

## External determinants of adolescent sexual behavior among Islamic Boarding School Students in Bali

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### ABSTRACT

**Background:** Risky sexual behavior among adolescents is a significant concern for sexual health, even in religious settings such as Islamic boarding schools. Although these institutions provide intensive religious education, students remain exposed to external influences that can shape their sexual behavior. Understanding these external determinants is crucial to addressing sexual risk and promoting the psychosocial well-being of adolescents in pesantren environments.

**Objectives:** To analyze the influence of external factors including parental supervision, peer influence, and access to information on adolescent sexual behavior in Islamic boarding schools in Bali.

**Methods:** This study used a quantitative design with a cross-sectional approach. A total of 127 students with varying lengths of stay in Islamic boarding schools and ages ranging from 15-19 years from two Islamic boarding schools in Bali were selected using a total sampling technique. Data were collected using a structured questionnaire that had been tested for validity and reliability. The variables used in this study include independent variables, namely external factors consisting of access to information, parental supervision, and peer influence. The independent variable is sexual behavior with three categories: normal, moderate, and severe. Data analysis was carried out using frequency distribution, crosstabulation, and multinomial logistic regression with the non-risk category as a comparison.

**Results:** Access to information and peer influence have a significant effect on severe risky sexual behavior with a  $p$  value  $<0.05$ . Adolescents with negative access to information were 6.7 times more likely ( $OR=6.711$ ;  $95\% CI=1.797-25.065$ ) to engage in high-risk sexual behavior, while those with negative peer influence were 14.8 times more likely ( $OR=14.838$ ;  $95\% CI=1.238-177.883$ ).

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**Conclusions:** *Access to information and peer influence are the main determinants of high-risk sexual behavior among adolescents in Islamic boarding schools in Bali. Prevention efforts need to be directed at strengthening appropriate literacy and establishing peer educators.*

**KEYWORD:** *behavior; external factors; islamic boarding schools; sexual; teenagers;*

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## INTRODUCTION

Adolescence is defined as a period of transition from childhood to adulthood characterized by interrelated biological, cognitive and socio-emotional changes (1). During this period, individuals begin to experience maturity of their reproductive organs, increased sexual drive and a growing curiosity about aspects of sexuality (2). Furthermore, the adolescent developmental phase is also prone to impulsive decision- making, including regarding sexual behavior. Vijayakumar et. al (2024) explains that this tendency can arise due to the interaction between biological changes and social pressures from the environment (3). This situation makes adolescent sexual behavior a crucial issue in the context of development and public health that requires serious attention. Various studies show an increase in risky sexual behavior among adolescents in various countries, along with social influences, negative childhood experiences, and exposure to digital media (4). This phenomenon has implications for increasing the risk of sexually transmitted infections (STIs), unwanted pregnancies, and mental

health disorders in adolescents. In countries with strong social and religious norms, this behavior becomes not only a medical issue but also a moral and social issue.

In Indonesia, trends in adolescent sexual behavior also show a worrying trend. Based on data from the 2017 Indonesian Basic Health Survey (SDKI), adolescents aged 15-17 reported having been on their first date, and 2% of girls and 8% of boys reported having had sexual intercourse for various reasons. Boys cited love and curiosity, while girls tended to engage in sexual intercourse due to coercion and coincidence (5). This phenomenon is not limited to urban areas but is also beginning to infiltrate religious- based educational settings such as madrasas and Islamic boarding schools. This demonstrates that religiosity alone is not sufficient to control risky sexual behavior without adequate social, family, and health education support (6). Adolescents growing up in socially closed environments such as Islamic boarding schools (pesantren) often face a dilemma between the religious values they learn and the biological drives and external influences they experience. Although

pesantren provide intensive religious education, students remain exposed to external factors that can shape sexual behavior, including parental supervision, peer influence, and access to information. According to Bronfenbrenner's Ecological Systems Theory, individual behavior is influenced by multiple layers of the environment, such as family, peers, school, and media (7). Complementing this, Bandura's Social Learning Theory (1986) emphasizes that adolescents acquire behaviors through observation and imitation of their social environment, including peers and media (8). Previous studies have documented that low parental supervision and strong peer influence increase the likelihood of adolescents engaging in risky sexual behavior, while exposure to information that normalizes sexual activity outside religious and moral contexts further amplifies the risk (9,10,11).

This context is increasingly complex in various regions of Indonesia, which socio-culturally is a multicultural society and is open to cross-cultural interactions, including in access to digital media and youth lifestyles (12). Students living in Islamic boarding schools (pesantren) are inextricably linked to social media and the flow of global information through increasingly widespread internet access. Pesantren are known as educational institutions based on strict Islamic values. However, technological advances and the openness of information in the digital era

present new challenges in monitoring student behavior. Widespread access to digital media requires pesantren administrators to adapt their development strategies to maintain Islamic values amidst rapid social change (13). The unpreparedness of educational institutions to control digital media use and low levels of religious-based reproductive health literacy can increase the risk of adolescents engaging in risky sexual behavior, both online and in person. This phenomenon is also observed in several Islamic boarding schools (pesantren) in Bali, where students are exposed to unique social and cultural dynamics in a region characterized by high religious and cultural diversity. In this setting, pesantren students interact with a multicultural and digitally connected society creating potential conflicts between the strict religious teachings of their schools and widespread exposure to global media. Such conditions underscore the importance of critically investigating how external factors influence varying levels of sexual risk among adolescents in pesantren. Gaining insight into these dynamics is essential for designing interventions that uphold religious values while effectively addressing both psychosocial and sexual health concerns. Previous studies have primarily focused on general populations or single risk factors, with limited attention to the combined effects of external determinants within the pesantren context. In addition, few studies have applied a

multinomial approach to distinguish levels of sexual risk behavior. Therefore, this study examines the simultaneous influence of parental supervision, peer influence, and access to information on varying levels of sexual risk among adolescents in Islamic boarding schools in Bali.

Research specifically examining how these external factors influence adolescent sexual health behaviors in Islamic boarding schools (*pesantren*) is still limited. Most previous studies have focused solely on public school populations or urban settings. However, *pesantren* possess unique characteristics, with their boarding school education system rich in religious values. Therefore, this study aims to examine how access to information, parental supervision, and peer influence collectively contribute to the sexual behaviors of adolescents in Islamic boarding schools in Bali.

## **MATERIALS AND METHODS**

This study used a quantitative cross-sectional design to analyze the relationship between external factors and the sexual behavior of adolescent students at *pesantren*. The cross-sectional design was chosen for time efficiency and the ability to describe relationships between variables at a single measurement point. The study was conducted from October 2021 to January 2022 at two Islamic boarding schools located in Bali Province. The population in this study was all 127 students living in Islamic boarding school dormitories, all of

whom were selected as respondents using a total sampling technique. This study did not use a separate sample size calculation because all eligible population members were included in the study sample. The inclusion criteria used included students residing in Islamic boarding school dormitories in the Bali region and aged between 15 and 19 years. The exclusion criteria in this study were students who were unwilling to participate or refused to complete the questionnaire.

The variables in this study consist of one dependent variable and three independent variables. The dependent variable is adolescent sexual behavior, which is categorized into three levels: non-risky behavior, mild risky behavior, and severe risky behavior. Meanwhile, the independent variables include three external factors: parental supervision is understood not only as general monitoring but also includes aspects of sexual education and control over social interactions, reflecting the guidance and boundaries provided by parents in daily life, peer influence encompasses various dimensions, such as peers' behaviors, advice, invitations to engage in certain activities, and restrictions or prohibitions communicated within the peer group, and access to information refers to the availability and frequency of exposure to sexual information, including the types of information obtained and their sources, such as media, internet, and social

networks. These three external factors were selected based on Bronfenbrenner's (1986) developmental ecology theory, which emphasizes that individual behavior is influenced by the immediate environmental system, including family, peers, and information media (7).

The research instrument was a structured questionnaire developed based on theory and previous research findings. Before being used for primary data collection, the questionnaire underwent validity and reliability testing on a group of students at an Islamic boarding school with similar characteristics to the primary research location. A total of 39 questions, covering sexual behavior, parental supervision, peer influence, and access to information, were found to be valid and reliable, with an item-total correlation value greater than 0.308 and a Cronbach's Alpha value greater than 0.316. Although the pilot sample was relatively small (n=38), all items meeting the validity criteria based on r critical values were retained, and items not meeting the criteria were revised prior to the main study.

Therefore, they were declared valid and reliable for use in this study. The remaining 12 questions, which were not valid and reliable, were revised. Data collection was conducted directly using primary data by distributing the questionnaires to respondents under the supervision of the researcher and the Islamic boarding school to maintain data

authenticity and ensure a uniform understanding of each question. The collected data were analyzed using the latest version of the Statistical Package for the Social Sciences (SPSS). Univariate analysis was performed to describe the characteristics of respondents and the distribution of each research variable in the form of frequency distributions and percentages. Next, bivariate analysis using the chi-square test was conducted to examine the relationship between each external factor and the categories of adolescent sexual behavior. Multivariate analysis using multinomial logistic regression was conducted to determine the external factors most influential on adolescent sexual behavior, with the "no risk" category as the reference.

The results of the analysis are presented as odds ratios (OR) with a 95% significance level ( $p < 0.05$ ). This research has received ethical clearance from the Research Ethics Committee of Udayana University under number 2482/UN14.2.2.VII.14/LT/2021 and written permission from the Islamic boarding school where the research was conducted. Throughout the study, all respondents were provided with an explanation of the research objectives, their right to confidentiality, and the freedom to refuse or discontinue participation at any time without consequence. The data obtained will be kept confidential and used solely for academic purposes.

## RESULTS AND DISCUSSION

The subjects in this study were adolescents aged 15-19 years who were studying MA at Islamic boarding schools.

The total number of subjects was 127 students. Characteristics, bivariate and multivariate analyses are presented in the following **Table 1**.

**Table 1. Frequency distribution of characteristics and external factors**

Characteristics	Frequency	Percent (%)
Age		
15 years	10	7.9
16 years	38	29.9
17 years	33	26.0
18 years	42	33.1
19 years	4	3.1
Gender		
Male	38	29.9
Female	89	70.1
Access to Information		
Negative	44	34.6
Positive	83	65.4
Parental Supervision		
Bad	24	18.9
Good	103	81.1
Peer Influence		
Bad	9	7.1
Good	118	92.9

*Source: Primary data*

The results presented in **Table 1** indicate that most students were 18 years old (33.1%), and the sample was predominantly female (70.1%). Regarding external factors, 34.6% of students reported exposure to negative information, 18.9% experienced low parental supervision, and 7.1% were influenced by negative peers. These data indicate that although the majority of students live in a relatively socially and religiously controlled Islamic boarding school environment, some are still potentially exposed to external risk factors

that can influence adolescent sexual behavior.

The age of 18 is an important transition period from adolescence to early adulthood where individuals begin to experience cognitive and emotional maturity as well as increased curiosity about interpersonal relationships and sexuality (3). Widyastuti et al. (2022) found that adolescents aged 17–19 years were more likely to engage in sexual behavior compared to younger adolescents. This increased risk is related to broader social

interactions, peer influence, and the drive for self-exploration that emerges in late adolescence (14).

The predominance of female respondents in this study (70.1%) indicates that sexual health issues in Islamic boarding schools are a concern for adolescent girls. Ruíz- Fernández et al. (2023) explained that adolescent girls have a high level of curiosity about sexuality, but are hampered by anxiety and shame in expressing it openly. Social and cultural norms that view discussing sex as taboo cause many adolescent girls to refrain from asking or discussing their sexual experiences and knowledge (15). The research results show that most students have good access to information, supported by parental supervision and positive peer influence. This situation illustrates that although adolescents are in the process of discovering their identity and are highly

curious about sexual issues, a positive social environment plays a crucial role as a protective factor against the emergence of risky sexual behavior. Good access to information enables adolescents to acquire correct knowledge about reproductive health and moral values, thus developing more responsible attitudes and behaviors (16). Furthermore, effective parental supervision is key to maintaining a balance between adolescent freedom and the implementation of strong religious values. A study by Nurhayati and Agustina et al. (2024) confirmed that open communication between parents and children can reduce risky behavior by strengthening emotional bonds and trust (17). On the other hand, peers who have positive behavior contribute greatly to the formation of adolescent morals because peer groups are often used as a reference in determining social behavior and accepted values (3).

**Table 2. Overview of adolescent sexual behavior**

Characteristics	Frequency	Percent (%)
Adolescent Sexual Behavior		
No Risk	44	34.6
Mild Risk	65	51.2
High Risk	18	14.2

*Source: Primary data*

The results of the study in **Table 2** show that sexual behavior was dominated by mild-risk sexual behavior (51.2%). This finding suggests that although most students have not yet engaged in serious sexual behavior, they remain at a level of vulnerability that requires attention. Mild-risk sexual behavior is often considered normal

by adolescents because it does not involve direct sexual intercourse, but it can be a gateway to more risky sexual behavior if not properly managed (18). Research results indicate that mild-risk sexual behavior in adolescents may arise as a form of adaptation to social pressure and poorly channeled biological urges.

This situation is further exacerbated by advances in digital technology, which provide widespread access to sexual information and content without adequate

supervision, leading some adolescents to express their curiosity and affective urges through risky sexual behavior (19).

**Table 3. Tabulation results of external factors and adolescent sexual behavior**

Variable	Adolescent Sexual Behavior						P value
	No Risk		Mild Risk		High Risk		
	n	%	n	%	n	%	
Access to Information							
Negative	10	22.7	21	47.7	13	29.5	0.001*
Positive	34	41.0	44	53.0	5	6.0	
Parental Supervision							
Bad	8	33.3	10	41.7	6	25.0	0.225
Good	36	35.0	55	53.4	12	11.7	
Peer Influence							
Bad	1	11.1	2	22.2	6	66.7	0.000*
Good	43	36.4	63	53.4	12	10.2	

The analysis results in **Table 3** show that adolescent sexual behavior is influenced by several external factors, namely access to information, parental supervision, and peer influence. Adolescents with positive access to information tend to engage in mild-risk sexual behavior (53.0%) and no-risk sexual behavior (41.0%), while those with negative access to information are more likely to exhibit high-risk sexual behavior (29.5%). Good parental supervision is associated with a lower proportion of high-risk sexual behavior (11.7%) compared to poor supervision (25.0%). Meanwhile, adolescents with poor peer influence are predominantly involved in high-risk sexual behavior (66.7%), in contrast to those with good peer influence who have mild-risk sexual behavior (53.4%). The chi-square

test results indicate that access to information and peer influence have a significant influence with a p value <0.05.

Access to information and peer influence are significantly related to the sexual behavior of adolescents in Islamic boarding schools. Adolescents with positive access to information tend to be able to recognize the risks and impacts of risky sexual behavior, thus being better able to control their behavior. This aligns with research by Flare and Joseph (2021), which found that adolescents with good information literacy in reproductive health are more capable of making responsible decisions regarding sexual behavior (20). Furthermore, Faidah et al. (2024) stated that access to appropriate information sources, such as counseling, books, and educational content based on religious

values, plays a crucial role in helping adolescents understand moral boundaries and maintain their reproductive health. Sex education delivered through a religious values approach has been shown to be more effective in fostering self-awareness, social responsibility, and preventive attitudes toward risky sexual behavior. Through the integration of scientific knowledge and spiritual values, adolescents can gain a comprehensive understanding of the meaning of maintaining self-respect and the importance of healthy behaviors in their social lives (21). On the other hand, limited information or exposure to negative information from social media can encourage deviant behavior due to a lack of understanding of the possible consequences.

Furthermore, peer influence has been shown to play a significant role in shaping adolescent sexual behavior. A positive friendship environment can be a protective factor, while negative friendships actually increase the risk of high-risk sexual behavior. Peers are a strong source of social identity during adolescence. They often serve as primary references in shaping attitudes and behaviors, necessitating self-control to address sexual problems caused by peer influence. The results of this study align with the findings of Hastutid et al. (2020) that adolescents in friendship environments with permissive attitudes toward sexual behavior are more

likely to imitate similar behavior. Social relationships with peers who support premarital sexual activity can shape group norms that consider such behavior normal, thereby reducing adolescents' self-control over moral and social boundaries. The influence of peer conformity is a dominant factor in increasing risky sexual behavior among adolescents (22).

Parental supervision has no significant relationship with the sexual behavior of adolescents in Islamic boarding schools. This may be due to the characteristics of the Islamic boarding school environment, which limits direct interaction between parents and children, so supervision is carried out more by caregivers or ustaz/ustazah. This is in line with research by Fawaid and Hasanah (2023), which explains that there is a limited parent-child relationship in the romantic system in Islamic boarding schools, so the responsibility for supervising and fostering students' behavior falls more heavily on the caregivers. Islamic boarding schools implement an authoritative religious parenting pattern, where discipline, moral values, and social control are built through emotional closeness and the role models of caregivers who act as parental figures for the students in the Islamic boarding school environment (23). Next, in the multivariate stage, the three variables were included in the regression test because they met the requirements of  $p$  value  $<0.25$ .

**Table 4. Results of analysis of external factors and adolescent sexual behavior**

Variable Independen	Outcome Category	OR	95% CI	P value
Access to Information	Mild-risk vs Non-risk	1.685	0.689-4.121	0.253
	High-risk vs Non-risk	6.711	1.797-25.065	0.005
Parental Supervision	Mild-risk vs Non-risk	0.702	0.238-2.072	0.522
	High-risk vs Non-risk	0.749	0.154-3.637	0.720
Peer Influence	Mild-risk vs Non-risk	1.458	0.114-18.626	0.772
	High-risk vs Non-risk	14.838	1.238-177.883	0.033

Based on **Table 4** the results of multinomial regression analysis, it is known that the variables of information access and peer influence are significantly related to adolescent sexual behavior in the high-risk category ( $p < 0.05$ ). Adolescents with negative information access are 6.7 times more likely to have high-risk sexual behavior compared to those with positive information access (OR = 6.711; CI95% = 1.797-25.065). In the peer influence variable, adolescents with bad peer influence are 14.8 times more likely to engage in high-risk sexual behavior compared to adolescents with good peer influence (OR = 14.838; CI95% = 1.238-177.883). In this analysis, the odds ratio (OR) was used to estimate the strength of association between variables, while the 95% confidence interval (95% CI) represents the range of the estimated effect.

The external factors that appear to be most closely associated with high-risk sexual behavior among adolescents in Islamic boarding schools are access to information and peer influence. Limited access to reliable information about

sexuality and reproductive health may lead some adolescents to seek knowledge through online sources that are not always accurate. This situation can expose them to content that contains permissive values regarding sexual behavior, such as pornography or social media that normalizes casual sexual activity. Previous studies suggest that consuming such online content may shape permissive attitudes toward sexuality and increase the likelihood of engaging in risky sexual behavior, particularly when it is not accompanied by adequate education and guidance (24,25). It should be noted, however, that other unmeasured factors may also contribute to these behaviors, and the current study did not control for potential confounding variables.

Furthermore, negative peer influence can be a dominant factor driving risky sexual behavior in adolescents. During adolescence, the need for social acceptance often leads individuals to imitate or adapt to the norms and behaviors of their peers, even when such behavior conflicts with the moral values they have been taught (26). In the context of Islamic boarding

school life, although students receive intensive guidance on religious values and morality, intense social interactions between students can still shape strong behavioral patterns. The dynamics of social interaction in closed environments such as Islamic boarding schools can create small social groups with specific internal norms that have the potential to influence individual behavior, both positively and negatively. Therefore, the quality of friendships and social control among students are important aspects that need to be considered in efforts to prevent risky sexual behavior in Islamic boarding school environments. Sari et al. (2024) explained that interactions between peers can significantly shape students' habits, attitudes, and moral values, even in some cases having a more dominant influence than the moral guidance provided by religious educational institutions. This indicates that the process of internalizing values in adolescents depends not only on formal education but also on the social dynamics within peer groups (27).

Meanwhile, the insignificance of parental supervision can be explained by the limited direct interaction between parents and students living in dormitories, so that behavioral control is more influenced by the peer environment and daily access to information (28). This study has important implications for nursing and midwifery practice, particularly in residential educational settings where peer interaction

is intensive and access to digital information is increasingly widespread. Nurses and midwives should prioritize peer-based interventions, such as peer education and peer counseling programs, to promote positive social influence and reduce risky behaviors among adolescents. In addition, strengthening adolescents' digital and health literacy is essential to help them critically assess sexual information obtained from online sources. Furthermore, nurses and midwives can collaborate with boarding school administrators to develop structured, culturally sensitive reproductive health education programs that integrate Islamic values with evidence-based health information. Given the limited direct parental supervision in boarding school settings, health professionals also play a crucial role in providing guidance, counseling, and early detection of risky behaviors. These efforts are essential to create a supportive environment that promotes healthy decision-making and reduces sexual health risks among adolescents in pesantren.

This study has a limitation related to the duration of students' residence in the Islamic boarding school. The study did not specifically assess how long each student had been living in pesantren, which may influence their level of exposure to peer interactions and access to information. Differences in duration of stay, including the presence of transfer students may affect the extent to which external factors shape adolescent sexual behavior. Therefore,

future research is recommended to consider the length of boarding school residence as an important variable to better understand variations in adolescent behavior.

## **CONCLUSION AND RECOMMENDATION**

Based on the research results, it can be concluded that adolescent sexual behavior in Islamic boarding schools is dominated by the mild-risk category, indicating a tendency to explore behavior without completely violating the boundaries of applicable moral values. External factors such as access to information and peer influence have been shown to have a significant relationship with the level of risk in adolescent sexual behavior in the high-risk category.

Good access to information encourages a more positive understanding of reproductive health and morality, while negative peer influence has been shown to increase adolescents' tendency to engage in risky behavior. Meanwhile, parental supervision did not show a significant relationship, which may be caused by the limited intensity of direct communication between parents and children while at the Islamic boarding school.

These findings indicate that although Islamic boarding schools play an important role in shaping adolescents' moral values, social dynamics and exposure to external information remain important factors influencing their behavior. This research suggests the need to strengthen Islamic-

based reproductive health education programs within Islamic boarding schools (pesantren) to enable adolescents to understand the boundaries of social and sexual behavior more wisely. Islamic boarding schools can strengthen social supervision through positive peer group development oriented toward religious character development. Furthermore, collaboration between Islamic boarding schools, parents, and health professionals is necessary to create an open and educational communication environment that supports the balanced moral and health development of adolescents. Islamic boarding schools serve not only as centers of religious education but also as spaces for fostering healthy and ethical behaviors for the younger generation.

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