Original Research

Open Access

Belitung Nursing Journal
Volume 11(3), 340-348

https://doi.org/10.33546/bnj.3744

Assessing sexual health literacy among Thai female adolescents in non-formal education: A mixed-methods study

Rapeepan Narkbubpha[1], Atcharawadee Sriyasak[2*], Atiya Sarakshetrin[3], and Pailin Thungthin[1]

[1]Phrachomklao College of Nursing, Phetchaburi Province, Faculty of Nursing, Praboromarajchanok Institute, Thailand
[2]Boromarajonani College of Nursing Yala, Faculty of Nursing, Praboromarajchanok Institute, Thailand
[3]Faculty of Nursing, Praboromarajchanok Institute, Thailand

Abstract

Background: Adolescent pregnancy in Thailand and globally remains a major public health issue, often leading to significant health and social consequences. Among adolescents outside the formal education system, low levels of sexual and reproductive health literacy contribute to poor decision-making and increased risk of unintended pregnancy. Targeted, culturally sensitive interventions are essential to bridge these gaps and reduce associated hardships.

Objective: This study aimed to evaluate the sexual health literacy of Thai female adolescents in non-formal education, focusing on their knowledge levels, decision-making processes, and barriers to accessing accurate sexual health information and services.

Methods: A mixed-methods sequential explanatory design was used. Quantitative data were collected between November 2021 and September 2022, and qualitative data between December 2022 and August 2023. Multi-stage random sampling was used to select 270 participants aged 15–19 from non-formal education programs, yielding a final sample of 200 after excluding incomplete data (response rate = 74.07%). The qualitative phase involved semi-structured interviews with 30 participants who scored low on the sexual health literacy assessment. Information was gathered through semi-structured interviews to explore their knowledge and decision-making process. Descriptive statistics were used to analyze the quantitative data, and thematic analysis was used to analyze the qualitative responses.

Results: Participants demonstrated moderate overall sexual health literacy (M = 97.73, SD = 16.91). Decision-making regarding sexual practices scored the highest (88.79%), while access to health information and services scored the lowest (54.72%). Thematic analysis revealed four major themes: 1) The need for supplemental sexual education beyond formal classrooms, 2) Widespread misconceptions and reliance on unreliable contraceptive information sources, 3) Limited access to sexual health services for adolescents, and 4) The decision-making process prior to selecting a contraceptive method.

Conclusion: There is a clear need for targeted, comprehensive sexual health literacy programs that improve adolescents' knowledge, communication skills, and understanding of contraception. Engaging mothers and other female relatives as key influencers, along with the involvement of nurses and youth-friendly service providers, is essential. These initiatives should focus on preventing high-risk behaviors, delaying sexual initiation, and reducing unplanned pregnancies, especially in underserved non-formal education contexts.

Keywords

Thailand; adolescent pregnancy; sexual health literacy; non-formal education; contraceptive use; health services access

***Corresponding author:**
Atcharawadee Sriyasak, PhD, RN, Assistant Professor
Boromarajonani College of Nursing Yala, Faculty of Nursing, Praboromarajchanok Institute, Thailand
Email: atcharawadee@bcnyala.ac.th

Article info:
Received: 16 November 2024
Revised: 23 December 2024
Accepted: 12 April 2025

E-ISSN: 2477-4073 | P-ISSN: 2528-181X

Background

In Thailand, adolescent girls enrolled in school or participating in non-formal education face significant challenges related to sexual health literacy. Despite progress in formal education, many students in non-formal programs still lack access to adequate resources for their sexual health needs (United Nations Population Fund [UNFPA], 2020). Even those actively seeking reliable information often struggle to comprehend this critical subject. Non-formal, distance-based learning offers a low-cost alternative that includes students who might otherwise be excluded due to geographic or financial constraints (UNESCO, 2025). However, this approach lacks security measures, and knowledge transmission is especially challenging for disadvantaged or less capable students (Coe et al., 2020). Mainstream health education programs tend to overlook this group, thereby significantly limiting their

knowledge of sexual and reproductive health (United Nations Population Fund [UNFPA], 2020).

Sexual health literacy among young women is closely tied to sociocultural attitudes, including restrictive portrayals of traditional Thai values. The current information landscape, particularly online, has also failed to meet the needs of marginalized individuals, such as disabled men who lack communication channels for accessing sexual health support (Leekuan et al., 2022). Prior studies have highlighted multiple issues: limited health education opportunities, social risks faced by girls, and a lack of safe sex resources in non-formal education (Chaiwongroj & Buaraphan, 2020). Traditional cultural values further complicate the situation, particularly in rural areas, by negatively influencing health-seeking behaviors (Wiwatkamonchai et al., 2023). Significant gaps remain in the national discourse on adolescent sexual health, especially in relation to students in non-formal education. These gaps point to the need for further research (Chansiri & Wongwatkit, 2022).

While quantitative research confirms that this group struggles with sexual health literacy, artistic and cultural dimensions may also contribute to persistently high rates of adolescent pregnancy. However, there are limited studies on this issue (Manwong et al., 2022; Narkbubpha et al., 2024). Qualitative research can provide rich insights into individual experiences, though such findings are not always widely generalizable (McLeod, 2024). It is therefore epistemologically essential to consider these limitations when employing a mixed-methods approach. This allows researchers to view and examine the issues culturally and contextually (Creswell & Creswell, 2022).

Youth services in Thailand are increasingly designed to be youth-friendly. Nevertheless, a significant barrier persists in integrating all relevant services (World Health Organization [WHO], 2024). In non-formal education, students often study outside traditional hours and remain unaware of the services available to them (Johnson & Majewska, 2022). Although the Ministry of Public Health has launched youth-friendly clinics, bridging these gaps is essential to ensuring that interventions reach this vulnerable group effectively (Ministry of Public Health, 2023).

In 2019, Thailand's Ministry of Public Health set a target to reduce the adolescent birth rate to below 34 per 1,000 by 2020. However, several provinces exceeded this target. Notably, Prachuap Khiri Khan and Samut Sakhon, located in the fifth health region, recorded adolescent birth rates above 40 per 1,000 (Ministry of Public Health, 2023). These figures call for immediate and targeted interventions to address teenage pregnancy, particularly in high-risk areas.

Research within Thailand's Health District Office Five reveals that a lack of awareness among adolescents is a leading factor in teenage pregnancies. A survey conducted by Subanuch and Theprachak (2017) found that 70.6% of teenagers had never received sex education, and 22.1% lacked basic knowledge about pregnancy risks. These findings emphasize the urgent need for comprehensive sex education from early adolescence onward. Additionally, half of the educators delivering sex education are inadequately trained, relying on outdated lecture-based methods that fail to encourage critical thinking or interactive learning (Boonmongkon et al., 2019; Chiba, 2023).

This study aims to address these gaps by examining the sexual health literacy of female adolescents aged 15–19 who are enrolled in non-formal education. It proposes a broader framework for health literacy that is culturally relevant to Thai society. The study combines traditional approaches with uniquely Thai cultural elements to bring these issues into sharper focus. Through an architectural lens, this study explores formal health literacy by analyzing accessibility to resources, the role of formal education, and sociocultural influences. It also investigates how these elements intersect to shape sexual health awareness among residents of rural hamlets that may lack even a single hospital (Nutbeam & Lloyd, 2021). The aim of this study is to evaluate sexual health literacy, particularly in relation to the prevention of unintended pregnancies, among adolescent female students participating in non-formal education programs within Thailand's fifth health region, and to analyze how their limited understanding of sexual health influences their ability to prevent unwanted pregnancies in this high-risk area.

Methods

Study Design

This mixed-methods research employed an explanatory sequential design (Creswell & Creswell, 2022), combining both descriptive and phenomenological approaches. In the quantitative phase, which was scheduled for later in the year, the study aimed to assess the level of sexual health knowledge among adolescent girls enrolled in non-formal educational institutions. Ten institutions were randomly selected from 62 regional education centers using a multi-stage random sampling technique (Polit & Beck, 2021). Quantitative data collection took place from November 2021 to September 2022.

In the qualitative phase, the study explored factors contributing to unplanned pregnancies in areas where sexual health literacy was low among young women. Data collection occurred from December 2022 to August 2023. A total of 30 participants were randomly selected for in-depth interviews. The extended data collection period was necessary because, in several regions, the number of eligible participants was insufficient to meet the sample requirements. Researchers had to wait for new student intakes to reach the desired number of interviewees. The sequential nature of the design also contributed to the extended timeline, as quantitative data had to be analyzed before qualitative interviews could begin with participants identified as having low health literacy. The study followed MMARS reporting guidelines (Levitt et al., 2018).

Sample/Participants

The sample size for the quantitative phase was calculated using Cochran's formula (Cochran, 1991), which is appropriate when the total population size is unknown. The formula is as follows:

$$n = \frac{P(1-P)Z^2}{e^2}$$

Where: P is the estimated population proportion (set at 0.8 in this study), Z is the Z-score corresponding to a 95% confidence level (1.96), and e is the margin of error (0.05). Using this formula, the initial sample size was calculated:

$$n = \frac{0.8(1-0.8)(1.96)^2}{0.05^2} = 245.86$$

To account for potential non-responses or incomplete data, an additional 10% was added, as recommended by Tumiran (2024), resulting in a total target sample size of 270 participants. A multi-stage random sampling method (see **Figure 1**) was employed to select participants from Thailand's Health Region 5. The sampling procedure involved the following steps: a) Stratified random sampling was used to divide the region into eight provinces, from which five were randomly selected; b) Two districts were then randomly chosen from each of the five provinces, totaling ten districts; c) Cluster sampling was used to select one Non-Formal Education Center (NFEC) from each district; d) Finally, simple random sampling was used to recruit 27 participants from each NFEC.

Eligible participants were unmarried female adolescents aged 15–19, literate, and enrolled in non-formal education for at least six months. After removing incomplete or unusable responses, the final analytical sample consisted of 200 participants, resulting in a response rate of 74.07%.

In the qualitative phase, a purposive sampling was used to select 30 participants from a pool of 65 adolescents who had scored below 89 on the sexual health literacy assessment. Following methodological guidelines by Polit and Beck (2021) and Holloway and Galvin (2024), a minimum of 20 participants was required to achieve data saturation. The interviews were designed to produce in-depth analyses of the experiences and challenges related to unplanned pregnancies among adolescents with low sexual health literacy.

Study Procedures

In the quantitative phase, a descriptive research design was used to assess the sexual health literacy of adolescent female students involved in non-formal education. Participants came from diverse educational levels to ensure a representative overview. Standardized questionnaires were employed to measure various dimensions of sexual health literacy, including knowledge, access to health information, and decision-making skills related to contraception and pregnancy prevention.

For the qualitative phase, the study drew upon phenomenological psychology (Holloway & Galvin, 2024) to explore how adolescent experiences with sexual health literacy influenced their capacity to prevent unplanned pregnancies. Participants who scored below 89 on the quantitative assessment were interviewed individually using a semi-structured format. This method offered insights into the specific challenges faced by young people in this context. The interviews underwent thematic analysis to identify recurring patterns and highlight perspectives on helpful and harmful attitudes toward pregnancy.

Instruments

The quantitative instrument was based on a health literacy questionnaire developed in 2014 by the Health Education Division (2014), with permission granted on June 18, 2020. The tool was tailored to assess sexual health literacy among Thai female adolescents. It consisted of demographic items and 38 questions evaluating key dimensions of health literacy, such as access to and communication about health information, skills in managing health-related issues, literacy in media, and decision-making regarding pregnancy prevention. The questionnaire demonstrated strong reliability, with a Cronbach's alpha of 0.85. A score below 89 was used to classify individuals as having inadequate sexual health literacy, underscoring the need for targeted educational interventions.

In the qualitative phase, semi-structured interviews were conducted to explore participants' understanding of pregnancy prevention. The interview guidelines were designed and reviewed by three sexual health education experts to ensure focus and depth. The questions examined contraception knowledge, sources of information, and prior exposure to contraceptive methods. Pilot testing and iterative refinement ensured that the interviews were engaging and yielded detailed responses, enhancing the tool's effectiveness.

Data Analysis

Quantitative data were analyzed using descriptive statistics, including means, percentages, and standard deviations, to provide an overview of sexual health literacy levels and related factors. Qualitative data analysis followed an inductive thematic approach as described by Braun and Clarke (2013). The researchers identified emerging themes through detailed analysis of the interview transcripts. To ensure the credibility and reliability of the findings, the study applied Lincoln and Guba (1985) criteria for trustworthiness. An expert in qualitative research was consulted during the study's design to strengthen its methodological rigor. Member checking and participant feedback were also used to validate interpretations.

Triangulation of data sources—including interview content, field notes, and observations—enhanced the trustworthiness of the findings. Thorough documentation of the study process, peer reviews, and external audits was conducted to maintain objectivity and comparability, ultimately ensuring the reliability of the results.

Ethical Considerations

Ethical approval was obtained from two institutional review boards before the commencement of the study. On October 6, 2021, Prachomkloa College of Nursing granted approval (Approval No. 23/2565), followed by Hua Hin Hospital on November 3, 2021, and November 7, 2022 (Approval No. 26/2021). The study implemented strict measures to protect participants' confidentiality and well-being. The study complied with ethical standards outlined by both review boards, and informed consent was obtained from all participants prior to data collection. Participants were fully briefed on the study's purpose and were informed of their rights to withdraw at any time without consequence. These ethical practices ensured the protection of participants' dignity and the integrity of the research process.

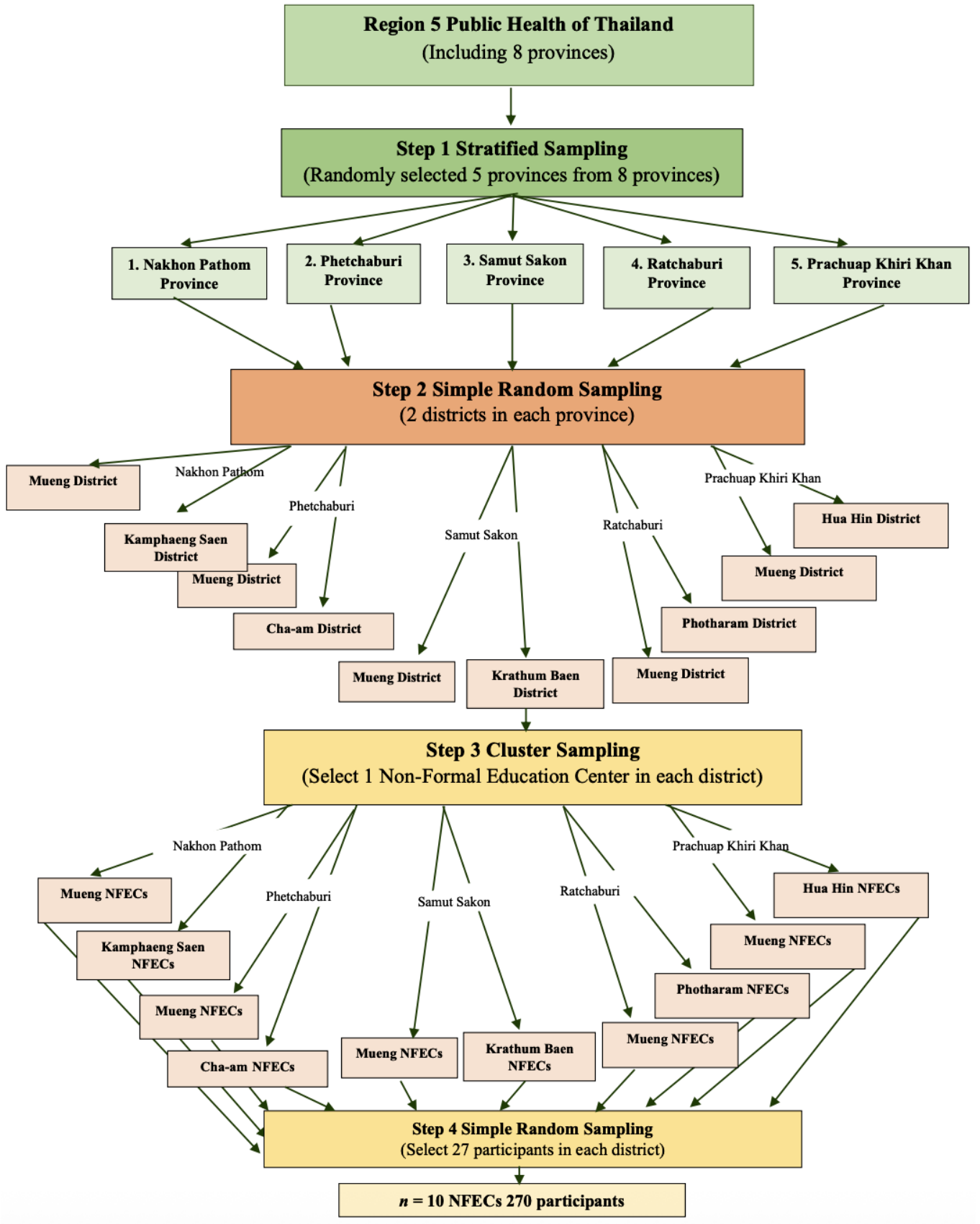

Figure 1 Flowchart of the data-collection process of Non-Formal Education Center

Note. Non-Formal Education Centers (NFECs) are institutions or organizations that provide education and learning opportunities outside the formal school system

Results

Quantitative Phase: Sexual Health Literacy Levels

The response rate was 74.07% (200/270) among adolescent females, with the two largest age groups divided as follows: 41.5% in middle adolescence (aged 14–17 years) and 58.5% in late adolescence (aged 18–21 years). Participants were enrolled in non-formal education programs in the Fifth National Health District, including Nakhon Pathom (26.5%), Ratchaburi (6.5%), Prachuap Khiri Khan (36.5%), Phetchaburi (19.5%), and Samut Sakhon (11.0%). Most participants exhibited satisfactory academic performance (55%) and identified as Buddhists (97.5%). They lived with their parents (59.5%), who were predominantly separated or divorced (54%). Parents typically had primary (elementary) education (35%) and mainly worked in trade or private business (47.5%). Family income was generally adequate (39.5%). Parents (75%) were significant figures in their lives, often affectionate, though the quality varied (48.5%). Satisfaction with living conditions was moderate (37.5%). The largest age group of friends who had given birth was under twenty (23%).

Table 1 Sexual health literacy levels for preventing underage pregnancy among adolescent female students

Health Literacy Level	*f*	%
High proficiency in self-practice (>120 points): Demonstrates effective and sustainable techniques for preventing unplanned pregnancies and can serve as a role model and advisor to peers.	21	10.50
Moderate proficiency in self-practice (90–119 points): Self-practice is adequate in some areas of unexpected pregnancy prevention, but there is space for improvement in others.	114	57.00
Low proficiency in self-practice (<89 points): Shows inadequate self-practice in preventing unplanned pregnancies, indicating the need for further education and support.	65	32.50
(M = 97.73, SD = 16.91, Min = 52, Max = 134)		

The mean score for sexual health literacy among the participants was 97.73 (SD = 16.91), with individual scores ranging from a minimum of 52 to a maximum of 134 (**Table 1**). The results highlight variations across the six assessed components of sexual health literacy: 1) Decision-making skills regarding appropriate practices had the highest score, averaging 88.79%, indicating that most participants could make informed decisions about sexual health practices. 2) Understanding of health knowledge followed, with an average score of 70.13%, reflecting moderate awareness of sexual and reproductive health. 3) Self-management skills for health conditions scored 61.66%, suggesting that while participants were aware of health management principles, they faced challenges applying this knowledge effectively. 4) The lowest average score was for accessing health information and services at 54.72%, highlighting significant obstacles in obtaining accurate sexual health information and receiving proper assistance.

These findings reveal significant gaps in accessing health services and information, essential components of comprehensive sexual health literacy, even though decision-making abilities were generally strong.

Qualitative Phase: Lack of Sexual Health Knowledge and Its Influence on Preventing Unplanned Pregnancies

Participants were selected based on questionnaire responses indicating insufficient sexual health literacy to prevent adolescent pregnancy, with scores below 89.40 points or less than 60% of the total score. A total of 65 individuals were identified, and data saturation was achieved with 30 participants. The majority were enrolled in non-formal education systems in Prachuap Khiri Khan Province (40.00%), Nakhon Pathom Province (26.67%), Phetchaburi Province (13.33%), Samut Sakhon Province (13.33%), and Ratchaburi Province (6.67%).

The study indicates several variables that explain why female adolescents in the non-formal education system lack adequate knowledge about sexual health, which impacts their ability to prevent unplanned pregnancies. Young girls are compelled to participate in non-formal education due to various personal and socioeconomic factors that impede their access to formal education.

1) The need for supplemental sexual education outside formal classrooms

1.1 Financial constraints. Many participants cited financial hardships as a primary reason for leaving formal education. Single-parent households, often led by mothers, struggled to provide the financial support necessary for regular schooling. Some adolescents had to work to support their families, leaving little room for full-time education. One student explained, *"My parents have been separated for a long time, and I live with my mother, who sometimes helps with my education costs. Currently, I am studying at this vocational school. It has been tough to manage household chores and my studies while working. I am currently employed at a coconut plantation"* (P5-RB). Another said, *"I have lived with my grandmother since my parents separated eight months ago. She does odd jobs, but it is still not enough. I had to take a year off from school to help at home by selling goods, mostly food items, on demand"* (P11-PK).

1.2 School-related issues. A common reason for dropping out of school was negative experiences within the education system. Some teenagers expressed difficulties with teachers, making them feel embarrassed and isolated. These experiences contributed to their decision to leave school and explore alternative options through extracurricular activities. One student commented, *"I initially enrolled in a vocational marketing program, but it became too stressful. I could not keep up with the coursework and felt left behind. Although online learning was manageable, transitioning back to in-person classes was overwhelming"* (P11-PK). Another shared, *"I had to stop going to school due to issues with a teacher who constantly scolded and criticized me in front of the class. This negatively affected my mental health, and despite my father speaking to the teacher, the situation did not improve. I dropped out in Grade 5 and briefly attended Grade 6 before dropping out again. Eventually, I returned to vocational school to continue my education"* (P4-SS).

1.3 Relocation. Several participants cited frequent relocations due to family circumstances as a factor disrupting their formal education. Parental separation, job relocations, or changes in guardianship often forced adolescents to move,

resulting in school interruptions. One participant shared, *"My father passed away when I was 11 days old, and my mother eventually remarried. We moved from Kamphaeng Phet to Kanchanaburi and then to Hua Hin. Though my mother arranged for me to attend school because my older brothers had jobs, I wanted to contribute financially to my family"* (P12-PK). *"It has been around 5 or 6 years in Nakhon Pathom," claimed another interviewee. "From elementary school, I lived with my mother in Udon Thani. I could not finish my schooling because illness made it impossible. When my grandmother got sick and the pills I had been taking for six months vanished, I came back to Nakhon Pathom. I felt the time had come for me to return home to be useful in society, so I decided on vocational school"* (P3-NP). These findings illustrate how financial difficulties, adverse experiences in formal education, and frequent relocations contribute to challenges faced by female adolescents in non-formal education. These barriers restrict their access to comprehensive sexual health education and hinder informed decision-making regarding pregnancy prevention.

2) Widespread misconceptions and reliance on unreliable contraceptive information sources

2.1 Misconceptions and insufficient knowledge regarding contraceptive methods. The study revealed that many participants held misconceptions about contraceptive methods and lacked comprehensive knowledge. This lack of understanding affected both the effectiveness and the correct use of regular and emergency contraceptives. For example, contraceptive pills were taken inconsistently, and emergency contraceptives were mistakenly believed to be the most effective option. Due to the lack of structured sexual health education, adolescents, especially those transitioning directly from primary to lower secondary school, often lose previously acquired knowledge. One adolescent stated, *"I take the 28-day contraceptive pills by following the arrows on the pack, but sometimes I forget. If I miss a pill, I usually take two the next day"* (P28-PK). Another participant shared, *"When I was younger, I used to take emergency contraceptive pills. Now I only take one around the time of my period"* (P1-RB). These examples illustrate inconsistent understanding and practices related to contraception.

2.2 Seeking knowledge from family members and online social media. Most participants reported obtaining contraceptive information from informal sources such as social media platforms—Facebook, Google, TikTok—as well as from family members. However, this often led to uncertainty and misinformation. Adolescents expressed confusion about the accuracy and reliability of the information they encountered, particularly regarding post-coital care and contraceptive use. One participant said, *"My mother told me to take contraceptive pills from a blister pack as prevention, but she never explained how to use them. I had to read the instructions on the box myself"* (P2-SS). Another shared, *"I talked with my friends, and they said the blister pack is effective for preventing pregnancy if you take it regularly and don't forget"* (P27-PK). A third participant added, *"I looked up whether contraceptive pills cause weight gain on Google. I searched for forums and expert answers from hospitals, nurses, and doctors"* (P9-PK). These findings show that adolescents often rely on informal and unverified sources, resulting in an incomplete or incorrect understanding of contraceptive use.

3) Limited access to sexual health services for adolescents

Youth-friendly health services (YFHS) are available at hospitals and family clinics for individuals aged 10 to 24. Although these services are essential, most interviewees were unaware of their locations or how they operated. As a result, when facing sexual health concerns, adolescents often overlooked these resources and received no support.

3.1 Perceptions of clinics providing adolescent counseling. Many participants reported that they had never heard of clinics or hospitals offering adolescent-focused services, especially those related to sexual health. This lack of awareness suggests that although these services target youth, they remain underutilized due to insufficient visibility or promotion. One participant said, *"I have never seen or heard of a clinic that offers counseling for adolescent problems like this, and I don't know of any helplines for young people either"* (P3-NP). Another added, *"I've never heard of clinics that provide counseling for adolescents. I've never seen them, so I don't know what they are for or what services they offer"* (P21-PB).

3.2 Lack of utilization of sexual health services. Many adolescent girls stated that they had never used adolescent clinics or accessed sexual health services due to a lack of awareness. Consequently, when faced with sexual health issues, they either turned to family members or chose not to seek any assistance. One girl said, *"I've never used these services because I don't know where they are. So, when I have a problem, I can't seek help or treatment"* (P8-PB). Another explained, *"I experience issues like vaginal discharge, and I usually consult my mother. I've never used any clinics like that"* (P17-NP). These findings emphasize the urgent need to increase awareness and accessibility of adolescent health services. Ensuring that young people know about these resources could empower them to seek appropriate care.

4) The decision-making process prior to selecting a contraceptive method

Adolescent girls who face misconceptions about contraception and have limited access to sexual health services often seek advice from their mothers or female relatives. While these consultations provide guidance, the information is frequently partial or inconsistent, affecting their knowledge and decision-making regarding contraceptive use.

4.1 Maternal counseling before contraceptive method selection. Many participants reported consulting their mothers before choosing a contraceptive method. Often, their mothers recommended the use of contraceptive pills but did not provide detailed instructions. One participant shared, *"I use the 21-day contraceptive pills. I consulted my mother, and she suggested taking the pills in blister packs, but she didn't strongly insist on it. She said it's at least one form of protection and advised me to follow the arrows on the pack. However, she didn't explain what to do if I forgot to take a pill. Fortunately, I've never forgotten"* (P25-PB). Another explained, *"I consulted my mother, and she gave me the 28-day contraceptive pills to ensure I wouldn't forget to take them. She told me to take one*

pill every day without skipping. If I missed a pill, she told me to take two the next day" (P26-PB).

4.2 Counseling from female relatives before selecting a contraceptive method. Some participants also turned to other female relatives, such as older sisters or aunts, for guidance. These conversations often influenced their choice of contraceptive brands, which were typically recommended based on personal experience. One participant said, *"I consulted my mother, but she didn't recommend anything specific. She just said it was good to buy contraceptive pills and take them. Then I spoke to my older sister, and she suggested I take 'Anna' pills"* (P18-PK). Another added, *"I consulted my aunt, and she recommended Marvelon pills because they don't cause dizziness or weight gain. I've been taking Marvelon for about six to seven months now. I stop taking them when my period ends and resume when it starts again. I haven't had any problems with Marvelon"* (P19-PK). These findings underscore the significant role of maternal and familial influence in adolescents' contraceptive choices. However, due to the limited and sometimes incorrect information shared within families, adolescents often develop an incomplete understanding and adopt inconsistent practices regarding contraception.

Discussion

Principal Findings

The quantitative research revealed that only 10.50% of participants had a good understanding of sexual health, indicating a low level of literacy. In contrast, decision-making ability yielded better results at 88.79%. However, access to knowledge about healthcare and treatment services remained relatively low, at only 54.72%. These findings highlight a pressing need for targeted sexual health education tailored to this vulnerable population (Sully et al., 2020). Several factors contribute to this limited understanding of sexual health. One of the primary reasons is the influence of adolescents' living environments. Families often hinder adolescents' access to consistent sexual health resources, such as peer magazines or educational media. Furthermore, campus environments offer limited spaces for both informal learning, like reading in dormitories, and formal instruction. As a result, adolescents are forced to rely on potentially unreliable sources, particularly family members and social media platforms, which may offer inconsistent or inaccurate information.

The study also identified a significant gap in awareness of youth-friendly health services. Although such clinics exist, most participants were unaware of their presence or the services they offer. This lack of awareness serves as a major barrier to accessing proper sexual health education and support (Janighorban et al., 2022). Family influence, especially from female relatives, plays a crucial role in contraceptive decisions. However, the advice offered is often incomplete and based on personal experiences rather than professional medical knowledge (Dombola et al., 2021; Fisher et al., 2019).

The qualitative results have revealed deeper issues contributing to low sexual health awareness. Many adolescents are excluded from the formal education system and enrolled in non-formal schools, where regular sexual health education is often lacking. Contributing factors include low family income, school-related challenges, and frequent relocation, all of which disrupt consistent learning opportunities. These findings align with research in Thailand (Chansiri & Wongwatkit, 2022), which highlights how educational disparities exacerbate sexual health inequalities among adolescents.

The quality and accessibility of information also remain concerning. While various sources, such as social media and family, are readily available, their information is often inaccurate or contradictory. This dependency on unofficial channels reflects an increasing trend toward seeking sexual health knowledge online. However, studies conducted by the UNESCO (2025) and McLeod et al. (2025) raise concerns about the accuracy of online content, particularly when not verified by healthcare professionals.

Implications for Nursing Practice

Implementing an effective program for sexually transmitted disease (STD) prevention and control requires clearly defined objectives, stakeholder engagement, a realistic timeline, and adequate resources. Short-term (two-year), mid-term (five- to ten-year), and long-term goals should be established to guide these efforts. Plans must also address social reforms, improve the quality of care, ensure a consistent supply of medical products, and guarantee access to quality-assured essential medications. Tailored strategies are crucial, especially considering the diverse cultural and religious contexts. For example, Buddhist communities place significant emphasis on how campaigns are conducted, including curriculum content and the production of educational materials. Yet, insufficient stakeholder collaboration continues to hinder long-term success. Active engagement from start to finish is vital to ensure sustainability and impact. A key challenge remains: how should resource allocation be adjusted to meet varying needs? This question must be addressed to provide actionable insights and practical guidance for those implementing sexual health initiatives. Nurses play a pivotal role in all these aspects—serving not only as frontline educators and care providers, but also as advocates for policy change and community engagement. Their involvement is key to developing interventions that are holistic, evidence-based, and aligned with the lived experiences of adolescent girls in non-formal education settings.

Limitations and Recommendations for Future Research

This study has several limitations. It focused exclusively on Buddhist adolescent girls, involved a relatively small sample size (200 participants), and was limited to non-formal education settings within a specific geographic region in Thailand, thereby restricting generalizability. Methodologically, the study employed a cross-sectional design, which does not allow for causal inference. Additionally, reliance on self-reported data introduces potential recall and social desirability biases. The qualitative component included interviews with only 30 individuals, limiting the depth and diversity of perspectives. Other notable constraints include potential cultural bias, underreporting due to the sensitive nature of sexual health, and the exclusion of male participants or those receiving formal education. Instrumentation also posed a challenge, with single-measure assessments and tools that lacked extensive validation. Moreover, inconsistencies in how

sexual health literacy is evaluated across different contexts may have affected the findings.

Future research should focus on developing and implementing curricula specifically aimed at improving sexual health literacy among adolescent girls in non-formal education centers. Such efforts could promote comprehensive understanding, reduce reproductive health risks, and enhance informed decision-making, particularly within Thailand's Health District 5.

Conclusion

Despite relatively strong decision-making skills, a significant gap in sexual health knowledge exists among Thai Buddhist adolescent females in non-formal education. Contributing factors include familial limitations, poor access to reliable information, lack of awareness about youth-friendly healthcare services, and heavy reliance on potentially misleading sources. Though constrained by sample size and study design, the findings emphasize the urgent need for targeted, culturally sensitive sexual health education programs. These should be built on collaborative stakeholder engagement and designed to empower adolescents with the knowledge and resources needed to protect and manage their reproductive health.

Declaration of Conflicting Interest

No conflict of interest to declare.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by the Science, Research, and Innovation Promotion Fund for fiscal year 2023.

Acknowledgment

The authors thank all the adolescents who voluntarily participated in this study. Their contribution was invaluable, and this research would not have been possible without their willingness to participate.

Authors' Contributions

RN served as the principal investigator and provided overall leadership for the study, including developing the research proposal, ethical approval, data collection and analysis, interpretation of results, and manuscript preparation and revision. ASr contributed to the proposal, participated in study design discussions, co-drafted the manuscript, conducted critical revisions, and approved the final version. PT contributed to the literature review, questionnaire validation, ethical procedures, data collection, analysis, and study design discussions. ASa additionally assisted with the literature review and approved the final manuscript.

Authors' Biographies

Rapeepan Narkbubpha, PhD, RN, serves as Assistant Professor in the Division of Maternal-Newborn Nursing and Midwifery at Phrachomklao College of Nursing, Phetchaburi Province, Faculty of Nursing, Praboromarajchanok Institute, Thailand.

Atcharawadee Sriyasak, PhD, RN, serves as Assistant Professor at Boromarajonani College of Nursing Yala, Faculty of Nursing, Praboromarajchanok Institute, Thailand.

Atiya Sarakshetrin, PhD, RN, serves as an Assistant Professor at the Faculty of Nursing, Praboromarajchanok Institute, Thailand.

Pailin Thungthin, M.N.S., RN, is a Lecturer in the Division of Maternal-Newborn Nursing and Midwifery at Phrachomklao College of Nursing, Phetchaburi Province, Faculty of Nursing, Praboromarajchanok Institute, Thailand.

Data Availability

The dataset generated during and analyzed during the current study is available from the corresponding author upon reasonable request.

Declaration of Use of AI in Scientific Writing

Nothing to declare.

References

Boonmongkon, P., Shrestha, M., Samoh, N., Kanchawee, K., Peerawarunun, P., Promnart, P., Ojanen, T., & Guadamuz, T. E. (2019). Comprehensive sexuality education in Thailand? A nationwide assessment of sexuality education implementation in Thai public secondary schools. *Sexual Health*, *16*(3), 263-273. https://doi.org/10.1071/SH18121

Braun, V., & Clarke, V. (2013). *Successful qualitative research: A practical guide for beginners* (1st ed.). Sage Publications.

Chaiwongroj, C., & Buaraphan, K. (2020). Development and effectiveness assessment of a sex education learning unit for Thai primary students. *Journal of Health Research*, *34*(3), 183-193. https://doi.org/10.1108/JHR-02-2019-0039

Chansiri, S., & Wongwatkit, C. (2022). The effects of an educational model through a mobile web application on the knowledge of sexual healthcare and prevention of sexually transmitted diseases and unwanted pregnancies among Akha adolescents in Chiang Rai Province [in Thai]. *Nursing Science Journal of Thailand*, *40*(3), 1-13. https://he02.tci-thaijo.org/index.php/ns/article/view/251079

Chiba, M. (2023). Sexuality education in Thailand: Contestation and reconciliation. In P. Bacon, M. Chiba, & F. Ponjaert (Eds.), *The Sustainable Development Goals*. Taylor & Francis. https://doi.org/10.4324/9781003205951-7

Cochran, W. G. (1991). *Sampling techniques* (3rd ed.). Wiley.

Coe, R., Rauch, C. J., Kime, S., & Singleton, D. (2020). *Great teaching toolkit: Evidence review*. Evidence Based Education. https://www.cambridgeinternational.org/Images/584543-great-teaching-toolkit-evidence-review.pdf

Creswell, J. W., & Creswell, J. D. (2022). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications.

Dombola, G. M., Manda, W. C., & Chipeta, E. (2021). Factors influencing contraceptive decision making and use among young adolescents in urban Lilongwe, Malawi: A qualitative study. *Reproductive Health*, *18*, 209. https://doi.org/10.1186/s12978-021-01259-9

Fisher, C., Mikolajczak, G., Ezer, P., Kerr, L., Bellamy, R., Brown, G., Waling, A., & Lucke, J. (2019). Study protocol: 6th national survey of Australian secondary students and adolescent sexual health, 2018. *Frontiers in Public Health*, *7*, 217. https://doi.org/10.3389/fpubh.2019.00217

Health Education Division. (2014). *Health literacy scale for unwanted pregnancy prevention of Thai female adolescents [in Thai]*. https://shorturl.asia/Sjy1c

Holloway, I., & Galvin, K. (2024). *Qualitative research in nursing and healthcare* (5th ed.). John Wiley & Sons.

Janighorban, M., Boroumandfar, Z., Pourkazemi, R., & Mostafavi, F. (2022). Barriers to vulnerable adolescent girls' access to sexual and reproductive health. *BMC Public Health*, *22*(1), 2212. https://doi.org/10.1186/s12889-022-14687-4

Johnson, M., & Majewska, D. (2022). *Formal, non-formal, and informal learning: What are they, and how can we research them?* https://www.cambridgeassessment.org.uk/Images/665425-formal-non-formal-and-informal-learning-what-are-they-and-how-can-we-research-them-.pdf

Leekuan, P., Kane, R., Sukwong, P., & Kulnitichai, W. (2022). Understanding sexual and reproductive health from the perspective of late adolescents in Northern Thailand: A phenomenological study. *Reproductive Health*, *19*(1), 230. https://doi.org/10.1186/s12978-022-01528-1

Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, *73*(1), 26-46. https://doi.org/10.1037/amp0000151

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. California: Sage Publications.

Manwong, M., Thongnopakun, S., Rodjarkpai, Y., Wattanaburanon, A., & Visanuyothin, S. (2022). Sexual health literacy and preventive behaviors among middle-school students in a rural area during the COVID-19 situation: A mixed methods study. *Health Promotion Perspectives*, *12*(2), 178-185. https://doi.org/10.34172/hpp.2022.22

McLeod, J., Estcourt, C. S., MacDonald, J., Gibbs, J., Woode Owusu, M., Mapp, F., Gallego Marquez, N., McInnes-Dean, A., Saunders, J. M., & Blandford, A. (2025). Opening the digital doorway to sexual healthcare: Recommendations from a behaviour change wheel analysis of barriers and facilitators to seeking online sexual health information and support among underserved populations. *PloS One*, *20*(1), e0315049. https://doi.org/10.1371/journal.pone.0315049

McLeod, S. (2024). *Transferability in qualitative research*. Simply Psychology. https://www.simplypsychology.org/transferability-in-qualitative-research.html

Ministry of Public Health. (2023). *State of adolescent sexual and reproductive health in Thailand: Annual report 2023 [in Thai]*. https://rh.anamai.moph.go.th/th/news-anamai/download/?did=215925&id=115401&reload=

Narkbubpha, R., Thongma, N., Tongpeth, J., Sarakshetrin, A., & Chinglek, W. (2024). Sexual health literacy among female adolescent students in the educational system, Phetchaburi province [in Thai]. *Journal of The Royal Thai Army Nurses*, *25*(2), 75-82. https://he01.tci-thaijo.org/index.php/JRTAN/article/view/266179

Nutbeam, D., & Lloyd, J. E. (2021). Understanding and responding to health literacy as a social determinant of health. *Annual Review of Public Health*, *42*(2021), 159-173. https://doi.org/10.1146/annurev-publhealth-090419-102529

Polit, D. F., & Beck, C. T. (2021). *Nursing research: Generating and assessing evidence for nursing practice* (11th ed.). Wolters Kluwer.

Subanuch, J., & Theprachak, S. (2017). *A study of factors related to pregnancy among females under 20 years old in Health District 5 [in Thai]*. https://hpc.go.th/rcenter/_fulltext/20210727204628_925/20210727210627_2091.pdf

Sully, E. A., Biddlecom, A., Darroch, J. E., Riley, T., Ashford, L. S., Lince-Deroche, N., Firestein, L., & Murro, R. (2020). *Adding it up: Investing in sexual and reproductive health 2019*. https://www.guttmacher.org/report/adding-it-up-investing-in-sexual-reproductive-health-2019

Tumiran, M. A. (2024). How to deal with insufficient sample size due to non-response in surveys? *Quantum Journal of Social Sciences and Humanities*, *5*(2), 70-86. https://doi.org/10.55197/qjssh.v5i2.346

UNESCO. (2025). *UNESCO spotlights how digital learning can promote equity in low-resource contexts*. https://www.unesco.org/en/articles/unesco-spotlights-how-digital-learning-can-promote-equity-low-resource-contexts

United Nations Population Fund [UNFPA]. (2020). *International Technical and Programmatic Guidance on Out-of-School Comprehensive Sexuality Education (CSE)*. https://www.unfpa.org/sites/default/files/pub-pdf/Out_of_School_CSE_Guidance_with_References_for_Web.pdf

Wiwatkamonchai, A., Mesukko, J., Klunklin, P., & Fongkaew, W. (2023). Youths' perceptions regarding access to sexual and reproductive health services. *Pacific Rim International Journal of Nursing Research*, *27*(1), 121-137. https://doi.org/10.60099/prijnr.2023.260337

World Health Organization [WHO]. (2024). *Countries in WHO South-East Asia Region commit to adolescent responsive health systems*. https://www.who.int/southeastasia/news/detail/08-10-2024-countries-in-who-south-east-asia-region-commit-to-adolescent-responsive-health-systems

Cite this article as: Narkbubpha, R., Sriyasak, A., Sarakshetrin, A., & Thungthin, P. (2025). Assessing sexual health literacy among Thai female adolescents in non-formal education: A mixed-methods study. *Belitung Nursing Journal, 11*(3), 340-348. https://doi.org/10.33546/bnj.3744