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Abortion-prevention Behavior Among Adolescents at Nuruddin Islamic Boarding School, Sungai Sarik Village

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Abstract

Abortion is often perceived as a common issue among adolescents due to its frequent portrayal in electronic and print media. Abortion-prevention behavior refers to actions aimed at preventing abortion and its associated adverse health consequences. At Nuruddin Islamic Boarding School, reproductive health education and counseling on abortion prevention had not been provided by healthcare professionals. This study aimed to identify factors associated with abortion-prevention behavior among students at Nuruddin Islamic Boarding School in Sungai Sarik Village. A quantitative study with an analytical cross-sectional design was conducted among 100 students selected through systematic random sampling from a population of 121 students. Data were analyzed using univariate and bivariate (Chi-square test) analyses, and multivariable logistic regression. The findings revealed that 58% of respondents demonstrated poor abortion-prevention behavior. Multivariable logistic regression analysis showed that attitude (p = 0,011), knowledge (p = 0,012), and the role of healthcare providers (p = 0,016) were significantly associated with abortion-prevention behavior. Among these factors, attitude emerged as the most influential predictor. Attitude, knowledge, and the role of healthcare providers were significant determinants of abortion-prevention behavior among adolescents. Strengthening positive attitudes, improving reproductive health knowledge, and increasing healthcare provider involvement in reproductive health education and counseling may enhance abortion-prevention behavior and contribute to reducing the risk of unintended pregnancy and unsafe abortion among adolescents.

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Introduction

Unintended pregnancy is associated with a range of adverse outcomes for women, especially adolescents. It may result in educational discontinuation, an increased risk of maternal and obstetric complications due to early pregnancy, inadequate psychological readiness for motherhood, and

unfavorable effects on the child's growth and developmental outcomes (Ocviyanti & Dorothea, 2018). In Indonesia, adolescents aged 15–19 years constitute the age group with the highest prevalence of sexual debut. Findings from the 2017 Indonesian Demographic and Health Survey (IDHS) revealed that 74% of adolescents in this age group had initiated sexual intercourse, reflecting a 15% increase from the 59% reported in the 2012 survey (BKKBN, 2017). Globally, unintended pregnancy remains a major public health concern. The World Health Organization (WHO, 2019), as cited in Irwan (2022), estimated that approximately 40–60 million women experience unintended pregnancies annually, a substantial proportion of whom subsequently undergo induced abortion.

In Indonesia, approximately 2 million induced abortions are estimated to occur each year, including around 70,000 cases among unmarried young women (Usman et al., 2019) Nevertheless, obtaining accurate estimates remains challenging because a substantial number of abortions performed outside regulated healthcare facilities are not systematically reported (Ocviyanti & Dorothea, 2018) Although abortion is more visible in urban settings due to frequent media coverage, it also occurs among adolescents in rural and semi-urban areas. Unsafe abortion associated with unintended pregnancy remains an important contributor to maternal morbidity and mortality, thereby posing a significant public health challenge. Since Indonesian law permits abortion only under limited circumstances, strengthening preventive strategies to reduce unintended pregnancies among adolescents is essential (Muhammad, 2020)

According to the Riau Provincial Health Office Profile (2015–2017), maternal mortality in Riau Province demonstrated an increasing trend over the study period. Obstetric hemorrhage was identified as the leading cause of maternal death (38%), followed by other medical causes (35.8%), eclampsia (20%), coagulation disorders (4.1%), and infection (2.06%). While abortion-related deaths were not specifically documented, abortion complications may have contributed considerably to maternal mortality and were likely recorded under categories such as obstetric hemorrhage or other medical causes (Megasari, 2019)

Among adolescents, abortion is frequently linked to risky sexual behaviors that often occur within dating relationships. Societal changes, including shifting social norms, decreased parental monitoring, weakened community social control, and increasing acceptance of privacy in personal relationships, may contribute to a higher risk of premarital sexual activity, unintended pregnancy, and induced abortion (Agustina, 2019) Consequently, comprehensive strategies aimed at preventing unintended pregnancy among adolescents, particularly adolescent girls, are essential to reducing abortion rates and decreasing the maternal mortality ratio (MMR) attributable to unsafe abortion practices (Wd et al., 2019)

Abortion-prevention behavior is a form of preventive health behavior influenced by predisposing, enabling, and reinforcing factors. Predisposing factors include knowledge, attitudes, beliefs, values, and perceptions; enabling factors comprise access to healthcare facilities and supportive physical environments; while reinforcing factors involve the support and influence of family members, teachers, healthcare professionals, peers, religious leaders, and the community (Astuti et al., 2022). Several studies have demonstrated that reproductive health education plays a significant role in improving adolescents' knowledge and attitudes regarding the risks and consequences of abortion. Usman et al. (2019) reported that reproductive health education delivered through WhatsApp significantly improved adolescent girls' knowledge and attitudes toward abortion prevention. Similarly, Ranteallo et al. (2019) found a significant association between adolescents' level of knowledge and their attitudes and understanding of the risks associated with abortion.

Abortion may occur in diverse settings, including religious educational institutions such as Islamic boarding schools. As influential environments for adolescents' moral, spiritual, and social development, Islamic boarding schools have a strategic role in promoting health literacy and fostering positive health behaviors. Therefore, these institutions are expected to contribute to the development

of healthy lifestyles and reproductive health awareness among students and the broader community (Rofi'i & Addury, 2021). Nuruddin Islamic Boarding School, located in Sungai Sarik Village, Kampar Kiri District, Kampar Regency, Indonesia, was one of the partner institutions involved in this community engagement initiative. The school offers educational programs ranging from Raudhatul Athfal (RA)/Kindergarten, equivalent to Islamic preschool education, to Madrasah Aliyah (MA)/Senior High School, equivalent to senior secondary education, and enrolls approximately 150 students. (Ponpes Nuruddin, 2021).

A preliminary assessment found that the Islamic boarding school was located in a highly isolated rural area. Interviews with the boarding school caregivers revealed that the remote location had limited access to healthcare services, resulting in the absence of healthcare professionals providing routine health examinations and health education programs, particularly those related to abortion prevention. This issue became a concern following a reported abortion case involving a female student who experienced an out-of-wedlock pregnancy. In addition, dating behavior among students was reported to occur frequently in the evening hours without adequate supervision from caregivers, partly because the boarding school was surrounded by forests and plantation areas, which made monitoring more difficult.

The boarding school had a total of 121 students. Of these, 95 students (78.5%) reported having been involved in romantic relationships. Although they stated that their relationships were limited to non-sexual dating activities, one female student had been expelled from the boarding school after becoming pregnant outside of marriage.

Therefore, this study aimed to identify the factors associated with abortion-prevention behavior among adolescents at Nuruddin Islamic Boarding School in Sungai Sarik Village. The findings are expected to contribute to the development of effective strategies for improving abortion-prevention behavior among adolescent girls and, ultimately, to support efforts to reduce maternal mortality in Indonesia.

Materials and Methods

Research Design

This study employed an analytical cross-sectional design to examine factors associated with abortion-prevention behavior among adolescents at Nuruddin Islamic Boarding School in Sungai Sarik Village. A cross-sectional approach was selected because it enables the assessment of both independent and dependent variables within a defined population at a single point in time. This design was considered appropriate for identifying associations between abortion-prevention behavior and several potential influencing factors, including knowledge, attitudes, the roles of teachers, family, community leaders, peers, healthcare providers, and information media utilization.

Population and sample

The study population comprised all students enrolled at Nuruddin Islamic Boarding School, as recorded in the 2023 Education Management Information System (EMIS), totaling 121 students. The required sample size was calculated using the Slovin formula, yielding a minimum sample of 93 participants. To enhance representativeness and account for potential non-response, the sample size was rounded up to 100 students. Participants were selected using a systematic random sampling technique. The inclusion criteria were students enrolled in grades 1–6, willing to participate in the study, and in good health at the time of data collection.

Data Collection

Primary data were collected using a structured questionnaire. Before data collection, the instrument was tested for validity and reliability among 30 students at Madany Al-Islamy Islamic Boarding School. The validated questionnaire was then used to assess the study variables among the selected respondents. Validity testing was conducted by comparing the calculated correlation coefficient (r-value) with the critical value of the correlation coefficient (r-table). Based on the pilot sample of 30 respondents, the degrees of freedom (df) were calculated as 28 (n−2), yielding an r-table value of 0.361 at a significance level of 5% ($\alpha = 0.05$). An item was considered valid if its calculated r-value exceeded the r-table value ($r > 0.361$). Subsequently, valid items were subjected to reliability testing using Cronbach's Alpha. A variable was considered reliable if its Cronbach's Alpha coefficient was greater than 0.60. The results are presented in Table 1.

Table 1. Results of Questionnaire Validity and Reliability Testing

Variables	Total Items	Valid Items	Invalid Items	Reliable Items	Cronbach's Alpha (>0.60)
Abortion Prevention Behavior	5	5	0	5	0.915
Attitude	5	4	1	5	0.815
Knowledge	5	4	1	5	0.775
Teacher Role	5	4	1	5	0.656
Family Role	5	5	0	5	0.919
Peer Role	5	3	2	5	0.756
Healthcare Provider Role	5	4	1	5	0.833
Information Media	5	5	0	5	0.894
Total	**40**	**34**	**6**	**40**	-

Note: Σ = number of items; r-table = 0.361; n = 30.

Table 1 presents the results of the questionnaire's validity and reliability testing. Of the 40 items assessed, 34 were valid, and 6 were invalid. The variables of abortion prevention behavior, family role, and information media had all items classified as valid. In contrast, the attitude, knowledge, teacher role, healthcare provider role, and peer role variables contained one or more invalid items. Reliability analysis demonstrated that all variables had Cronbach's Alpha values above 0.60 (0.656–0.919), indicating acceptable internal consistency. Therefore, all study variables were considered reliable and suitable for data collection.

Variable scores were calculated by summing all valid items within each construct. Because no standardized cut-off values were available for the instrument, respondents were categorized based on the median score for each variable. Scores equal to or greater than the median were classified as good/positive/there is a role, whereas scores below the median were classified as poor/negative/no role.

Data Analysis

Data were analyzed using descriptive and inferential statistical methods. Descriptive statistics were used to summarise respondents' characteristics and to present the distribution of study variables as frequencies and percentages. Bivariate analysis was performed using the Chi-square test to examine associations between the independent variables and abortion-prevention behavior. Variables with a p-value < 0.25 in the bivariate analysis were subsequently included in a multivariable logistic regression to identify factors independently associated with abortion-prevention behavior. Statistical significance was set at $p < 0.05$, and the results were reported with 95% confidence

intervals (CIs). All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 23.0.

Ethical Approval

This study received ethical approval from the Research Ethics Committee of Hang Tuah University, Pekanbaru (Ethics Approval No. 405/KEPK/UHTP/VII/2023). Written informed consent was obtained from all participants before their enrollment in the study. The confidentiality and anonymity of participants were strictly maintained throughout the research process.

Results and Discussions

Characteristics of Respondents

Table 2. Sociodemographic Characteristics of Respondents (N = 100)

Variables	Categories	n	%
Age (years)	12–14	39	39
	15–17	61	61
Gender	Male	64	64
	Female	36	36
Educational Level	Madrasah Tsanawiyah (MTs)	54	54
	Madrasah Aliyah (MA)	46	46
Length of Stay at the Islamic Boarding School	<1 tahun	12	12
	1–3 tahun	42	42
	>3 tahun	46	46

As shown in Table 2, most respondents were aged 15–17 years (61%), male (64%), and enrolled in Madrasah Tsanawiyah (54%). Regarding boarding school residence, 46% of respondents had lived in the boarding school for more than three years, 42% for 1–3 years, and 12% for less than one year.

Univariate Analysis

A univariate analysis was conducted to describe the distributions of the study variables, including abortion-prevention behavior, attitudes, knowledge, the roles of teachers, family, peers, and healthcare providers, and information media utilization. The results are presented in Table 3.

Table 3. Frequency Distribution of Abortion-prevention Behavior, Attitudes, Knowledge, the Role of Teachers, Family, Peers, Healthcare Providers, and Information Media Utilization

Variable	Frequency (n)	Percentage (%)
Abortion-prevention Behaviors		
Poor	58	58
Good	42	42
Attitude		
Negatives	59	59
Positive	41	41
Knowledge		
Poor	61	61
Good	39	39
The Role of Teacher		
No role	54	54
There is a role	46	46
The Role of Family		

No role	61	61
There is a role	39	39
The Role of Peers		
No role	65	65
There is a role	35	35
The Role of Healthcare Providers		
No role	59	59
There is a role	41	41
Information Media Utilization		
Not Utilizing	66	66
Utilize	34	34

Table 3 presents the frequency distribution of abortion-prevention behavior and its associated factors among the respondents. The results showed that 58 respondents (58.0%) exhibited poor abortion-prevention behavior, while 42 respondents (42.0%) demonstrated good abortion-prevention behavior. More than half of the respondents had negative attitudes (59.0%) and poor knowledge regarding abortion-prevention (61.0%). In addition, 54.0% of respondents reported that teachers did not play a role in abortion-prevention education, while 61.0% perceived no family involvement. The majority of respondents also reported the absence of peer support (65.0%) and healthcare provider involvement (59.0%) related to abortion prevention. Furthermore, 66.0% of respondents did not utilize information media as a source of information regarding reproductive health and abortion prevention.

Bivariate Analysis

Table 4. Resume of Bivariate Analysis Results

Variabel	**Abortion-prevention Behaviors**					**p-value**
	Poor		**Good**		**Total**	
	n	**%**	**n**	**%**	**n (%)**	
Attitude						
Negatives	52	88,1	7	11,9	59	0,000
Positive	6	14,6	35	85,4	41	
Knowledge						
Poor	54	88,5	7	11,5	61	0,000
Good	4	10,3	35	89,7	39	
The Role of Teacher						
No role	47	87	7	13	54	0,000
There is a role	11	23,9	35	76,1	46	
The Role of Family						
No role	52	85,2	9	14,8	61	0,000
There is a role	6	15,4	33	84,6	39	
The Role of Peers						
No role	39	60	26	40	65	0,734
There is a role	19	54,3	16	45,7	35	
The Role of Healthcare Providers						
No role	53	89,8	6	10,2	59	0,000
There is a role	5	12,2	36	87,8	41	
Information Media Utilization						
Not Utilizing	54	83,1	11	16,9	66	0,000
Utilize	4	11,4	31	88,6	34	

The results presented in Table 4 indicate that six independent variables, namely attitudes, knowledge, the role of teachers, the role of family, the role of healthcare providers, and information

media utilization, were significantly associated with abortion-prevention behavior among adolescents (all p < 0,05). Conversely, the role of peers was not significantly associated with abortion-prevention behavior (p = 0,734). These findings suggest that individual, familial, educational, healthcare, and informational factors may play important roles in shaping abortion-prevention behavior among adolescents.

Multivariate Analysis

Based on the bivariate analysis, six independent variables met the selection criterion of p ≤ 0.25 and were subsequently included in the multivariable regression model. These variables were attitudes, knowledge, the roles of teachers, family, and healthcare providers, and the utilization of information media. Multivariable analysis was then conducted to determine the factors independently associated with abortion-prevention behavior among adolescents. The results of the final model are presented in the following table.

Table 5. Multivariate Analysis

Variabel	*p value*	OR	(95 % CIs)	
			Lower	Upper
Attitude	0,011	97,032	2,775	3392,625
Knowledge	0,012	37,944	2,156	667.566
The Role of Teacher	0,166	8,333	0,412	10,185
The Role of Family	0,803	1,407	0,095	14,630
The Role of Healthcare Providers	0,016	45,406	2,018	1021,226
Information Media Utilization	0,710	1,739	0,093	32,531

Based on the multivariable logistic regression analysis presented in Table 5, attitude (p = 0,011), knowledge (p = 0,012), and the role of healthcare providers (p = 0,016) were significantly associated with abortion-prevention behavior among adolescents. In contrast, the role of teachers (p = 0,166), family role (p = 0,803), and information media utilization (p = 0,710) were not statistically significant in the final model. However, these variables were retained in the model because their exclusion led to changes of more than 10% in the odds ratio estimates of the remaining variables, indicating they acted as confounding factors. Among all variables included in the final model, attitude was identified as the most influential factor associated with abortion-prevention behavior. Respondents with negative attitudes were 97,03 times more likely to exhibit poor abortion-prevention behavior than those with positive attitudes (POR = 97,03; 95% CI: 2,78–3392,63). This finding suggests that attitude plays a critical role in shaping abortion-prevention behavior among adolescent girls, even after controlling for the effects of other variables included in the model.

Nevertheless, the confidence interval for the adjusted prevalence odds ratio was relatively wide, indicating limited precision in the effect estimate. This may be attributable to sparse data, as several cells in the cross-tabulation of predictor and outcome variables contained relatively few observations. Such sparse cell counts can reduce the stability of logistic regression estimates and lead to inflated odds ratios accompanied by wider confidence intervals.

Discussions

The present study identified four factors significantly associated with abortion-prevention behavior among students in an Islamic boarding school setting, namely attitudes, knowledge, the role of healthcare providers, and family support. Among these variables, attitude emerged as the most influential factor in the multivariable model. However, this finding should be interpreted as an association rather than causation, given the study's cross-sectional design. Despite this limitation, the

strength of the association suggests that attitudinal disposition plays a central role in shaping adolescents' reproductive health decision-making within this specific sociocultural context.

Attitude emerged as the strongest determinant of abortion-prevention behavior among adolescents. This finding suggests that adolescents with positive attitudes toward reproductive health are more likely to engage in behaviors aimed at preventing unintended pregnancy and abortion. This finding is consistent with the Theory of Planned Behavior, which proposes that attitudes toward a behavior are among the strongest predictors of behavioral intentions and subsequent actions (Notoadmodjo, 2019). Although knowledge provides information regarding reproductive health risks, behavioral decisions are often more directly influenced by personal beliefs, values, and attitudes toward those risks. Consequently, adolescents may possess adequate knowledge but still fail to adopt preventive behaviors if they do not hold favorable attitudes toward reproductive health. This finding is consistent with studies conducted by Agustina (2019), Ranteallo et al., and Ehondor et al. (2025), which reported that positive attitudes toward reproductive health were associated with safer reproductive health behaviors among adolescents. Within the Islamic boarding school environment, continuous exposure to religious teachings, institutional regulations, and behavioral guidance may further strengthen positive attitudes toward reproductive health and encourage responsible decision-making.

Knowledge was also independently associated with abortion-prevention behavior. Adequate knowledge enables adolescents to understand the health, social, and psychological consequences of unintended pregnancy and unsafe abortion, thereby supporting informed decision-making. Similar findings have been reported by Agustini and Sagitarini (2023), Siregar (2021), and Usman et al. (2019), who found that higher reproductive health knowledge was associated with more positive reproductive health behaviors. Furthermore, Mohamed et al. (2023) and Vongxay et al. (2020) emphasized that comprehensive reproductive health education is essential for improving adolescents' reproductive health literacy and preventing unintended pregnancy and unsafe abortion.

The role of healthcare providers was identified as an independent determinant of abortion-prevention behavior. This finding may reflect limited access to reproductive health education and counseling for adolescents in the study setting. During the preliminary assessment, reproductive health education related to abortion prevention had not been routinely provided by healthcare professionals. This situation may be related to the boarding school's relatively isolated location and limited access to adolescent reproductive health services. As a result, interactions with healthcare providers may become particularly important sources of reproductive health information and counseling for students. Consequently, adolescents who received support or information from healthcare providers may have had greater opportunities to acquire accurate reproductive health knowledge and develop positive attitudes toward abortion prevention. Previous studies have similarly highlighted the important role of healthcare professionals in preventing adolescent pregnancy and promoting reproductive health awareness (Ramadani et al., 2019; Frederico et al., 2023).

Although the teacher role, family support, and information media were not retained as independent determinants in the final model, these variables remained important contextual factors. Teachers, parents, and media sources contribute to adolescents' access to reproductive health information and may indirectly influence behavior by shaping knowledge and attitudes. Previous studies have shown that teacher involvement can positively influence reproductive health awareness (Agustini & Sagitarini, 2023), while parental support and communication play important roles in guiding adolescent reproductive health decision-making (Ramadani et al., 2019; Syifa'a, 2021; Koiwa et al., 2024). Similarly, access to reproductive health information through educational and digital media may improve adolescents' knowledge and attitudes toward reproductive health (Saparini et al., 2023; Haninuna et al., 2023; Bennett et al., 2023). Therefore, these variables may function as

confounding factors by indirectly influencing abortion-prevention behavior through cognitive and psychosocial pathways.

Peer role was not identified as an independent determinant of abortion-prevention behavior. This finding may be related to the unique characteristics of the Islamic boarding school environment, where students are exposed to relatively homogeneous social norms shaped by religious teachings, institutional regulations, and adult supervision. In such settings, information and guidance from teachers, caregivers, family members, and healthcare providers may play a more prominent role than peer influence. Similar findings suggest that the influence of peer networks on reproductive health behaviors may vary according to social and educational contexts (Asrese & Mekonnen, 2018; Eitle & Thorsen, 2018).

The findings of this study should be interpreted within the unique context of the Islamic boarding school environment. Students are exposed to religious teachings, institutional regulations, and supervision from teachers and caregivers, which may shape behavioral norms and influence reproductive health decision-making. These contextual influences may facilitate the development of positive attitudes and reproductive health knowledge, which emerged as significant determinants of abortion-prevention behavior in the present study. In addition, most respondents had lived in the boarding school environment for several years, allowing prolonged exposure to these social and religious influences. As the respondents were predominantly in middle-to-late adolescence, a developmental stage characterized by increasing autonomy and decision-making, attitudes and knowledge may play a particularly important role in shaping abortion-prevention behavior.

This study has several limitations. The cross-sectional design limits the ability to establish causal relationships between the independent variables and abortion-prevention behavior. In addition, data were collected using self-administered questionnaires, which may be subject to social desirability bias because abortion and reproductive health remain sensitive topics among adolescents. Although confidentiality and anonymity were assured, the possibility that some respondents provided socially desirable responses cannot be completely excluded. Furthermore, this study was conducted in a single Islamic boarding school with a relatively small sample size, which may limit the generalisability of the findings to adolescents in other educational, cultural, or geographical settings. Several contextual factors that may influence abortion-prevention behavior, including religiosity, cultural norms, and the intensity of social supervision from teachers, carers, and religious leaders, were also not directly measured and may have contributed to the observed behavioral patterns. Finally, although respondent characteristics such as age and length of stay in the boarding school were described, their potential influence on abortion-prevention behavior was not examined in the multivariable analysis. Future studies should incorporate these contextual and demographic factors using larger and more diverse samples to provide a more comprehensive understanding of abortion-prevention behavior among adolescents in Islamic boarding school settings.

Conclusion

Poor abortion-prevention behavior was observed among the majority of adolescents in this study. Attitude, knowledge, and the role of healthcare providers were independently associated with abortion-prevention behavior, with attitude emerging as the strongest predictor. Therefore, strengthening positive attitudes toward reproductive health, improving adolescents' knowledge, and expanding access to reproductive health education and counseling provided by healthcare professionals should be prioritized. School-based and community-based reproductive health

programs may serve as effective strategies to promote healthy reproductive behaviors and prevent unintended pregnancy and unsafe abortion among adolescents.

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