 01/08/2024 to 30/12/2024.

Sample size and sampling method

All students enrolled at the school during the study period were eligible to participate. Both male and female students were included in the study. Students who were absent on the day of data collection or declined participation were excluded. A total of 814 out of 832 students grade 6-12 completed the questionnaire and were included in the analysis, therefore the response rate was almost 98%.

Data instrument and data collection method

Quantitative data were collected using a structured, self-administered questionnaire. The questionnaire was developed based on the Topics Measure of Family Sexual Communication Scale and existing literature on adolescent sexual and reproductive health and parent–adolescent communication (6, 8, 9), and was reviewed for clarity and cultural appropriateness before data collection.

The questionnaire collected information on socio-demographic characteristics, including sex, ethnicity, area of residence, living arrangements, parental marital status, and parental education. It also assessed the frequency of parent–adolescent communication on eight sexual and reproductive health topics, including physical changes during puberty, premarital sex, multiple sexual partners, unintended pregnancy, contraceptive use, condom use, and sexually transmitted infections. In addition, gender-specific topics were included, namely wet dreams for male students and menstrual cycle – related issues for female students. Students were also asked about reasons for not discussing sexual and reproductive health topics with their parents.

Study variables

The primary outcomes were the frequency of parent–adolescent communication on eight sexual and reproductive health topics. The frequency of communication was measured using a Likert-type scale assessing communication across SRH topics, with response options coded as 0 ("never"; no communication in the past 6 months), 1 ("rarely"; once in the past 6 months), 2 ("sometimes"; twice in the past 6 months), and 3 ("often"; more than twice in the past 6 months), adapted from the weighted Topics Measure of the Family Sexual Communication Scale (9, 10).

For other covariates, sex was categorized as male or female. Ethnicity was classified as Kinh or ethnic minority. Socio-demographic variables included area of residence, parental marital status, living arrangements, and parental education. Parental education level was grouped into three categories: primary education or less, secondary education, and tertiary education or vocational training.

Data analysis

Data were analyzed using Stata BE 19.0 software. Descriptive statistics were used to summarize student characteristics and communication patterns, and results were reported as frequencies and percentages.

Comparisons by sex and ethnicity were conducted using chi-square tests or Fisher's exact tests, as appropriate. Results were presented separately for male and female students, as well as in combined tables and figures to facilitate gender comparisons. A significance level of $p < 0.05$ was applied for statistical tests.

Ethical considerations

Ethical approval for the study was obtained from the Institutional Review Board of Hanoi University of Public Health under No.342/2024/YTCC-HD3 dated July 31, 2024. School authorities granted permission to conduct the study. Written informed consent was obtained from all participating students. Participation was voluntary, and confidentiality and anonymity were strictly maintained throughout the study.

RESULTS

General characteristics of study participants

Data from a total number of 814 participants was collected. The general characteristics of study participants were described in Table 1.

Table 1. General characteristics of study participants (n=814)

Characteristics	n	%
Gender		
Male	384	47.2
Female	430	52.8
Living area		
Urban	692	85.0
Rural	122	15.0
Ethnicity		
Kinh	496	60.9
Non-Kinh	318	39.1
Parents' marital status		
Married	717	88.1
Separated/Divorced/Widowed	97	11.9
Living arrangement		
With parents	623	76.5
With no one	191	23.5
Father's education level		
Elementary or lower	76	9.3
High school	597	73.3
College/university or higher	141	17.3
Mother's education level		
Elementary or lower	67	8.3
High school	574	70.5
College/university or higher	173	21.2

Table 1 summarizes the socio-demographic characteristics of the 814 participating students. The sample was slightly female-majority (52.8% female vs 47.2% male). Study participants were classified as living in urban areas (85.0%), with a smaller proportion from rural areas (15.0%). Most students reported that their parents were married (88.1%), while 11.9% reported that their parents were separated/divorced/widowed, indicating that the majority came from two-parent households. Regarding living arrangements, 76.5% reported living with parents, whereas 23.5% reported living alone, suggesting a substantial subgroup not co-residing with parents at the time of the survey. Parental education was concentrated at the high school level for both fathers (73.3%) and mothers (70.5%). A smaller proportion had elementary or lower education (9.3% for fathers; 8.3% for mothers), while 17.3% of fathers and 21.2% of mothers had college/university or higher education, indicating slightly higher educational attainment among mothers in this sample.

Characteristics of parent–adolescent communication on sexual and reproductive health topics

Table 2. Frequency of parent–adolescent communication on sexual and reproductive health topics among students, by ethnicity (n=814)

Factor	Category	Male student (n=384)				Female student (n=430)			
		Kinh (n = 238)		Non-Kinh (n = 146)		Kinh (n = 258)		Non-Kinh (n = 172)	
		n	%	n	%	n	%	n	%
Discussion with parents about physical changes during puberty	Never	79	33.2	47	32.2	**58**	**22.5**	**44**	**25.6**
	Rarely	44	18.5	34	23.3	**55**	**21.3**	**49**	**28.5**
	Sometimes	67	28.2	47	32.2	**94**	**36.4**	**63**	**36.6**
	Often	48	20.2	18	12.3	**51**	**19.8**	**16**	**9.3**
Discussion with parents about wet dreams (male) / menstrual cycle (female)	Never	158	66.4	99	67.8	45	17.4	28	16.3
	Rarely	49	20.6	26	17.8	60	23.3	45	26.2
	Sometimes	21	8.8	12	8.2	75	29.1	46	26.7
	Often	10	4.2	9	6.2	78	30.2	53	30.8
Discussion with parents about premarital sex	Never	202	84.9	121	82.9	200	77.5	147	85.5
	Rarely	16	6.7	11	7.5	34	13.2	17	9.9
	Sometimes	12	5.0	10	6.8	15	5.8	6	3.5
	Often	8	3.4	4	2.7	9	3.5	2	1.2
Discussion with parents about having multiple sexual partners	Never	161	67.6	107	73.3	189	73.3	140	81.4
	Rarely	29	12.2	22	15.1	28	10.9	17	9.9
	Sometimes	34	14.3	9	6.2	18	7	10	5.8
	Often	14	5.9	8	5.5	23	8.9	5	2.9
Discussion with parents about unintended pregnancy	Never	207	87.0	131	89.7	**208**	**80.6**	**155**	**90.1**
	Rarely	14	5.9	10	6.8	**31**	**12**	**10**	**5.8**
	Sometimes	10	4.2	2	1.4	**9**	**3.5**	**5**	**2.9**
	Often	7	2.9	3	2.1	**10**	**3.9**	**2**	**1.2**

Factor	Category	Male student (n=384)				Female student (n=430)			
		Kinh (n = 238)		Non-Kinh (n = 146)		Kinh (n = 258)		Non-Kinh (n = 172)	
		n	%	n	%	n	%	n	%
Discussion with parents about contraceptive use	Never	211	88.7	132	90.4	**219**	**84.9**	**162**	**94.2**
	Rarely	12	5.0	8	5.5	**24**	**9.3**	**5**	**2.9**
	Sometimes	10	4.2	4	2.7	**6**	**2.3**	**3**	**1.7**
	Often	5	2.1	2	1.4	**9**	**3.5**	**2**	**1.2**
Discussion with parents about condom use	Never	201	84.5	122	83.6	219	84.9	164	95.3
	Rarely	15	6.3	13	8.9	22	8.5	3	1.7
	Sometimes	12	5.0	6	4.1	9	3.5	5	2.9
	Often	10	4.2	5	3.4	8	3.1	0	0
Discussion with parents about sexually transmitted infections	Never	197	82.8	115	78.8	195	75.6	146	84.9
	Rarely	20	8.4	20	13.7	34	13.2	13	7.6
	Sometimes	11	4.6	6	4.1	17	6.6	10	5.8
	Often	10	4.2	5	3.4	12	4.7	3	1.7

Table 2 shows that parent–adolescent communication on SRH topics was generally limited across all gender – ethnicity groups, with discussions concentrated on puberty-related topics. Communication about physical changes during puberty was more common than other topics, and among female students there was a significant ethnic difference ($p<0.05$): Kinh females reported "often" discussing puberty changes (19.8%) more than non-Kinh females (9.3%). For the gender-specific topic (wet dreams for males/ menstruation for females), about two-thirds of males reported "never" discussing wet dreams (66.4% Kinh; 67.8% non-Kinh), whereas females reported substantially higher communication about menstrual issues (only 17.4% Kinh and 16.3% non-Kinh "never," and about 30% "often" in both groups, $p<0.05$). Communication about premarital sex, multiple sexual partners, and STIs was low in all groups, with "never" predominating (typically around 75–85% or higher). Topics related to prevention of unplanned pregnancy were also rarely discussed; significant ethnic differences were observed among females for unintended pregnancy and contraceptive use ($p<0.05$), with non-Kinh females reporting higher "never" proportions (90.1% for unintended pregnancy; 94.2% for contraceptive use) than Kinh females (80.6% and 84.9%, respectively).

Table 3. Frequency of parent–adolescent communication on sexual and reproductive health topics among students, by gender (n=814)

Factor	Category	Male (n = 384)		Female (n = 430)		p-value
		n	%	n	%	
Discussion with parents about physical changes during puberty	Never	126	32.8	102	23.7	0.01
	Rarely	78	20.3	104	24.2	
	Sometimes	114	29.7	157	36.5	
	Often	66	17.2	67	15.6	
Discussion with parents about wet dreams (male) / menstrual cycle (female)	Never	257	66.9	73	17.0	<0.001
	Rarely	75	19.5	105	24.4	
	Sometimes	33	8.6	121	28.1	
	Often	19	4.9	131	30.5	
Discussion with parents about premarital sex	Never	323	84.1	347	80.7	0.13
	Rarely	27	7.0	51	11.9	
	Sometimes	22	5.7	21	4.9	
	Often	12	3.1	11	2.6	
Discussion with parents about having multiple sexual partners	Never	268	69.8	329	76.5	0.048
	Rarely	51	13.3	45	10.5	
	Sometimes	43	11.2	28	6.5	
	Often	22	5.7	28	6.5	
Discussion with parents about unintended pregnancy	Never	338	88.0	363	84.4	0.38
	Rarely	24	6.2	41	9.5	
	Sometimes	12	3.1	14	3.3	
	Often	10	2.6	12	2.8	
Discussion with parents about contraceptive use	Never	343	89.3	381	88.6	0.39
	Rarely	20	5.2	29	6.7	
	Sometimes	14	3.6	9	2.1	
	Often	7	1.8	11	2.6	
Discussion with parents about condom use	Never	323	84.1	383	89.1	0.15
	Rarely	28	7.3	25	5.8	
	Sometimes	18	4.7	14	5.8	
	Often	15	3.9	8	1.9	
Discussion with parents about sexually transmitted infections	Never	312	81.2	341	79.3	0.66
	Rarely	40	10.4	47	10.9	
	Sometimes	17	4.4	27	6.3	
	Often	15	3.9	15	3.5	

Table 3 compares parent–adolescent SRH communication by gender and shows that gender differences were most apparent for puberty-related topics, while communication

about sexual behaviors and prevention remained limited for both male and female students. Female students were significantly less likely than male students to report "never" discussing physical changes during puberty (23.7% vs 32.8%), and more likely to report "sometimes" discussing this topic (36.5% vs 29.7%) (p=0.01), suggesting comparatively greater routine communication with parents about general pubertal development among girls. The largest gender difference was observed for the gender-specific topic of wet dreams/menstrual cycle issues. Male students predominantly reported "never" discussing wet dreams (66.9%), whereas female students were much more likely to report discussing menstrual cycle issues, including a substantially higher proportion reporting "often" (30.5% among females vs 4.9% among males) (p<0.001). This indicates that parent–adolescent communication is far more established for menstrual-related concerns among girls than for wet dreams among boys.

For premarital sex, unintended pregnancy, contraceptive use, condom use, and STIs, communication was uniformly low in both genders, with "never" reported by the majority of students and no statistically significant gender differences (p-values ranging from 0.13 to 0.66). Discussion about having multiple sexual partners showed a small but statistically significant gender difference (p=0.048): female students were more likely to report "never" discussing this topic (76.5% vs 69.8%), while male students were somewhat more likely to report "sometimes." Overall, Table 3 suggests that gender differences in parent–adolescent SRH communication are concentrated during puberty and in gender-specific developmental topics, whereas communication about prevention-oriented and behavior-related SRH topics remains minimal for both boys and girls.

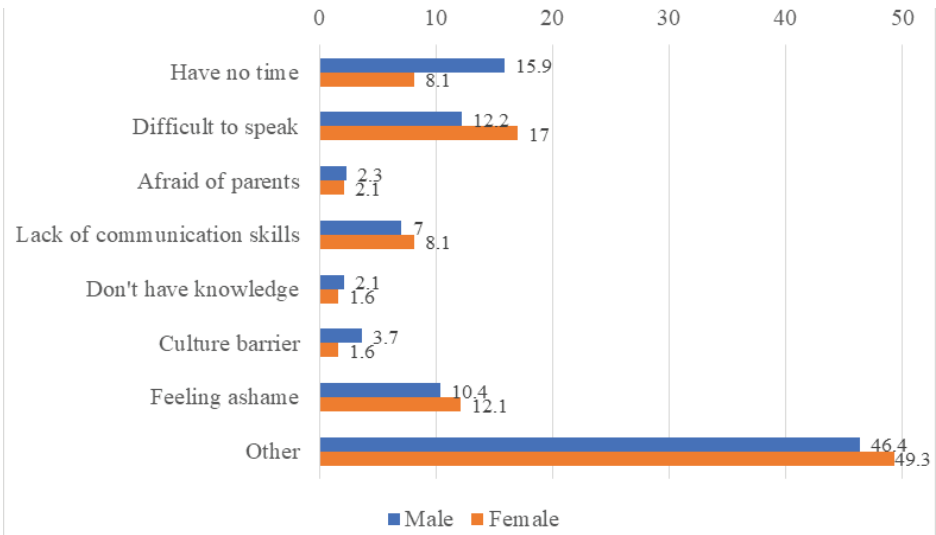

Figure 1. Reasons for not having communication with parent among study participants (n=814)

Figure 1 presents the self-reported reasons for not having communication with parent among participated students on sexual and reproductive health topics, stratified by gender. In both male and female students, the most frequently selected response was "Other," accounting for nearly half of the reasons (46.4% in males and 49.3% in females),

suggesting that the predefined categories did not capture a large proportion of barriers. Among the specified reasons, "Difficult to speak" was common and showed a gender difference, with females reporting it more often than males (17.0% vs 12.2%). "Feeling ashamed" was also frequently reported in both groups (10.4% in males and 12.1% in females). By contrast, "Have no time" was more commonly reported by males than females (15.9% vs 8.1%). Reported deficits in "Lack of communication skills" were similar between genders (7.0% in males and 8.1% in females). Less commonly cited reasons included "Culture barrier" (3.7% in males and 1.6% in females), "Afraid of parents" (2.3% in males and 2.1% in females), and "Don't have knowledge" (2.1% in males and 1.6% in females), indicating that these were relatively minor contributors compared with communication discomfort and unclassified barriers.

DISCUSSION

About the low SRH communication between parent and adolescents

A key finding is that students reported very limited recent parent–adolescent communication on topics related to pregnancy prevention (e.g., contraception and condom use) and STIs, with "never" predominating within the six-month recall period. This pattern suggests that many adolescents may not be receiving timely or explicit guidance from parents on these sensitive prevention topics during late adolescence. In practical terms, this means many students may reach critical transitions (e.g., curiosity, relationship initiation, or sexual debut) without timely, family-based information and support that could help them interpret risks and make safer choices. This pattern aligns with evidence from Vietnam indicating that parent–adolescent discussions about sexuality are uncommon and frequently constrained by parental embarrassment, concerns that talking about sex might encourage sexual interest, limited time, and feeling inadequately informed (11). When explicit discussion is absent, adolescents may rely more heavily on peers and informal online sources, which can be incomplete or inaccurate. From a public health standpoint, low communication on condoms, contraception, pregnancy prevention, and STIs is particularly consequential because these domains are directly linked to preventable outcomes (unintended pregnancy and STI transmission) and to the skills needed for protection (e.g., negotiating condom use).

The results also matter because the broader literature indicates that parent–adolescent sexual communication, while not a standalone solution, is associated with safer sexual behavior. A meta-analysis synthesizing decades of research found a statistically significant positive association between parent–adolescent sexual communication and safer sex behaviors, including condom and contraceptive use (4). Complementing this, a systematic review and meta-analysis of parent-based interventions reported that such programs are associated with improved parent–adolescent sexual communication and increased condom use, even when effects on delaying sexual activity are inconsistent (12). Taken together, these findings support interpreting the low communication observed in this study as a modifiable gap with plausible downstream implications for prevention.

Overall, communication was concentrated on puberty-related topics, while discussions about pregnancy prevention and STIs were limited. In a boarding-school context where students spend less time at home, schools play a central role in ensuring that students receive sufficient, age-appropriate SRH

knowledge and skills. Rather than relying on parents to deliver SRH education, we suggest a coordinated school – family approach that is feasible in this setting: school-based sexuality education provides the core content, and parents are engaged mainly to support consistent messages and to facilitate help-seeking when adolescents have questions, for example through brief guidance materials and parent meetings during scheduled visits (13).

Gender differences in parent–adolescent SRH communication

The results indicate that gender differences in parent–adolescent communication are concentrated in puberty-related and gender-specific content. Female students reported more frequent discussions about physical changes during puberty, and especially about menstruation-related issues, whereas male students reported minimal communication about wet dreams. In contrast, for most prevention-oriented topics (contraception, condoms, unintended pregnancy, and STIs), communication was uniformly low for both genders, suggesting that gender mainly shapes which topics are considered discussable rather than lifting overall communication levels. A plausible explanation is that , for families, menstruation is often treated as a routine health and hygiene matter, which may make it easier for parents, particularly mothers, to initiate conversations with their daughters. By comparison, wet dreams are closely tied to sexuality and sexual arousal, which can be framed as more embarrassing, morally sensitive, or inappropriate to discuss, leading boys to receive little guidance despite experiencing pubertal changes. This interpretation is consistent with broader evidence showing that parents tend to communicate more with daughters than sons about sexual topics and that mothers generally communicate more than fathers, reflecting both gender norms and differential comfort/self-efficacy for discussing sexuality (14). These patterns matter because the observed gendered communication channels mirror evidence that the association between parent–adolescent sexual communication and safer sex behavior tends to be stronger among girls and when communication occurs with mothers, implying that boys may be particularly disadvantaged when parental communication is low (4).

The small but statistically significant gender difference in discussing "multiple sexual partners," with girls more likely to report "never," may also reflect gendered expectations around sexual reputation and parental monitoring. Qualitative evidence from Vietnam describes sexuality as morally charged and highlights a tendency for parents to police adolescent sexuality, often more strongly for girls, while simultaneously limiting open discussion because parents may not view their children as sexual beings or may fear that sexual information encourages sexual activity (11, 15). In such a context, parents may communicate indirectly through warnings or restrictions rather than direct conversations, and daughters may experience greater constraint without receiving practical preventive guidance.

Taken together, these gender patterns suggest that interventions should not only aim to increase overall frequency of SRH communication but also address the gendered "topic boundaries" that restrict what parents feel able to discuss. Programs that build parental communication skills and normalize discussions about male puberty (including wet dreams) and prevention topics for both sons and daughters are likely to be important, with explicit efforts to involve fathers given consistent evidence that fathers communicate less and report more barriers (14).

Ethnicity differences in parent–adolescent SRH communication

In this study, communication frequency did not differ meaningfully by ethnicity (Kinh vs non-Kinh) among students across the SRH topics assessed. One interpretation is that parent–adolescent SRH communication may be constrained by shared social norms that cut across ethnic groups in this setting, producing similarly low levels of discussion irrespective of ethnicity. Prior evidence from Vietnam shows that parent–youth conversations about sexuality and sexually intimate behaviors are generally limited, and that parental comfort is a key determinant of whether communication occurs at all(5). Qualitative research with Vietnamese parents also illustrates how adolescent sexuality can be framed as morally risky and something to be monitored or controlled, which can suppress open communication and reduce opportunities for explicit, prevention-oriented discussions (15). A second explanation is that contextual factors may outweigh ethnic effects in shaping communication opportunities and norms. In a setting where students share the same school environment and peer influences, differences in family cultural practices by ethnicity may become less visible in reported communication frequency, particularly when overall discussion is low for many topics. When "never" dominates responses across multiple SRH items, a practical "floor effect" can also reduce the ability to detect subgroup differences even if modest fundamental differences exist.

At the same time, the absence of observed ethnic differences in male communication frequency should not be interpreted as evidence that ethnic minority adolescents face no distinct SRH constraints. Studies focusing on ethnic minority girls in Vietnam document barriers such as limited access to SRH knowledge and youth-appropriate services, and cultural beliefs that restrict SRH autonomy and information flow (6, 16). Recent qualitative evidence from mountainous ethnic communities in northern Vietnam similarly highlights a gap between awareness and confident action, driven by fear of judgment from family and communities and by entrenched gender norms (7). These findings suggest that ethnicity-related vulnerabilities may operate through mechanisms not captured by simple frequency measures or may be more pronounced for girls than for boys.

Finally, measurement and analytic constraints may have contributed to null ethnic differences. Collapsing ethnicity into "Kinh vs non-Kinh" can mask heterogeneity across specific minority groups, and male-only subgroup comparisons may have limited power to detect smaller differences. Future work should, where feasible, disaggregate minority groups, incorporate qualitative methods to identify culturally specific communication norms, and examine whether living arrangements and time away from home moderate parent–adolescent SRH communication patterns across ethnic communities (5-7).

Strengths and limitations of this study

This study's strengths include a relatively large student sample and a comprehensive set of SRH communication topics spanning puberty, gender-specific puberty concerns, and prevention-oriented domains (contraception, condoms, unintended pregnancy, and STIs). The subgroup analyses by gender and ethnicity also add practical value by showing where differences do and do not emerge within this school context.

Several limitations should be considered. First, the cross-sectional design precludes inference about causality or directionality between communication patterns and SRH-related outcomes. Second, generalizability is limited because the study was conducted

in a single ethnic minority boarding high school in northern Vietnam; patterns of parent – student communication may differ in non-boarding schools or other regions. Importantly, the boarding context itself can both reduce routine opportunities for in-person discussion and increase the need for adolescents to have adequate SRH knowledge to protect themselves while living away from parents. This dual role means our findings should be interpreted as context-specific and underscores the rationale for examining SRH communication in a setting where parental support may be less immediately available.

Third, SRH communication was self-reported and focused on sensitive topics, which may have introduced recall error and social desirability bias. Fourth, several potentially relevant determinants were not measured and could confound or modify the observed associations, including family composition and parental characteristics (e.g., number of siblings, parental age, and early marriage history), as well as boarding-related contact patterns (e.g., frequency and duration of home visits and reliance on phone/text contact).

Finally, the ordinal frequency measure did not capture communication quality, accuracy, initiator, or whether discussions occurred with mothers versus fathers – dimensions likely to shape impact. The large "Other" category for perceived barriers further suggests that the questionnaire did not fully capture key constraints influencing SRH communication, limiting the specificity of intervention targets derived from the barrier analysis. Because communication was measured over the past six months among high school students, puberty-related guidance that occurred earlier (e.g., around menarche or first nocturnal emission in lower secondary school) may not be captured, and low frequency should not be interpreted as absence of prior parental guidance.

CONCLUSION AND RECOMMENDATIONS

Overall, this study indicates that parent–adolescent communication on sexual and reproductive health remains very limited in ethicnity boarding high school student population, particularly for prevention-oriented topics such as contraception, condom use, unintended pregnancy, and sexually transmitted infections. Communication was comparatively more common for puberty-related and gender-specific issues, with precise gender patterning (girls reporting substantially more discussion of menstruation-related concerns than boys reporting discussion of wet dreams). Differences in the study topics by ethnicity among students were not prominent, suggesting that shared contextual constraints within the school and family environment may outweigh ethnic differences in shaping communication frequency. Reported barriers point to discomfort, shame, time constraints, and substantial unmeasured factors, highlighting the complexity of improving family-based SRH communication.

These findings support recommendations to strengthen adolescent SRH education through coordinated school–family approaches that extend beyond puberty to include practical prevention content and decision-making skills. Interventions should prioritize building parents' communication self-efficacy (how to start conversations, use age-appropriate language, respond non-judgmentally) and include gender-responsive components that normalize communication about male puberty and ensure boys receive guidance that is as accessible as girls' menstruation-related discussions. Given the boarding school context and the large "Other" barrier category, schools should also implement mechanisms to engage parents remotely (structured take-home discussion prompts, brief parent sessions, messaging via school

channels). Future research should use qualitative methods to identify uncaptured barriers and tailor culturally appropriate, feasible strategies for different family situations and living arrangements.

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