

Reciprocal Dynamics between Puberty Knowledge and Institutional Support among Female Students in Islamic Boarding Schools

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ARTICLE INFO	ABSTRACT
Keywords: Islamic boarding school; Knowledge; Menarche; Puberty; School support.	Coping with pubertal changes while living apart from one's family often poses considerable difficulty for adolescents, particularly young women. An educational approach that integrates reproductive health literacy with religious teaching is expected to prepare students to face puberty responsibly while remaining grounded in religious values. This study set out to examine the extent of female students' understanding of puberty and to determine how this understanding relates to the support provided by an Islamic boarding school (pesantren). Two questionnaires were administered to 189 female students enrolled in a private Islamic boarding school in East Java, Indonesia. Data were processed in R version 4.4.0 using Pearson's product-moment correlation, complemented by Spearman's rank correlation, to examine how students' demographic characteristics related to their knowledge and to the support they perceived from the school. The analysis revealed a moderate and statistically significant association between students' knowledge and perceived school support ($r = 0.354$), reflecting a mutually associated pattern between the two variables. Among demographic characteristics, current age, age at menarche, sources of information about puberty, and parental education level exerted only a marginal influence on students' knowledge. Notably, mothers' educational attainment was significantly associated with school support, whereas information obtained from peers showed a negative statistical association with school support. Most demographic variables, however, showed no significant association with either students' knowledge or school support. These findings underline the need for boarding schools to actively support young female students as they navigate puberty, doing so in tandem with efforts to strengthen their knowledge base.
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INTRODUCTION

Helping students cope with puberty is a persistent challenge for both learners and educators in boarding school settings. Existing research indicates that managing puberty involves physiological dimensions (Inyang Etoh et al., 2020; Kiftia et al., 2020), psychological dimensions (Khatirpasha et al., 2019), and social dimensions (Harini et al., 2020). Of these three dimensions, the psychological aspect has received comparatively little scholarly attention, as most prior studies have concentrated on physiological and social concerns (Mehrabi et al., 2016; Mohamadi et al., 2021). Islamic boarding schools are institutions strongly identified with character formation and religious instruction, yet the provision of learning and support geared toward students' experience of puberty has not been given systematic attention within the *pesantren* curriculum.

Within educational psychology, students' cognitive understanding stands out as a key concern (Hunter et al., 2022; Long et al., 2022), given its close connection to their sense of confidence (Cargill et al., 2018; Yang et al., 2022) and academic outcomes (Martin & Steinbeck, 2017; Vattøy & Smith, 2019; Yan et al., 2018). Students' capacity to manage transitional life circumstances, puberty included, shapes how resiliently they respond to challenges. Relocating to a boarding school can intensify feelings of isolation and stress associated with puberty (Kheirollahi et al., 2017), underscoring the necessity of peer support networks and a constructive school climate to help students cope (Ramdani et al., 2020). Students equipped with strong knowledge are more likely to navigate stressful circumstances effectively and display greater resilience, which in turn shapes their academic achievement (Martin & Steinbeck, 2017).

Notably, much of the existing scholarship on puberty within boarding schools centres on physical health concerns (Kiftia et al., 2020; Mohamadi et al., 2021; Shirzadi et al., n.d.), leaving students' psychological wellbeing comparatively unexamined. One hygiene-focused study found that only 30 percent of boarding school girls practised adequate menstrual hygiene, pointing to a need for targeted education and resources (Kiftia et al., 2020). With regard to nutrition, research has documented deficiencies in key micronutrients such as iron and zinc among young adolescents, calling for closer monitoring by boarding school administrators (Mehrabi et al., 2014). Such findings recur across multiple studies, yet the literature addressing school support, especially support delivered by teachers, remains scarce (Ramdani et al., 2020; Rochmah et al., 2023) with respect to how female students are guided through puberty (Abbasi et al., 2021). This gap is further substantiated by a systematic mapping of the literature on puberty education in faith-based residential schools, which reveals a consistent absence of psychologically informed frameworks (Crockett et al., 2019; Long et al., 2022). This gap sits uneasily alongside the broader recognition that psychological wellbeing is central to both overall welfare and academic success (Bandura, 1994; Vieno et al., 2007).

Boarding school students, being separated from their families, rely on the institution itself to help ease their transition into adolescence (Harini et al., 2020; Onebunne & Emerenu, 2019). Compared with peers who live at home, boarding school students tend to experience heightened stress while navigating puberty, a pattern attributable to reduced support from close family members (Rochmah et al., 2023), greater academic demands (Othman & Masum, 2017), and increased pressure to share personal experiences within a communal setting (Maksimova et al., 2019). Teachers occupy a pivotal position in delivering puberty and sexuality education within boarding schools, including the responsibility of ensuring that content is conveyed in an age-appropriate manner (Collier-Harris & Goldman, 2017). Through recognising the behavioural shifts that accompany puberty and by organising recreational activities (Diaris et al., 2017), teachers can foster an atmosphere that eases students' difficulties in coping with this developmental stage (Milanovi, 2018).

This study adopts a transdisciplinary lens combining educational psychology and Islamic education, focusing specifically on an Islamic Boarding School (IBS) context. Its originality lies in the deliberate psychological focus placed on supporting female students through puberty. The study documents students' knowledge and coping strategies while living away from home, and also examines the persisting challenges teachers face along with the informal, often undocumented forms of support they provide. Because of their central role in guiding students through this developmental period,

teachers require sustained training and adequate resources to strengthen their grasp of adolescent development, spanning both psychological and physical health dimensions (Crockett et al., 2019).

This research is guided by the following questions. First, is there a statistically significant relationship between students' knowledge of puberty and the institutional support provided by an Islamic boarding school? Second, do students' demographic characteristics shape this knowledge or their perception of school support? Third, what role do teachers play in supporting students through puberty, and what factors facilitate or constrain this role? This study is intended to address a gap in the literature, given that most prior work has emphasised Islamic cognitive knowledge (Rochmah et al., 2023), physical health and hygiene (Etoh et al., 2020; Kiftia et al., 2020), and nutritional aspects of puberty (Mehrabani et al., 2014). By contrast, the present study foregrounds a psychological perspective on supporting young women through puberty, a dimension central to their wellbeing and, in turn, to their confidence and academic achievement.

METHOD

Research Design

This study used a mixed-methods design. A descriptive quantitative approach was applied to analyse student responses, while a qualitative case study approach was used to examine teachers' practices. Findings generated through both approaches were then integrated following a convergent parallel mixed-methods design (Creswell & Plano Clark, 2018): quantitative results were compared with qualitative themes, and the two strands were merged at the interpretation stage to provide a more comprehensive account of the phenomenon than either strand could achieve alone.

Study Site and Participants

The research was conducted at an Islamic boarding school in East Java, Indonesia. Two questionnaires were distributed to 189 female students who met the following inclusion criteria (1) enrolled in grades 10, 11, or 12 of the IBS and (2) aged between 15 and 18 years. This sample size was determined following a power analysis conducted in G*Power 3.1, which indicated that a minimum of 157 participants was required to detect a medium effect size ($r = 0.30$) at a significance level of 0.05 with 80% statistical power, making 189 participants an adequate and well-powered sample. In addition, five female teachers were invited to participate in semi-structured interviews, selected according to the following criteria (1) currently teaching at the IBS and (2) having applied a mentoring (parole) approach at least once in assisting students to cope with puberty.

Data Collection

Data were gathered through two channels, interviews with teachers and questionnaires completed by students. The interview protocol was adapted from Barkhordari-Sharifabad et al. (2020), chosen for its capacity to capture the layered challenges teachers encounter in providing support. Replicating comparable questions in a new setting is expected to add to the existing body of literature on teachers' contributions to guiding students through early adolescence. Representative interview questions include how you understand the individual characteristics of the students, and how you create a comfortable atmosphere within the boarding school.

The student knowledge questionnaire, meanwhile, was adapted from Khatirpasha et al. (2019), an instrument that has been used across various studies to gauge female students' knowledge of and anxiety toward puberty. Representative items include I can adjust easily to a new environment and I understand the transitional phase associated with my age. The full questionnaire, translated into Bahasa Indonesia to suit respondents, is provided in Appendix 1. The adapted instrument was assessed for face and content validity by two subject-matter experts in adolescent health education. Internal consistency was subsequently evaluated on a pilot sample of 30 students drawn from a comparable institution, yielding a Cronbach's alpha coefficient of 0.81, which indicates acceptable reliability (Willig & Stainton Rogers, 2017).

Data Analysis

Data took the form of interview transcripts and questionnaire responses. Qualitative data were processed using NVivo, following six stages of thematic analysis common in educational research (Willig & Stainton Rogers, 2017). In parallel, descriptive quantitative analysis was conducted in R version 4.4.0 to examine students' level of efficacy in coping with puberty at the IBS.

The six stages of thematic analysis comprised familiarisation with the data, initial coding, searching for themes, reviewing themes, defining themes, and producing the final report. During familiarisation, the research team repeatedly read the transcripts and cross-checked interpretations among members to ensure consistency. This was followed by coding, in which both student and teacher responses were categorised according to the research questions. The subsequent stage involved grouping codes into themes that helped clarify the quantitative findings, namely teachers' approaches to engaging students, along with the enabling and inhibiting factors involved. After careful review, the research team agreed that the identified themes strengthened the overall findings and were defined accordingly. The resulting report is presented in the Results section below.

RESULTS AND DISCUSSION

Results

1. *The Relationship between Students' Knowledge and School Support*

Pearson correlation analysis indicated a moderate, positive, and statistically significant relationship between students' knowledge of puberty and their perceived school support. The correlation coefficient reached $r = 0.354$, with a p-value below 0.001, suggesting that higher levels of knowledge tend to coincide with a stronger perception of support from the school.

Table 1. Correlation between Students' Knowledge and School Support

Variable	r	p-value	95% CI	Interpretation
Knowledge vs. School Support	0.354	< 0.001	[0.222, 0.472]	Moderate, positive, significant

This pattern points to a mutually associated relationship, in which students who possess stronger knowledge are more inclined to notice or actively seek institutional support, while students who receive greater support are, in turn, better positioned to obtain accurate and empowering information about puberty.

It is worth noting that Islamic boarding schools generally do not teach puberty within a contemporary framework. Instruction instead centres on classical texts of Islamic jurisprudence (fiqh) concerning ritual purification and menstruation, without linking this material to a broader understanding of puberty or practical guidance on managing it.

2. *Association between Demographic Variables and Students' Knowledge*

Both Spearman's rank and Pearson correlation tests were applied to examine the association between students' demographic characteristics and their level of knowledge. Findings show that most demographic variables exhibit weak and statistically non-significant associations with students' understanding. Neither age, age at menarche, nor parental education level demonstrated meaningful predictive value.

Table 2. Correlation between Demographic Variables and Students' Knowledge

Demographic Variable	r	p-value	Interpretation
Age	-0.014	0.851	Very weak, not significant
Age at Menarche	-0.001	0.987	No correlation
Information from Parents	0.107	0.144	Very weak, not significant
Information from Teachers	-0.0002	0.998	No correlation
Information from Friends	-0.086	0.241	Weak negative, not significant

Information from Media	-0.067	0.361	Very weak negative, not significant
Information from Others	0.018	0.805	No correlation
Father's Education	0.041	0.575	Very weak, not significant
Mother's Education	-0.014	0.852	Very weak, not significant

A scatter plot further illustrates the association between students' knowledge and their sources of information (Figure 1). This visualisation presents the distribution of knowledge scores across five information sources (info_1 through info_5), divided into two groups, Total A and Total B, and further separated according to whether respondents reported using each source (yes = 1, no = 0). The accompanying boxplots, overlaid with jittered data points, offer a clear picture of both central tendency and variability across groups. The median knowledge score remained fairly stable at around 120 across most categories, pointing to a consistent baseline regardless of information source. Some variation nonetheless emerged, respondents citing info_3 and info_4 showed narrower interquartile ranges, suggesting these sources may be associated with more consistent knowledge outcomes. Info_5, in contrast, displayed wider variability, indicating a less uniform effect on knowledge acquisition. Outliers appeared across all categories, reflecting individual differences in how information shapes understanding. While comparisons between the yes and no groups revealed no substantial shifts in medians, subtle patterns did emerge, suggesting that reliance on particular sources may be linked to slightly higher or more consistent knowledge outcomes, and pointing to a more nuanced role played by different information channels.

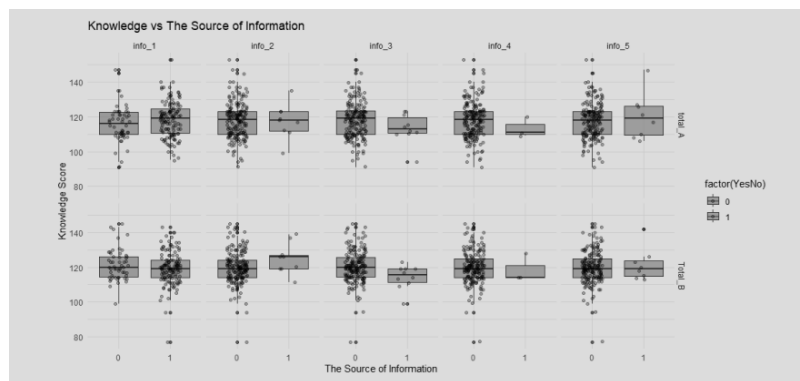


Figure 1. Scatter plot of the distribution of students' knowledge across information sources

Unlike the knowledge variable, two demographic factors, maternal education and information obtained from peers, exhibited statistically significant associations with perceived school support.

Table 3. Correlation between Demographic Variables and School Support

Demographic Variable	r	p-value	Interpretation
Age	0.096	0.191	Very weak, not significant
Age at Menarche	-0.021	0.777	Very weak, not significant
Information from Parents	-0.068	0.353	Very weak negative, not significant
Information from Teachers	0.116	0.111	Very weak positive, not significant
Information from Friends	-0.160	0.028	Weak negative, significant
Information from Media	-0.032	0.660	Very weak, not significant
Information from Others	0.006	0.934	No correlation
Father's Education	0.076	0.299	Weak positive, not significant
Mother's Education	0.181	0.013	Weak positive, significant

As shown in the table, maternal education correlated positively with perceived support ($r = 0.181$, $p = 0.013$), suggesting that students whose mothers attained higher levels of education were more inclined to perceive strong school support. Conversely, information obtained from peers correlated negatively with school support ($r = -0.160$, $p = 0.028$), suggesting that greater reliance on peer-sourced information may weaken trust in, or engagement with, formal school support structures.

3. Enabling and Inhibiting Factors in Teacher Support

Interviews with teachers surfaced several enabling factors and barriers shaping their capacity to support students through puberty.

Table 4. Enabling and Barrier Factors in Teacher Support (Qualitative Findings)

Theme	Description
Emotional readiness	Teachers actively listen and respond to students' emotional needs
Structured support	Reliance on religious or moral guidance in addressing puberty-related concerns
Personal rapport	Close teacher-student relationships that foster trust
Limited training	Teachers lack formal preparation in adolescent psychological development
Time constraints	Academic and administrative workloads limit time available for student support
Cultural discomfort	Taboos surrounding menstruation restrict open discussion

These qualitative findings show that enabling factors and barriers together shape how teachers support female students through puberty within the Islamic boarding school environment. The culture of Islamic boarding schools places strong emphasis on courtesy and deference toward the kiai or ustadz. Consequently, dialogic exchange is uncommon within the learning models applied in these schools, namely sorogan and bandongan, and questioning explanations given by the kiai or ustadz continues to be regarded as inappropriate.

One prominent enabling factor was the emotional closeness and empathy that teachers cultivated with their students. As one teacher explained, she always tries to listen first, since some girls are not seeking solutions but simply want to feel understood. This kind of supportive relationship built a foundation of trust, encouraging students to speak candidly about their difficulties, particularly those tied to menstruation and emotional changes.

Religious and moral framing also played a substantial role. Teachers who wove Islamic values into their approach to puberty education found it easier to normalise menstruation for their students. One teacher noted that she reminds students that menstruation is a gift from Allah, signalling their entry into a new and dignified phase of life. Framing the topic in this way appeared to reduce stigma and align it with the school's broader religious ethos, which in turn increased students' openness to the subject.

The overall school climate emerged as a further enabling factor. Students who perceived the boarding school as a warm and safe environment were more willing to seek support. One teacher described keeping her room open, noting that when students sense someone cares, it makes a considerable difference.

Several barriers, however, were also identified. A prominent limitation was the absence of formal training, with one teacher admitting she had never been taught how to discuss puberty during her teacher training, a gap that undermined her confidence in addressing sensitive subjects. Time constraints were also frequently raised, as one teacher noted that the demands of teaching and administrative duties often left little room to sit and talk with students. Cultural taboos persisted as well, with another teacher observing that some still consider open discussion of menstruation inappropriate, reflecting an internal tension surrounding how puberty is addressed.

Taken together, these findings highlight the importance of equipping teachers with training and resources that are both culturally sensitive and grounded in sound psychological understanding.

Discussion

This study set out to examine the relationship between female students' knowledge of puberty and the support offered by their Islamic boarding school, along with how demographic factors and teacher practices shape this relationship. The findings add to a still-developing body of research on the psychological and emotional dimensions of puberty management within residential Islamic education settings.

1. *Knowledge and Support as a Reciprocal Relationship*

The statistically significant moderate correlation observed between students' knowledge and perceived school support ($r = 0.354$, $p < 0.001$) reflects a mutually reinforcing relationship between the two dimensions. This finding is consistent with existing evidence suggesting that adolescents equipped with accurate knowledge tend to display greater confidence and emotional resilience (Hunter et al., 2022). Other factors, such as personal motivation, prior learning experiences, and family background, likely also contribute to this dynamic. It bears emphasis that the correlational design of this study precludes causal inference; consequently, the relationship between knowledge and school support is best understood as mutually associated rather than reciprocally causal, and future longitudinal or experimental studies are warranted to establish directional effects. From an educational standpoint, strengthening school support systems may serve as a strategic pathway toward improving student knowledge, and efforts directed at both the academic and emotional dimensions of the school environment can help create conditions conducive to learning.

These findings suggest that students who perceive greater support from their schools also tend to display higher levels of knowledge. In other words, students who feel that their school provides adequate academic resources, supportive teachers, and a conducive learning environment tend to know more about puberty. This is consistent with prior research showing that supportive school environments enhance learning outcomes by fostering engagement, motivation, and a sense of belonging (Tinto, 2017; Wang & Degol, 2016).

This relationship also implies that when schools actively cultivate supportive conditions, such as accessible learning materials, constructive feedback, and emotional encouragement, students are more likely to engage meaningfully with learning and to achieve stronger outcomes. That said, the moderate strength of the correlation indicates that while school support is an important contributing factor, it is not the sole determinant of student knowledge.

Bandura's self-efficacy theory (1994) offers further insight, proposing that confidence shapes motivation, decision-making, and stress regulation, all of which matter greatly during puberty. At the same time, students who perceive strong institutional support appear more likely to internalise health information and apply it appropriately (Long et al., 2022; Vieno et al., 2007). This mutually co-occurring dynamic suggests that knowledge alone is insufficient without an emotionally safe and supportive school climate to accompany it.

This finding also aligns with the work of Martin et al. (2022) and Martin and Steinbeck (2017), who emphasised how psychosocial environments influence adolescents' academic performance and wellbeing during puberty. Within Islamic boarding schools, where daily life is highly structured and communal in nature, the institution's role in shaping students' emotional readiness becomes even more pronounced (Othman & Masum, 2017).

Policy frameworks governing Islamic boarding schools should therefore mandate the integration of structured puberty and reproductive health modules into the curriculum, framed in ways consistent with religious and cultural norms so as to reduce stigma (UNESCO, 2018). Such policies could require routine, teacher-facilitated discussions that give girls a safe space in which to clarify misconceptions and build emotional resilience during puberty (Hunter et al., 2022).

2. *The Limited Influence of Demographic Factors*

Most demographic variables, including age, age at menarche, and information received from parents, showed no significant influence on students' knowledge or perceived support. This finding challenges the assumption that chronological maturity or family background alone can predict students' emotional preparedness. Comparable findings from other Indonesian boarding schools suggest that institutional culture often exerts a more consistent and homogenising influence than family-related factors (Maksimova et al., 2019; Onebunne & Chinenye Emerenu, 2019).

Nonetheless, the weak but statistically significant positive correlation between maternal education and perceived school support ($r = 0.181$, $p = 0.013$) merits attention. Mothers who have attained university-level education may possess stronger health literacy and may be more inclined to maintain open communication with their daughters, thereby increasing students' receptiveness to institutional guidance (Abbasi et al., 2021; Crockett et al., 2019). This finding is consistent with the broader literature on maternal influence during puberty, which suggests that mothers often serve as both a source of information and a source of emotional regulation for their daughters (Bassaknezhad et al., 2013; Mehrabi et al., 2014).

Conversely, the negative correlation observed between peer-sourced information and school support ($r = -0.160$, $p = 0.028$) may reflect the circulation of misconceptions or stigmatising attitudes within peer networks. Prior studies have cautioned against excessive reliance on peers for guidance on puberty, noting that informal discussions often perpetuate myths, secrecy, and fear (Garba et al., 2018; Harini et al., 2020). In the absence of structured peer education or adult mediation, information obtained from peers may undermine institutional efforts and erode students' trust in teachers.

This pattern suggests that heavy reliance on peers corresponds with diminished trust in institutional support, a dynamic that carries particular weight within the conservative, gender-segregated context of an Islamic boarding school. Cultural taboos surrounding menstruation and reproductive health often restrict open discussion with adults, pushing students instead toward same-age peers whose knowledge may itself be inaccurate.

Such informal peer networks have been shown to perpetuate misinformation, reinforce harmful myths, and normalise secrecy around menstruation (Garba et al., 2018; Harini et al., 2020). In tightly regulated boarding school settings, where access to outside information may be limited, peers can become the dominant point of reference, shaping attitudes and behaviours in ways that work against formal educational efforts. Misconceptions concerning menstrual hygiene, fertility, or religious obligations do not merely compromise the accuracy of students' knowledge, they can also heighten feelings of fear, shame, or anxiety (Inyang Etoh et al., 2020).

This pattern further points to missed opportunities for the intergenerational transmission of health literacy and religious values, a process that carries considerable weight within Muslim family life. In many Muslim households, mothers and older female relatives are traditionally regarded as the principal transmitters of both reproductive health knowledge and religious guidance concerning womanhood. Strengthening structured mother-daughter dialogue grounded in accurate religious and health frameworks could help reinforce trust in school-based messaging and ensure that students receive consistent, reliable guidance.

These findings underscore the need for schools to take a proactive stance in disrupting cycles of peer-based misinformation, whether by strengthening teacher-led guidance, creating safe spaces for discussion, or embedding accurate, culturally sensitive health education within the formal curriculum. One promising solution involves structured peer education models in which selected students are trained to serve as information ambassadors under teacher supervision, an approach that has shown success in reducing stigma and improving the accuracy of knowledge in comparable contexts (UNESCO, 2018). Embedding such interventions within the boarding school system could help bridge the gap between students' preferred information networks and the institution's own priorities, thereby fostering trust while safeguarding the accuracy of shared information.

3. *Teachers as Guardians of Psychological Safety*

The qualitative findings further underscore teachers' essential role in fostering psychological safety. When teachers succeeded in creating non-judgemental, supportive, and emotionally responsive environments, students appeared more comfortable discussing challenges related to menstruation. This finding supports the work of Collier-Harris and Goldman (2017), who advocate situating puberty and sexuality education within a pedagogical framework that incorporates emotional development and empathetic communication.

This supportive role, however, is frequently constrained by systemic barriers, including insufficient formal training in adolescent psychology, administrative burdens, and cultural discomfort surrounding discussions of menstruation. Diaris et al. (2017) argue that teachers who are under-resourced or overburdened are less able to fulfil their pastoral care responsibilities. These findings point to the importance of sustained institutional investment in professional development focused on adolescent wellbeing.

Findings from Mohamadi et al. (2021) further suggest that structured training, such as motivational interviewing or health belief model approaches, meaningfully improves teachers' capacity to address student anxiety and confusion. This study lends further support to that conclusion, emphasising that teachers require not only medical or religious content knowledge but also stronger skills in socio-emotional care.

Targeted professional development for teachers should accordingly be institutionalised, with emphasis placed on socio-emotional facilitation skills alongside factual health content. Incorporating frameworks such as motivational interviewing or the health belief model into teacher training could strengthen teachers' capacity to address anxiety and correct misinformation (Mohamadi et al., 2021). In addition, policy could formalise mentorship roles within boarding schools, ensuring that every student has access to a trained and approachable adult for sensitive discussions.

4. *Addressing Structural Gaps in Boarding School Systems*

More broadly, these findings expose structural gaps in how Islamic boarding schools approach puberty management. While such institutions typically prioritise moral and religious instruction, their capacity to address the emotional and developmental needs of adolescent girls remains constrained. Rochmah et al. (2023) argue that Islamic education must evolve to incorporate psychological literacy and gender-sensitive practices, particularly in settings where students live apart from their families.

Living away from home during menarche can intensify feelings of fear, isolation, and shame. Girls require both accurate knowledge and emotional support to make sense of these bodily changes (Inyang Etoh et al., 2020). Unfortunately, institutional silence surrounding menstruation persists in many boarding schools, driven by cultural taboos, insufficient training, or inadequate policy frameworks (Barkhordari-Sharifabad et al., 2020; Ramdani et al., 2020). Without deliberate intervention, students are left to navigate a critical developmental stage with limited adult guidance and inconsistent peer support.

The boarding school must therefore be reconceived not merely as a site of academic and religious formation but also as a space for emotional growth. Embedding psychosocial development within teachers' roles, designing inclusive curricula, and strengthening communication between school and family stand out as essential strategies for supporting student wellbeing during puberty.

This further implies that curriculum design should be applied consistently school-wide, rather than relying on assumptions about students' maturity or family background. The positive association between maternal education and perceived support suggests that family engagement strategies could be embedded within school programming to ensure alignment between messages conveyed at home and at school (Abbasi et al., 2021).

National and institutional policy should mandate the integration of psychosocial development within curricula, paired with staff training and structured school-family communication protocols. Addressing menstruation and puberty openly, supported by clear guidelines, culturally sensitive

teaching materials, and gender-responsive pedagogy, can help break cycles of stigma, empower students, and enhance their overall wellbeing (Rochmah et al., 2023).

In sum, strengthening adolescent wellbeing within Islamic boarding schools requires education policymakers to mandate the integration of structured, culturally sensitive puberty education into the national curriculum, embedding it within religious and life skills subjects to normalise discussion and reduce stigma (UNESCO, 2018; Rochmah et al., 2023). National guidelines should require regular, teacher-led sessions supported by clear teaching resources, alongside mandatory parental engagement initiatives to reinforce consistency between home and school (Abbasi et al., 2021; Crockett et al., 2019).

Teacher professional development programmes should be formalised, ensuring that all educators receive training in adolescent psychology, socio-emotional facilitation, and evidence-based communication approaches such as motivational interviewing and the health belief model (Mohamadi et al., 2021; Collier-Harris & Goldman, 2017). Institutional policy should designate trained mentors for every student, providing a safe and trusted point of contact for sensitive matters (Hunter et al., 2022; Othman & Masum, 2017). Finally, monitoring and evaluation systems should be put in place to assess the quality and consistency of puberty education delivery, thereby ensuring accountability and continuous improvement across boarding school networks (Long et al., 2022; Vieno et al., 2007).

CONCLUSION

This study offers meaningful insight into the interplay between students' knowledge of puberty and the support they receive within an Islamic boarding school setting. The moderate, statistically significant correlation between knowledge and school support indicates that the two domains reinforce one another and should therefore be developed in tandem. While most demographic factors showed no significant influence on outcomes, maternal education and peer-sourced information both exerted measurable effects on students' perceptions of support.

Importantly, these findings call for a more comprehensive, psychologically informed approach to puberty education, one that moves beyond the conventional emphasis on hygiene and physical health. Teachers play a central role in this process, yet they require institutional backing, structured training, and emotional resources to meet students' needs effectively. The qualitative findings highlight teachers' pivotal function as guardians of psychological safety, fostering open discussion, offering empathetic responses, and creating non-judgemental spaces for sensitive topics such as menstruation. Their effectiveness in this role, however, remains constrained by systemic barriers, namely insufficient formal training in adolescent psychology, limited time due to administrative workloads, and entrenched cultural taboos that discourage open dialogue. Without institutional backing, dedicated time, and structured training, teachers cannot fully integrate socio-emotional care into their everyday practice.

These findings carry important implications for policy, curriculum design, and teacher training. Policymakers should mandate the integration of structured, culturally sensitive puberty education within boarding school curricula, embedding it in both academic and pastoral care frameworks. Curricula must address emotional resilience, body literacy, and gender-sensitive communication, not merely physical health.

This study is not without limitations. Its scope was confined to a single institutional context, which limits the generalisability of the findings, and its cross-sectional design precludes any conclusions regarding causality. Future research would benefit from longitudinal designs capable of tracking changes in student knowledge, attitudes, and trust in school support over time, capturing the longer-term effects of policy and curriculum reform. Comparative, multi-site studies spanning different Islamic boarding schools, regions, and even other faith-based educational systems would help distinguish context-specific challenges from more universal ones. Including male students and examining their parallel experiences with puberty education could further broaden understanding of gendered health literacy within religious schooling. Intervention-based research would also help generate evidence for practical, scalable strategies, while mixed-methods approaches combining surveys, in-depth interviews, and classroom observation could offer a more holistic perspective.

Participatory action research involving students, teachers, and parents together may likewise help generate locally relevant and sustainable solutions.

By building on the present findings through more diverse and methodologically robust research, scholars can contribute to transforming Islamic boarding schools into environments that equally nurture academic, religious, and psychosocial development, helping adolescent girls navigate puberty with dignity, confidence, and comprehensive institutional support.

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