

The Effect of School Connectedness on Adolescents' Mental Health and Well-Being: A Scoping Review

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ABSTRAK

Masa remaja merupakan tahap perkembangan penting yang ditandai oleh perubahan biologis dan psikososial, sehingga meningkatkan kerentanan terhadap masalah kesehatan mental seperti depresi dan kecemasan. Dalam konteks ini, keterikatan dengan sekolah atau school connectedness yang mencakup rasa memiliki dan dukungan yang dirasakan siswa di lingkungan sekolah, muncul sebagai faktor protektif yang penting. Penelitian ini bertujuan untuk mengkaji peran school connectedness dalam kesehatan mental dan kesejahteraan remaja, khususnya sebagai pelindung terhadap risiko psikologis. Penelitian ini menggunakan metode scoping review dengan kerangka PRISMA ScR untuk menjamin ketelitian dan transparansi. Pencarian sistematis dilakukan pada basis data elektronik utama untuk mengidentifikasi artikel ilmiah yang diterbitkan pada tahun 2013 hingga 2023. Seleksi studi difokuskan pada penelitian kuantitatif dan longitudinal yang mengukur school connectedness serta variabel kesehatan mental pada remaja. Hasil telaah menunjukkan bahwa keterikatan sekolah yang kuat berkaitan dengan tingkat depresi, kecemasan, dan ide bunuh diri yang lebih rendah serta berkontribusi pada kesejahteraan psikologis jangka panjang.

Kata kunci: *faktor protektif, kesehatan mental, kesejahteraan psikologis, keterikatan sekolah, remaja*

ABSTRACT

Adolescence is a critical developmental stage marked by biological and psychosocial changes that increase vulnerability to mental health problems such as depression and anxiety. In this context, school connectedness, defined as students' sense of belonging and support within the school environment, has emerged as an important protective factor. This study aims to examine the role of school connectedness in adolescent mental health and well-being, particularly its function in reducing psychological risks. This study used a scoping review method guided by the PRISMA ScR framework to ensure transparency. A systematic search was conducted in major electronic databases to identify peer-reviewed studies published between 2013 and 2023. The selection process focused on quantitative and longitudinal studies that examined school connectedness and mental health among adolescents. Five studies met the inclusion criteria. The findings consistently showed that strong school connectedness is associated with lower levels of depression, anxiety, and suicidal ideation, and contributes to long-term psychological well-being.

Keywords: *adolescents, mental health, protective factors, school connectedness, well-being*

INTRODUCTION

Adolescence is a critical developmental stage characterized by profound biological, cognitive, and socio-emotional transformations. From a biological perspective, adolescence is marked by the onset of puberty, accompanied by rapid hormonal changes that drive the development of primary and secondary sex characteristics, as well as continued brain maturation (Sawyer et al., 2012). Neurodevelopmental research indicates that structural and functional brain changes, including neural growth, synaptic pruning, and increasing connectivity between brain regions, extend into late adolescence and early adulthood (Schleim, 2024). These biological processes contribute to heightened emotional reactivity and increased sensitivity to environmental stressors.

Beyond biological changes, adolescence is also defined by significant cognitive and socio-emotional development. Adolescents demonstrate advances in abstract thinking, self-reflection, and decision-making, while simultaneously navigating identity formation and emotional regulation (Main et al., 2025). Peer relationships become increasingly influential during this period, shaping social behavior, emotional experiences, and self-concept. The growing importance of peer acceptance and social belonging places adolescents in a vulnerable position, particularly when social support is limited or negative experiences occur within key social contexts.

In recent years, adolescent mental health has emerged as a pressing global public health concern. Epidemiological data indicate a substantial increase in mental health problems among adolescents worldwide. Longitudinal surveillance conducted by the Centers for Disease Control and Prevention revealed a marked rise in the proportion of adolescents reporting persistent feelings of sadness or hopelessness, increasing from 26 percent in 2009 to 44 percent in 2021 (Centers for Disease Control and Prevention, 2023). Complementing these findings, the World Health Organization estimates that approximately one in seven adolescents aged 10 to 19 years experiences a mental health disorder, with depression and anxiety identified as the most prevalent conditions (World Health Organization, 2021). Similarly, global reports from UNICEF indicate that more than 13 percent of adolescents were living with a diagnosed mental disorder in 2019, with emotional disorders accounting for a substantial proportion of these cases (UNICEF, 2021).

The rising prevalence of mental health problems during adolescence is closely linked to developmental risk factors inherent to this life stage. Rapid neurobiological maturation, particularly the asynchronous development of limbic and prefrontal brain systems, increases adolescents' emotional sensitivity and stress reactivity (Blakemore, 2020). At the same time, adolescents face escalating academic demands, increased exposure to peer evaluation, and intensified social comparison in both offline and online environments. These pressures have been shown to contribute significantly to emotional distress, depressive symptoms, and anxiety among adolescents (Suldo et al., 2021). When combined, these biological, psychological, and social challenges create a developmental context in which adolescents are particularly vulnerable to mental health difficulties.

From an ecological perspective, adolescent mental health is shaped not only by individual developmental processes but also by the quality of interactions within proximal environmental contexts. Family and school environments play a central role in influencing adolescents' emotional well-being. Research consistently demonstrates that family instability, low parental support, high levels of conflict, and socioeconomic adversity are associated with increased risk of depression and anxiety among adolescents (Thapar et al., 2022). Additionally, exposure to adverse experiences such as violence, neglect, and social exclusion further compounds psychological risk by disrupting emotional regulation and adaptive coping mechanisms (UNICEF, 2021).

Mental health problems that emerge during adolescence often persist into adulthood, increasing the likelihood of long-term psychological difficulties and functional impairment if left unaddressed. Longitudinal studies indicate that emotional and behavioral problems during adolescence are strong predictors of adult mental health outcomes, underscoring the importance of early prevention and intervention (Patton et al., 2014). Evidence also suggests that the continuity of

mental health problems across the life course highlights adolescence as a sensitive developmental window in which protective factors can exert enduring effects (Raniti et al., 2022).

Within Bronfenbrenner's bioecological framework, development is understood as the result of ongoing reciprocal interactions between individuals and their environments over time (Bronfenbrenner and Morris, 2006). Schools represent one of the most influential microsystems in adolescents' daily lives, providing not only formal education but also a complex social environment where adolescents form relationships, develop identity, and internalize social norms. The quality of adolescents' emotional and interpersonal experiences within school settings therefore has significant implications for their psychological well-being.

One construct that has received increasing attention in this context is school connectedness. School connectedness refers to students' sense of belonging, acceptance, and emotional attachment to their school community. The concept was originally introduced as psychological attachment, emphasizing students' perceptions of being valued, respected, and supported within the school environment (Goodenow, 1993). Subsequent conceptualizations have expanded this definition to include perceptions of teacher support, peer acceptance, emotional safety, and fairness, as well as the belief that one is an important and meaningful member of the school community (Strolin-Goltzman, 2010).

A growing body of empirical research provides robust evidence that school connectedness plays a crucial role in promoting adolescent mental health and well-being. Large-scale studies have consistently shown that adolescents who report a strong sense of belonging at school exhibit lower levels of depression, anxiety, emotional distress, and behavioral problems (Allen et al., 2022). Findings from school-based mental health research further indicate that supportive and inclusive school environments are associated with higher emotional well-being, even after controlling for individual and family-level risk factors (Kidger et al., 2021). Additional evidence suggests that adolescents who perceive strong teacher and peer support report fewer internalizing problems and greater psychological adjustment (Arslan and Coşkun, 2020).

Importantly, longitudinal research demonstrates that the protective effects of school connectedness extend beyond adolescence. Studies tracking individuals over time show that strong school belonging during adolescence predicts better emotional stability, reduced vulnerability to mental health problems, and improved psychological functioning in later life (Bond et al., 2019). Long-term findings also suggest that positive relational experiences at school contribute to sustained well-being across developmental stages (Korpershoek et al., 2020).

Despite the growing literature, important gaps remain. Many existing studies rely heavily on cross-sectional designs, limiting the ability to draw conclusions about causal relationships between school connectedness and mental health outcomes (Perkins et al., 2021). As a result, it remains unclear whether school connectedness actively improves adolescents' mental health, or whether adolescents with better mental health are more likely to perceive their school environment positively. Furthermore, findings vary across cultural contexts, educational systems, gender groups, and socioeconomic backgrounds, suggesting that moderating factors influencing this relationship are not yet fully understood.

Another limitation in the existing literature is the lack of theoretical integration. While numerous studies document associations between school connectedness and mental health, fewer studies explicitly situate these findings within developmental or bioecological frameworks. Consequently, the mechanisms through which school connectedness influences adolescents' mental health over time remain insufficiently articulated.

To address these gaps, the present study employs a scoping review methodology guided by the PRISMA-ScR framework. By integrating evidence from both cross-sectional and longitudinal studies across diverse cultural and educational contexts, this review aims to systematically map how school connectedness functions as a protective factor within adolescents' developmental ecology.

This approach allows for the identification of conceptual definitions, methodological patterns, and theoretical explanations that may account for inconsistencies in previous findings.

Based on the identified research gaps, this study aims to address the primary research question of how school connectedness influences adolescents' mental health and well-being. This main question is further elaborated by examining the factors that shape and influence school connectedness among adolescents, as well as how findings from cross-sectional and longitudinal studies explain the impact of school connectedness on adolescents' mental health. Accordingly, the objectives of this study are to synthesize empirical evidence on the role of school connectedness in adolescent mental health outcomes and to identify the theoretical perspectives used to explain this relationship. Through this approach, the study is expected to contribute to a more integrated and developmentally grounded understanding of school connectedness as a protective factor in adolescent mental health.

METHOD

Research Design

This study employed a scoping review design, an evidence-synthesis approach intended to map the breadth, characteristics, and patterns of existing research on a particular topic. A scoping review was considered the most appropriate design because the aim of this study was not to test causal hypotheses or estimate effect sizes, but to systematically explore how *school connectedness* has been conceptualized, measured, and linked to adolescents' mental health across diverse empirical contexts. The review followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews) guidelines to ensure transparency and methodological rigor in the identification, screening, eligibility assessment, and inclusion of studies. In addition, the five-stage framework proposed by Arksey and O'Malley was adopted to guide the overall review process.

Participants

In this scoping review, the term *participants* refer to the research populations described in the included studies, rather than individuals directly recruited by the authors. The reviewed studies primarily involved adolescent participants, generally defined as individuals aged between early and late adolescence, enrolled in formal educational settings. Adolescents were selected as the focus of this review because this developmental stage is characterized by heightened sensitivity to school environments, peer relationships, and psychosocial stressors, which are closely linked to mental health outcomes. Because this study did not directly involve human data collection, informed consent procedures were handled by the original studies included in the review.

Descriptive Data Reporting

Descriptive information was narratively summarized following APA reporting standards. The review reports the number of included studies, general characteristics of adolescent samples, and key methodological features, such as study design and mental health indicators assessed. Detailed statistical outputs from original studies were not reproduced verbatim; instead, relevant descriptive trends were synthesized to support clarity and coherence.

Data Collection Strategy

Data were collected through a systematic search of major international and national databases, including PsycINFO, PubMed, ScienceDirect, SpringerLink, ProQuest, Google Scholar, and SINTA. Articles published between 2013 and 2023 in English or Indonesian were considered eligible. Search terms included combinations of keywords related to school connectedness and adolescent mental health. Inclusion criteria required studies to empirically examine school connectedness or related constructs and at least one mental health outcome among adolescents. Non-empirical publications were excluded.

Data Analysis

A thematic synthesis approach was used to analyze and organize the extracted data. Studies were examined for recurring patterns related to conceptual definitions, measurement approaches, study design, and mental health outcomes. Themes were developed inductively and integrated into a narrative synthesis to map existing evidence and identify research gaps.

Credibility

Methodological credibility was strengthened through strict adherence to the PRISMA-ScR checklist and the inclusion of peer-reviewed studies from reputable databases. This structured approach enhanced transparency, reduced bias, and ensured the trustworthiness of the review findings.

RESULTS

The results of this scoping review are presented in a structured and descriptive manner, encompassing the outcomes of the literature selection process and the synthesized findings from the included studies. The review focuses on summarizing empirical evidence regarding the association between school connectedness and adolescents' mental health without extending into interpretative discussion. Following the PRISMA-ScR screening process, a total of five peer-reviewed empirical studies met all inclusion criteria and were included in the final synthesis (see Figure 1). These studies varied in research design, sample size, and contextual settings, providing a comprehensive overview of how school connectedness has been examined in relation to adolescent mental health outcomes.

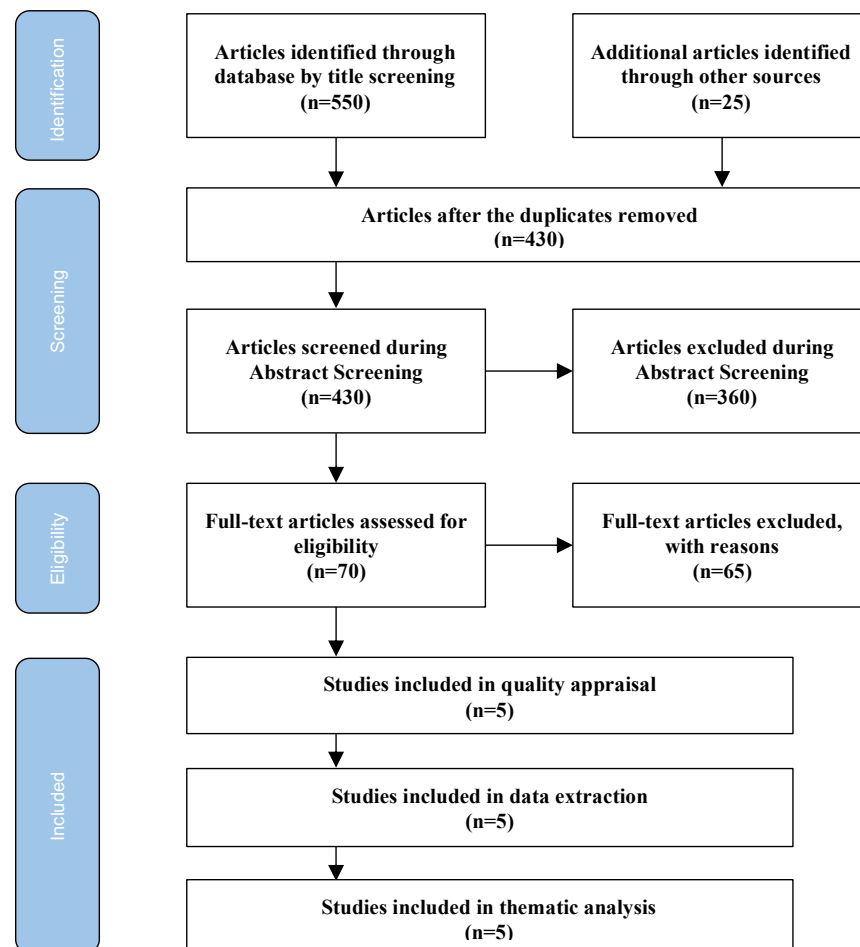


Figure 1. PRISMA-ScR Flow Diagram

The included studies consisted of two cross-sectional studies and three longitudinal studies. Sample sizes ranged from 320 to 2,598 adolescent participants, with one cohort study following participants longitudinally from adolescence into adulthood. The adolescent samples were drawn from diverse school settings, including general school populations, high-risk communities, post-disaster environments, and remote learning contexts. Across studies, school connectedness was assessed using validated self-report instruments measuring students' sense of belonging, perceived support from teachers and peers, and emotional attachment to school. Mental health outcomes included depression, anxiety, emotional distress, and suicidal ideation. The diversity of study contexts and methodological approaches highlights the broad applicability of school connectedness as a variable across adolescent populations.

The synthesis of findings identified two dominant empirical result categories, namely outcomes related to school connectedness as a protective factor and patterns of mental health problems examined during adolescence. All included studies reported statistically significant associations between school connectedness and at least one mental health indicator. Higher levels of school connectedness were consistently associated with lower levels of depressive symptoms, anxiety, and suicidal ideation. In longitudinal designs, school connectedness during adolescence was shown to predict mental health outcomes at later developmental stages, including adulthood. Across the reviewed studies, mental health outcomes primarily involved internalizing problems such as depression and anxiety, as well as broader indicators of psychological distress and suicidal ideation. These outcomes were measured using standardized psychological instruments and analyzed through correlational or regression-based statistical approaches, providing a systematic and comparable body of empirical evidence.

A concise summary of the included studies and their key findings is presented in Table 1.1 to facilitate clarity and rapid comprehension of the results.

Table 1.1 Study and Findings

Study	Sample	Research Design	Findings
Perkins et al. (2021)	320 middle and high school students from a school district in Massachusetts after 13 weeks of remote learning	Cross-sectional (online survey)	Higher levels of school connectedness were significantly associated with lower levels of depression and anxiety among adolescents. This relationship remained significant after controlling for demographic variables, indicating that school connectedness played a protective role in students' mental health during remote learning due to the COVID-19 pandemic.

Logan et al. (2021)	2,598 students in grades 7 and 9 from a high-risk community	Cross-sectional	Strong school connectedness was associated with reduced suicidal ideation among adolescents. The large sample size increased the statistical power of the findings. However, due to the cross-sectional design, causal relationships between school connectedness and suicidal ideation could not be established.
Nyberg et al. (2019)	Participants from the Northern Swedish Cohort were followed from age 16 to age 43	Longitudinal	School connectedness at age 16 was negatively correlated with depression and anxiety symptoms at age 43 ($r = -0.147, p < .001$). The findings suggest that strong school connectedness during adolescence has a long-term protective effect on mental health in adulthood.
Liu et al. (2021)	1,015 early adolescents aged 11.1–15.1 years from two schools, one located in an earthquake-affected area	Longitudinal (five time points over two years)	Higher school connectedness predicted increased self-affirmation and reduced mental health problems 6–12 months later. The results demonstrate mid-term protective effects of school connectedness on adolescents' mental health, particularly in stressful or traumatic contexts.

Gunnarsdóttir et al. (2021)	Participants from the Northern Swedish Cohort	Longitudinal	Poor school connectedness during adolescence was significantly associated with higher levels of depressiveness in adulthood ($\beta = 0.038$, $p < .001$), even after controlling for demographic factors. This study highlights the long-term mental health risks associated with inadequate school connectedness.
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DISCUSSION

This scoping review aimed to critically examine empirical evidence on the relationship between school connectedness and adolescents' mental health and well-being. Drawing on five peer-reviewed studies published between 2019 and 2021, the findings consistently indicate that school connectedness plays a substantial protective role against a range of mental health problems during adolescence. Adolescents who reported stronger feelings of belonging, acceptance, and support within their school environment tended to experience lower levels of depression, anxiety, psychological distress, and suicidal ideation. These results support the view that school's function not only as academic institutions but also as central developmental contexts that shape adolescents' emotional and psychological functioning.

Findings from cross-sectional studies provide important insight into the immediate association between school connectedness and mental health outcomes. Perkins (2021) found that higher levels of perceived school connectedness were associated with lower depressive and anxiety symptoms among adolescents during periods of remote learning. This evidence is particularly relevant in contexts of social disruption, where limited peer interaction and reduced teacher contact may intensify emotional distress. Similarly, Logan (2021) reported that strong school connectedness was associated with lower levels of suicidal ideation among adolescents living in high-risk communities. These findings align with the psychological sense of school membership proposed by Goodenow (1993), which emphasizes that feeling valued and accepted within the school environment contributes to emotional security and psychological well-being. However, due to the cross-sectional design of these studies, causal relationships cannot be firmly established.

Longitudinal studies offer stronger evidence regarding the enduring protective role of school connectedness across the life course. Nyberg (2019) demonstrated that school connectedness at age sixteen was negatively associated with symptoms of depression and anxiety in adulthood at age forty-three. This finding suggests that positive school experiences during adolescence may have lasting implications for psychological health. Consistent with this, Gunnarsdóttir (2021) found that poor school connectedness during adolescence significantly predicted higher levels of depressiveness in adulthood, even after controlling for earlier mental health and demographic factors. These findings are consistent with the bioecological theory of development proposed by Bronfenbrenner and Morris (2006), which highlights the long-term influence of proximal processes within key microsystems such as schools.

In addition to long-term outcomes, school connectedness appears to exert important mid-term protective effects during adolescence. Liu (2021) reported that higher levels of school

connectedness predicted increased self-affirmation and reduced mental health problems six to twelve months later, particularly among adolescents exposed to stressful environmental conditions. This finding supports the conceptualisation of school connectedness as involving supportive relationships with teachers and peers, as described by Strolin-Goltzman (2010). Adolescents who perceive their school environment as supportive may develop stronger emotional resilience and more effective coping strategies when facing academic and social challenges.

Collectively, the reviewed studies indicate that school connectedness serves multiple psychological functions during adolescence. It fosters a sense of belonging and emotional security, reduces vulnerability to internalising problems, and buffers the impact of contextual stressors such as academic pressure and community risk. While previous research has highlighted the importance of family and peer relationships, the present review extends existing literature by demonstrating that school connectedness plays a similarly critical role in supporting adolescent mental health across both short-term and long-term developmental trajectories.

Despite the consistency of findings, several limitations should be acknowledged. Many studies relied on self-report measures, which may introduce response bias and inflate observed associations. Although longitudinal designs strengthen temporal interpretation, unmeasured confounding variables, such as family functioning or early life experiences, may still influence the relationship between school connectedness and mental health outcomes. Additionally, most studies were conducted within specific cultural and socioeconomic contexts, which may limit the generalisability of the findings.

In conclusion, this review provides strong evidence that school connectedness is a key protective factor for adolescents' mental health and well-being. By integrating empirical findings with developmental theory, school connectedness emerges as a crucial component of healthy adolescent development, underscoring the importance of fostering supportive and inclusive school environments to promote both immediate and long-term psychological well-being.

CONCLUSION

This scoping review demonstrates that school connectedness is a crucial protective factor in adolescents' mental health and well-being. Synthesizing evidence from empirical studies, the findings indicate that adolescents who experience stronger feelings of belonging, acceptance, and support within the school environment are less likely to report depression, anxiety, and suicidal ideation. School connectedness functions as a psychosocial resource that enhances emotional security and buffers adolescents against academic pressure, social adversity, and exposure to high-risk contexts. Importantly, the evidence suggests that the influence of school connectedness extends beyond short-term outcomes, contributing to more favorable mental health trajectories into adulthood.

From a developmental and psychological perspective, this review contributes to the literature by highlighting schools as central relational contexts in adolescent mental health, alongside family and peer systems. By integrating cross-sectional and longitudinal findings, the review underscores that school connectedness operates both as an immediate protective mechanism and as a long-term developmental asset. This synthesis advances current psychological knowledge by emphasizing the enduring role of school-based relationships and school climate in shaping emotional resilience across the life span, particularly for adolescents who may lack sufficient support in other environments.

Based on these findings, it is recommended that future research further examine school connectedness across diverse cultural and educational contexts and explore specific relational components, such as teacher support and peer relationships, that may differentially influence mental health outcomes. Practically, adolescents are encouraged to actively engage in school life and cultivate supportive relationships, while schools and educators are urged to prioritize inclusive, emotionally responsive environments. Strengthening school connectedness through policies and

practices that support students' social and emotional development may serve as an effective strategy for promoting adolescent mental health and long-term psychological well-being.

ACKNOWLEDGEMENTS

The author would like to express sincere gratitude to Allah SWT, Ibu Atika Dian Ariana, M.Sc., M.Psi., Psikolog, whose guidance, feedback, and encouragement contributed significantly to the research process. Additionally, the author gratefully acknowledges all researchers and institutions whose scholarly works provided valuable references and insights for this study.

DECLARATION OF POTENTIAL CONFLICT OF INTEREST

The author declares that there is no potential conflict of interest associated with the publication of this manuscript. The author does not work for, act as a consultant for, own shares in, or receive funding from any company or organization that could potentially benefit from the publication of this research.

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