



Peer, Parental, and Educational Influences on Sexual and Reproductive Health Literacy Among Young Adults

Shihua Zhang¹, Korravarn Yodmai², Phitaya Charupoonphol², Kaung Zaw²,
Wirin Kittipichai²

¹Doctoral of Public Health Program, Faculty of Public Health, Mahidol University, Bangkok, Thailand

²Department of Family Health, Faculty of Public Health, Mahidol University, Bangkok, Thailand

Correspondence: Korravarn Yodmai, Department of Family Health, Faculty of Public Health, Mahidol University.
420/1 Ratchawithi RD., Ratchathewi District, Bangkok, Thailand, 10400, E-mail: korravarn.yod@mahidol.ac.th

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Abstract

Background: Sexual and reproductive health literacy (SRHL) is a public health challenge for young adults, who are vulnerable to issues such as unintended pregnancy and STIs. This study aimed to assess SRHL and its predictors. **Methods:** A cross-sectional study was conducted at a university in Guangzhou, China. The study employed a two-stage cluster sampling design. In Stage 1, five faculties were randomly selected from twenty using simple random sampling. In Stage 2, within each selected faculty, classes were selected using probability-proportional-to-size (PPS) sampling. A Totally of 557 participants aged 18 – 24 years who were currently in a romantic relationship were enrolled from five faculties. SRHL was measured using the 12-item Sexual and Reproductive Health Literacy questionnaire (SRHL-12Q). Data were analyzed using Pearson correlation and linear regression analysis. **Results:** Among 557 participants in relationships (mean age 20.52 ± 1.38 years; 50.3% male), most reported poor levels of peer influence (47.6%), parental communication (49.4%), and SRH education (45.1%). Regarding SRHL, 35.0% had low, 43.4% moderate, and 21.5% high literacy. Multiple linear regression (adjusted $R^2 = 0.601$) identified peer influence ($\beta = 0.329$, $p < 0.001$) and SRH education and services ($\beta = 0.454$, $p < 0.001$) as significant predictors of SRHL. Parental communication was not a significant predictor ($\beta = 0.051$, $p = 0.281$). **Conclusion:** One-third of university students in relationships demonstrated inadequate SRHL, highlighting an urgent public health concern. Peer-led SRH education and enhanced university-based SRH services are recommended as evidence-based intervention targets. Parent–child communication regarding SRH

should be initiated earlier, prior to the transition to young adulthood, as it was not a significant predictor in this university-age sample.

Keywords: Young adult, Sexual and reproductive health literacy, Parent communication, University-based education, Peer influencing

What was Known

- Limited sexual and reproductive health literacy among young adults represents a public health concern and requires attention.
- Parents, peers, and educators should be concerned and actively involved in educating and discussion among young adults on sexual and reproductive health.

What's New and Next

- Identifying and addressing barriers to communication about sexual and reproductive health is crucial for improving health literacy.
- Develop and evaluate an intervention to improve sexual and reproductive health literacy involving peers and educators.

Introduction

Sexual and reproductive health literacy (SRHL) is a significant challenge in reproductive health, particularly among young adults. SRHL encompasses both sexual and reproductive health (SRH) and health literacy (HL) concepts. SRH is defined as the accessibility of health services-related to contraception, fertility care included infertility treatments, maternal and child healthcare, prevention and treatment of sexually transmitted infections (STIs), and protection from violence and any harm in sexuality and relationships⁽¹⁾. Furthermore, youths and young adults must be educated regarding their safety and health and have access to any disease-preventing and treatment initiatives^(1,2). HL reflects a person's capacity to locate, comprehend, evaluate, and apply health information to make educated decisions and take action to promote, prevent, and protect their health, is a crucial factor in determining health and the success of health education initiatives^(2,3).

Although health literacy is widely recognized as essential for health promotion, previous studies have consistently shown that adolescents demonstrate inadequate SRHL. Studies conducted in Ethiopia reported that 74.5%-81.6% of adolescents had limited SRHL^(4,5). In Lao PDR, Lee et al⁽⁶⁾ found that over 90% of adolescents had inadequate SRHL, particularly among females, while

Vongxay et al.⁽⁷⁾ reported a prevalence of 65%. Similarly, studies in Thailand⁽⁸⁾ and Sri Lanka⁽⁹⁾ found that approximately half of adolescents had limited sexual health literacy. SRHL becomes even more critical in specific contexts, such as among young people living with HIV⁽¹⁰⁾ or in relation to teenage pregnancy⁽¹¹⁾. Conversely, some studies have indicated that adolescents possess adequate SRHL. Cherwanitchakorn et al.⁽¹²⁾ found that among female students in Bangkok, Thailand, 35.5% had high SRHL, 58.2% had moderate SRHL, and only 6.3% had limited SRHL. Similarly, Mangwong et al.⁽¹³⁾ reported that among adolescents in rural Thailand during the COVID-19 pandemic, 23.7% had good SRHL, 44.5% had moderate levels, and 31% had poor levels. As these findings demonstrate, the prevalence of SRHL among adolescents and young adults varies according to the setting, context, and measurement tools.

Despite the recognized importance of SRHL, the factors that predict it among young adults remain incompletely understood.⁽¹⁴⁾ Some studies have demonstrated that peer influence⁽¹²⁾, parental communication,^(2,12) and SRHL-related activities in school⁽¹⁵⁾ can predict SRHL among adolescents and young adults. Previous findings from Thailand demonstrated that positive family relationship predict adolescent's SRHL^(12,15), consistent with a systematic review indicated that family influence plays a significant role in SRHL among high school students⁽²⁾. While some studies⁽¹⁶⁻¹⁸⁾ did not directly examine health literacy, they found that parent-child communication, family support, and intra-family relationships were significantly associated with SRH outcome. Although parent-child communication is essential, Wouango et al.⁽¹⁷⁾ found that SRH is not a topic commonly discussed between parents and their children, which may limit communication and negatively affect SRHL.

It is well established that peers influence adolescents' knowledge, attitudes, and behaviors. When facing sexual and reproductive health issues, adolescents frequently turn to friends as their primary source of information and discussion. Cherwanitchakorn et al.⁽¹²⁾ reported that adolescents who perceived their peers as having a positive influence on sexual health were more likely to have intermediate or high levels of SRHL. Adolescents tend to spend considerable time with their peers, actively seek independence, and often feel uncomfortable discussing sexual matters with parents or teachers; consequently, they prefer to discuss these issues with close friends. This pattern may shift in young adults, when individuals may be more willing to engage with parents, educators or formal health services as sources of SRH information.

Research has demonstrated that students frequently have limited SRHL. However, efforts to improve SRH outcomes — particularly the prevention of adolescent pregnancy — have been widely implemented across educational institutions. In this context, teachers or homeroom instructors may play an important role in shaping students' SRHL. Previous studies have indicated that teachers and school policies are significantly associated with students' SRHL. Nevertheless, evidence suggests that SRH communication between teachers and students remains limited, as students may feel reluctant to seek advice from teachers and instead consult internet or peers.

In China, the promotion of sexual and reproductive health among young adults has gained increasing policy attention in recent years. The 'Healthy China 2030' initiative explicitly identifies adolescent and young adult health literacy as a national public health priority, and university health curricula are increasingly expected to incorporate SRH-related content^(19,20). However, the implementation of SRH education in Chinese higher education settings remains uneven and constrained by cultural and structural barriers. Deeply rooted Confucian values, which emphasize social harmony, filial piety, and restraint in discussing sexual matters, create significant cultural inhibitions around SRH communication in both family and educational contexts⁽¹⁷⁾. As a result, many parents feel uncomfortable or ill-equipped to discuss SRH topics with their children, and university educators may similarly hesitate to address sensitive sexual health topic in the class. These cultural and institutional barriers are particularly consequential given the rising burden of SRH challenges among Chinese young adults, including increasing rates of sexual transmitted infections^(21,22) and a high prevalence of premarital abortion among university students^(23,24). Understanding SRHL and its determinants in this specific cultural context is therefore essential for developing effective, context-sensitive interventions.

This study draws on two complementary theoretical frameworks to guide the examination of SRHL determinants among young adults. First, Bronfenbrenner's Ecological Systems Theory posits that individual development is shaped by nested social environments: the family microsystem (parental communication), the peer microsystem (peer influence), and the educational mesosystem (university-based SRH services). This framework provides a structural rationale for why influences from these three contexts are expected to jointly determine SRHL. Second, Bandura's Social Learning Theory explains the mechanisms through which these contextual influences operate: individuals acquire health-related knowledge, attitudes, and behaviors through observational learning, social modelling, and reinforcement from significant others including peers and educators. Together,

these frameworks predict that young adults embedded in environments characterized by positive peer norms, open parental communication about SRH, and accessible university SRH services will demonstrate higher levels of SRHL. The conceptual model derived from these frameworks is presented in Figure 1.

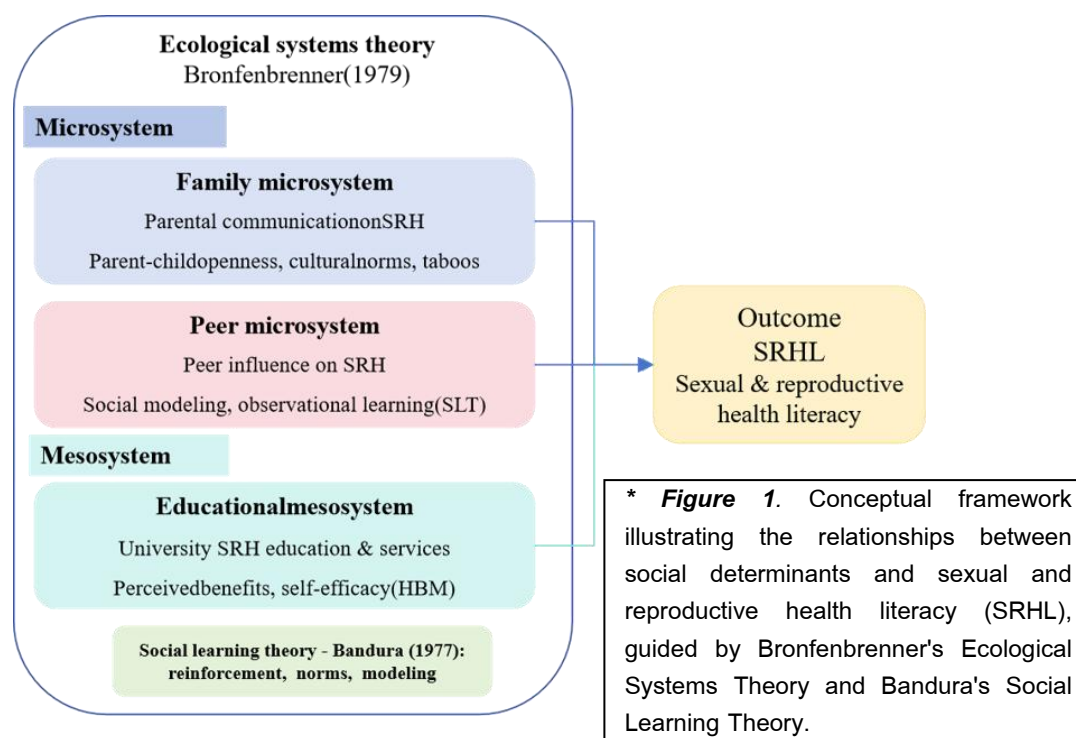


Figure 1 Conceptual framework guiding the study

Against this background, China presents a particularly important setting for studying SRHL among young adults. A study by Xu et al.⁽²¹⁾ demonstrated that sexually transmitted infections have been increasing in China, particularly among adolescents and young adults. Tian et al.⁽²²⁾ found that individuals aged 20 years and below accounted for the largest proportion of first-time visitors to STI clinics. Previous studies^(23,24) also found that 2.5% of women had experienced abortion, with 70% of cases occurred before marriage, and that approximately 6.6 % of repeated abortion occurred among university students. These findings highlight the urgent need to understand SRHL, particularly among young adults who are currently in romantic relationships and thus at elevated risk of adverse SRH outcomes. Therefore, this study aims to assess the level of SRHL among young adults in Guangzhou, China, and to examine its association with peer influence, parent-child communication, and SRH education and services in university.

Materials and Methods

Study population, sample procedure and sample size

A cross-sectional study was conducted at a private university in Guangzhou, China, during the period 1 June to 31 July 2025. The university enrolled approximately 25,670 undergraduate students across 20 faculties at the time of the study.

Participants were selected using a two-stage cluster sampling design was employed: in Stage 1, five faculties were randomly selected from twenty using simple random sampling; in Stage 2, classes within each selected faculty were chosen using probability-proportional-to-size (PPS) sampling, whereby larger faculties contributed proportionally more classes and participants. All students within the selected classes were invited to participate.

Of the 1,160 respondents in the primary SRHL survey, university students who reported being currently in romantic relationships were selected for analysis in accordance with the specific objectives of this study, yielding a subsample of 557 students (48% of the full survey sample). The inclusion criteria were students aged 18–24 years, enrolled in a bachelor's degree program between September 2021 and September 2024 (representing all four undergraduate years), fluent in Chinese, and willing to participate. The exclusion criteria included students who were ill, on approve leave, or had withdrawn from study during the data collection period.

The minimum required sample size was determined using G*Power 3.1⁽²⁵⁾ for multiple linear regression analysis. With three predictor variables, a medium effect size ($f^2 = 0.15$, Cohen, 1988), a significance level of $\alpha = 0.05$, and a statistical power of $1 - \beta = 0.80$, the minimum required sample size was $n = 119$. The analytical sample of $n = 557$ substantially exceeds this minimum (4.68 times), providing adequate statistical power for all regression analyses conducted in this study.

Recruitment was conducted at the class level. Research assistants visited each class to deliver a standardized verbal briefing and distribute an online participation link. Prior to accessing the questionnaire, all participants provided electronic informed consent. Data were collected via an online self-administered questionnaire completed during class time, which minimized missing responses and ensured administration conditions. All participation was voluntary, and responses were fully anonymous.

Instrument development and Validation

All instruments were developed through a systematic four-stage process: (1) item generation from a structured literature review; (2) content validity review by an expert panel; (3) pilot testing, and (4) reliability assessment.

For content validity, a five experts panel reviewed all items. The panel comprised specialists in: (1) Strategy management and policy for adolescents SRH. (2) Psychology or behavioral science, and (3) Public health science. Each item was rated on a 4-point relevance scale (where 1= irrelevant, 2=low relevance, 3= high relevance, 4= very relevant). Item level content validity indices (I-CVI) and the scale-level content validity index (S-CVI) were calculated for each instrument. An I-CVI ≥ 0.78 was considered indicative of acceptable item relevance; a S-CVI ≥ 0.90 was considered to reflect excellent overall content validity.⁽²⁶⁾ In this study, I-CVI values across all items with from 0.66 to 1.0, and the overall S-CVI was 0.81, indicating strong content validity. Items with an I-CVI <0.78 were modified or removal based on expert feedback prior to pilot testing.

Following expert review, instruments were pilot tested with 30 university students who were not included in the main study. The pilot sample was drawn from the same institution and met identical inclusion criteria. Feedback from pilot participants was used to refine item wording, clarify response options, and confirm that all items were interpretable as intended. The finalized instruments were then administered in the main study.

Measures

Parental communication regarding SRH was measured using five items self-administered questionnaire developed through a structured literature review. Items assessed the frequency and quality of parent–child communication about SRH topics, including discussion of contraception, STI prevention, and sexual relationships. Responses were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), with higher scores indicated more open and positive parent–child communication about SRH. Total scores ranged from 5 to 25. Cronbach's $\alpha = 0.937$.

Peer influence on SRH was assessed using a five-item self-administered scale developed from the literature. Items examined the extent to which the participant's close peers discussed SRH topics, modelled health-protective sexual behaviours, and provided accurate SRH information. Responses were rated on the same five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

agree), with higher scores indicating more positive peer influence on SRH knowledge and behaviours. Total scores ranged from 5 to 25. Cronbach's $\alpha = 0.938$.

SRH education and services in university developed through a literature review was measured using a five-item questionnaire on a five-point Likert scale. Higher scores indicated greater perceived support from the university. The reliability of the scale was 0.949

Sexual and reproductive health literacy developed through concept of HL was measured using a 12-item questionnaire developed based on the HLS19-Q12 framework. The instrument included three domains: health care, disease prevention, and health promotion (four items each). Responses were rated on a five-point Likert scale (1–5), with higher scores indicating greater sexual and reproductive health literacy. The reliability of the scale was 0.971.

The Poor/Moderate/Good categories are based on tertile distribution of the total score range for each instrument (scores 5–25 for predictor scales; 12–60 for SRHL).

Data analysis

Data were analyzed using SPSS version 31. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to describe the characteristics of the university students. Pearson correlation and linear regression analyses were performed to examine the associations between SRHL and peer influence, parent–child communication, and school-based education.

Results

General Information of Participants

Of 557 participants, more than half of the participants were aged ≤ 20 years (53.1%), with a mean age of 20.0 ± 1.38 years. The sample was almost equally distributed by gender, with 50.3% males and 49.7% females. Regarding academic year, the proportions of freshmen, sophomores, juniors, and seniors were relatively similar, accounting for 26.8%, 24.0%, 27.1%, and 22.1%, respectively. In terms of academic performance, most participants were in the top 20% (31.1%) and top 40% (26.2%), while only 3.6% were in the bottom 20%. The majority of participants lived with their parents (85.5%), while 7.5% lived with a single parent and 7.0% reported uncertain living arrangements. Most participants perceived their family economic status as moderate (64.8%), followed by low (23.7%) and high (11.5%) as detail showed in Table 1.

Additionally, nearly half of the participants reported poor levels of peer influencing (47.5%) and parental communication (49.4%). Similarly, 45.1% reported poor levels of SRH education and services in university. Regarding sexual and reproductive health literacy (SRHL), most participants had moderate levels (43.5%), followed by poor (35.0%) and good (21.5%). It was detail in Table 1.

Table 1 General information of participants

Variables	n (%)
Age	
≤ 20 years	296 (53.1%)
> 20 years	261 (46.9%)
Mean ± SD = 20 ±1.38 (aged between 18-24 year)	
Gender	
Male	280 (50.3%)
Female	277 (49.7%)
Academic year	
Freshman	149 (26.8%)
Sophomore	134 (24.1%)
Junior	151 (27.1%)
Senior	123 (22.1%)
Academic Performance	
Top 20%	173 (31.1%)
Top 40%	146 (26.2%)
Top 60%	141 (25.3%)
Top 80 %	77 (13.8%)
Bottom 20%	20 (3.6%)
Living Arrangement	
Parents	476 (85.5%)
Single parent	42 (7.5%)
Uncertainty	39 (7.0%)

Family Economic Status		
	Low	132 (23.7%)
	Moderate	361 (64.8%)
	High	64 (11.5%)

Table 1 General information of participants (Cont.)

Variables	n (%)
Peer influencing	
Poor	265 (47.6%)
Moderate	188 (33.8%)
Good	104 (18.7%)
Mean $\pm$ SD = 17 $\pm$ 4.24 (5 – 25 scores) *	
Parent communication	
Poor	275 (49.4%)
Moderate	170 (30.5%)
Good	112 (20.1%)
Mean $\pm$ SD = 16 $\pm$ 4.73 (5 – 25 scores) *	
SRH education and services in university (ES)	
Poor	251 (45.1%)
Moderate	195 (35.0%)
Good	111 (19.9%)
Mean $\pm$ SD = 17 $\pm$ 4.38 (5– 25 scores) *	
SRHL	
Poor	195 (35.0%)
Moderate	242 (43.4%)
Good	120 (21.5%)
Mean $\pm$ SD = 42 $\pm$ 9.28 (12 – 60 scores) **	

* The total score range in PI, PC and ES is as follows: Poor is 5-15; Moderate is 16-20; Good is 21-25.

** The total score range for SRHL is as follows: poor is 12-36; moderate is 37-48; good is 49-60.

Factors associated to SRHL among young adults

Pearson correlation analysis indicated that all variables were significantly and positively correlated with each other ($p < 0.001$). Peer influencing demonstrated a strong positive correlation with parental communication ($r = 0.802$) and university education and services ($r = 0.757$), and a moderate to strong correlation with SRHL ($r = 0.713$). Parental communication was also positively correlated with university education and services ($r = 0.724$) and SRHL ($r = 0.643$). In addition, university education and services demonstrated a strong positive correlation with SRHL ($r = 0.740$) as details in Table 2.

Table 2 The correlation between peer influencing, parental communication, SRH education and services in university, and sexual and reproductive health literacy.

Variables	PI	PC	ES	SRHL
Peer influencing (PI)	1			
Parental communication (PC)	0.802 ***	1		
SRH education and services in University (ES)	0.757 ***	0.724***	1	
Sexual and reproductive health literacy (SRHL)	0.713 ***	0.643***	0.740***	1

Remark: PI (Peer influencing), PC (Parent Communication), ES (University-SRH Education and Services), and SRHL (Sexual and Reproductive Health Literacy). *** P-value < 0.001 .

Multicollinearity diagnostics indicated no serious multicollinearity among the independent variables. Tolerance values ranged from 0.291 to 0.389, exceeding the recommended threshold of 0.10, while variance inflation factor (VIF) values ranged from 2.573 to 3.434 (present in Table 3), well below the commonly accepted cutoff value of 5.0. Therefore, the assumptions for multiple regression analysis were satisfied.

Multiple linear regression analysis was conducted to examine the effects of parental communication, peer influencing, and university education and services on SRHL. The results showed that peer influencing ($\beta = 0.329$, $p < 0.001$) and university education and services ($\beta = 0.454$, $p < 0.001$) were significant positive predictors of SRHL. In contrast, parental communication was not significantly associated with SRHL ($\beta = 0.051$, $p = 0.281$) as details in Table 3.

Table 3 Factors associated to SRHL among young adults.

Variables	B	SE	β	t-value	P-value	Tolerance	VIF
Peer influencing	0.719	0.109	0.329	6.623	<0.001	0.324	3.083
Parent communication	0.100	0.092	0.051	1.080	0.281	0.291	3.434
SRH education and services in university	0.961	0.091	0.454	10.565	<0.001	0.389	2.573

Remark: Linear Regression Analysis, $R^2 = 0.603$; Adjusted $R^2 = 0.601$

Discussion

This study revealed that approximately one-third of university students who were currently in romantic relationships demonstrated adequate SRHL, with 35.0% classified as having poor SRHL and only 21.5% achieving good SRHL. This finding is consistent with previous studies demonstrating mixed levels of SRHL among young adults^(12,13), and aligns with Bronfenbrenner's Ecological Systems Theory, which posits that health literacy develops cumulatively through exposure to multiple social systems across developmental stages. The comparatively higher SRHL levels observed in this university-age sample relative to studies conducted among high school adolescents^(4,5) may reflect sustained exposure to SRH education during earlier developmental stages, enabling young people to acquire foundational SRH knowledge before entering higher education. Nevertheless, SRHL remains limited among university students in relationships, who face heightened risk of unprotected sexual intercourse and its consequences. These findings underscore the need for policymakers to prioritize evidence-based SRHL promotion strategies specifically targeting this high-risk, transitional life stage.

The significant associations of peer influence ($\beta = 0.329$, $p < 0.001$) and university SRH education and services ($\beta = 0.454$, $p < 0.001$) with SRHL are consistent with Social Learning Theory (Bandura, 1977), which holds that individuals acquire health-related knowledge, attitudes, and behaviours through observational learning and social reinforcement from significant others. Young adults spend a substantial proportion of their daily lives with peers and within educational environments, rendering these two contexts the most proximal and influential sources of SRH modelling and information. These findings align with prior research: Ho et al. demonstrated that school policies and teachers were significantly associated with students' SRHL, and Mwamba et al.⁽²⁷⁾ reported that university lecturers ranked among the top five sources of SRH information,

underscoring the important role of the university environment in shaping SRH-related knowledge. However, the effectiveness of formal SRH education is not uniform. Evidence from a systematic review^(28,29) indicates that traditional cultural beliefs and social norms may discourage young people from engaging with school-based SRH program. In the Chinese context, Confucian values emphasizing modesty, restraint, and deference across generational boundaries create significant cultural inhibitions around formal SRH discussion, representing a structural barrier that future interventions must explicitly address.

In contrast, parental communication was not a statistically significant predictor of SRHL in the multivariate model ($\beta = 0.051$, $p = 0.281$), despite demonstrating a moderate bivariate correlation ($r = 0.643$, $p < 0.01$). Multicollinearity diagnostics confirmed that this result was not attributable to statistical suppression, as all VIF values were within acceptable limits (VIF = 2.573–3.434; Tolerance = 0.291–0.389). The non-significance of parental communication therefore reflects a substantive rather than statistical phenomenon. This finding is consistent with Wouango et al.,⁽¹⁷⁾ who reported that SRH topics are rarely discussed between parents and their children, owing to cultural norms, embarrassment, and taboos surrounding sexuality. In the Chinese cultural context, Confucian values — which emphasize filial respect, social harmony, and intergenerational restraint in discussing sexual matters — create substantial barriers to open parent–child SRH communication^(19,20). By the time young adults reach university, peer networks and educational environments may have largely displaced parental influence as the primary channels through which SRH knowledge is acquired and reinforced, consistent with the developmental trajectory described by Bronfenbrenner's Ecological Systems Theory. This interpretation contrasts with findings from other cultural settings: Sievwright et al.⁽³⁰⁾ found that parent–child communication was significantly associated with reproductive health knowledge among adolescents females, suggesting that the influence of parental communication on SRHL may be both culturally and developmentally contingent.

This study has several notable strengths. First, it addresses a high-risk and underexamined subgroup — university students in romantic relationships — within the specific cultural context of China, contributing context-sensitive evidence to the global SRHL literature. Second, the sample was gender-balanced and represented all four undergraduate cohorts, enhancing internal representativeness. Third, all instruments demonstrated excellent reliability (Cronbach's $\alpha = 0.937$ – 0.971) and underwent rigorous content validation by a five-member expert panel prior to

administration. Fourth, the analytical sample of 557 participants substantially exceeded the minimum required for the regression analysis ($n = 119$), ensuring robust statistical power.

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inference; the identified associations cannot be interpreted as directional or causal relationships. Second, although intercorrelations among predictor variables were moderate to high ($r = 0.724\text{--}0.802$), multicollinearity diagnostics confirmed that statistical suppression was not a concern ($VIF = 2.573\text{--}3.434$; Tolerance = $0.291\text{--}0.389$), supporting the validity of the regression coefficients reported, and inflated the overall model R^2 . Future studies should consider structural equation modelling to better accommodate correlated predictors and test mediation pathways. Third, the single-institution, single-city sampling design limits generalizability to other Chinese universities, particularly public institutions and those in rural or less economically developed regions. Fourth, reliance on self-report measures introduces potential social desirability bias, particularly for sensitive SRH items. Future research should employ longitudinal and mixed methods designs to establish causal pathways and explore the cultural, familial, and contextual factors that shape SRHL development among Chinese young adults. Systematic evaluation of peer-led and university-based SRH programs, including assessments of cost-effectiveness and scalability, is also recommended.

Conclusion

This study demonstrates that one-third of university students in romantic relationships have limited sexual and reproductive health literacy, placing them at elevated risk of unintended pregnancy and sexually transmitted infections. These findings highlight the importance of initiating comprehensive SRH education during adolescence and sustaining it through the transition to young adulthood, a critical period of heightened SRH vulnerability.

The regression findings provide clear, data-grounded directions for intervention. Both peer influence and university-based SRH education and services were significant positive predictors of SRHL, supporting the prioritization of peer-led SRH education programs and the enhancement of university SRH services and curricula as evidence-based intervention strategies. Parental communication regarding SRH was not a statistically significant predictor in this university-age sample, suggesting that parent-child SRH communication should be actively cultivated earlier in development — ideally before the transition to young adulthood — when parental influence on health literacy formation may be more amenable to intervention.

Future research should employ longitudinal designs to establish causal pathways between social determinants and SRHL, and mixed-methods approaches to examine the cultural and contextual factors — particularly Confucian family norms and institutional barriers within Chinese higher education — that shape SRHL development. Systematic implementation and cost-effectiveness evaluations of university-based and peer-led SRH programs are also needed to build the evidence base for scalable, sustainable SRHL promotion among young adults.

Ethical Approval Statement

This study was approved by Ethical Review Committee for Human Research, Faculty of Public Health, Mahidol University on 28 May 2025 [Protocol no 28/2025, COA no. 2025-086]. This study was performed according to the Helsinki Declaration. All participants or their proxies gave informed consent to participate in the study and consented to the use of their data.

Author Contributions

SZ, KY, PC, WK, KZ, have made substantial contributions to the conception and design of the work. SZ collected data. SZ, KY led the acquisition, analysis, and interpretation of data. All authors contributed to the discussion and generated ideas used in the work. KY and SZ drafted the work, and all authors substantively revised it. All authors have read and approved the final manuscript.

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Conflicts of Interest

The authors declare no competing interests.

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