

Factors Influencing Adolescents' Psychological Well-Being in Secondary School Settings: A Social Ecological Approach

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ABSTRACT

Background: Adolescent psychological well-being reflects interrelated individual, family, peer, school, digital, and structural conditions. Objective: To synthesize evidence on factors associated with well-being in secondary-school settings, emphasizing Indonesia. Methods: This structured narrative review drew on targeted PubMed-indexed literature and authoritative WHO, OECD, and Indonesian reports, with searches described as updated to 22 September 2026. Reviews, meta-analyses, longitudinal studies, surveys, and relevant school-based research were interpreted across five ecological levels. Full search logs, screening totals, and a verified number of included records were unavailable; no formal pooled estimates or risk-of-bias ratings were generated. Results: Synthesis-level evidence links sleep, physical activity, school connectedness, bullying, school climate, academic pressure, and social-emotional learning to adolescent mental-health or well-being outcomes, although study designs and outcome definitions vary. Indonesian national data demonstrate substantial mental-health needs, while selected local studies highlight associations with family support, peers, and schools. Most exposure–outcome links are associative rather than causal. Conclusion: Coordinated school-wide approaches should prioritize supportive relationships, bullying prevention, manageable academic demands, and confidential referral pathways, with context-sensitive evaluation of additional interventions.

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INTRODUCTION

Adolescence is a developmental period in which biological maturation, identity formation, increasing autonomy, peer influence, academic demands, and digital participation converge. Psychological well-being during this period is therefore more than the absence of a diagnosable mental disorder; it includes positive functioning, self-acceptance, meaningful relationships, autonomy, purpose, competence, positive affect, and the ability to manage age-appropriate challenges (Ryff, 1989; Keyes, 2002). Globally, the World Health Organization estimates that approximately one in seven adolescents aged 10-19 years lives with a mental health condition, while depression, anxiety, and behavioral disorders are among the leading causes of illness and disability in this age group (WHO, 2025).

The Indonesian context illustrates why schools are strategically important for adolescent well-being. The Indonesia National Adolescent Mental Health Survey (I-NAMHS) reported that 34.9% of adolescents experienced a mental health problem in the previous 12 months and 5.5% met criteria for a mental disorder, whereas only a small proportion of adolescents with a mental health problem had accessed support or counseling services (I-NAMHS, 2022/2023). A later study among Indonesian adolescents aged 16-18 years found substantial psychological distress and depressive symptoms in both school-based and community-based samples, and showed that stronger perceived family attachment was associated with lower odds of poor mental health among in-school adolescents (Pham et al., 2024).

At the same time, indicators of school belonging in Indonesia are comparatively strong. PISA 2022 showed that 86% of Indonesian students reported that they felt they belonged at school, although 16% reported feeling lonely at school and 14% reported low life satisfaction (OECD, 2023). These apparently contrasting findings suggest that population-level well-being cannot be understood from a single indicator. An adolescent may feel attached to school while simultaneously experiencing academic stress, family strain, bullying, sleep problems, economic insecurity, or limited access to confidential support.

A social ecological approach is useful because it treats adolescent development as the product of interactions among nested systems. Bronfenbrenner's ecological theory conceptualizes development as occurring within interconnected settings ranging from immediate relationships to broader institutions and social structures (Bronfenbrenner, 1979). The social ecological model in health promotion similarly emphasizes that behavior and health are influenced by intrapersonal, interpersonal, organizational, community, and policy-level conditions (McLeroy et al., 1988). Applied to secondary schools, this approach shifts attention away from asking only whether an adolescent is resilient and instead asks whether the family is supportive, peers are safe, teachers are responsive, school rules are fair, counseling is accessible, digital environments are manageable, and wider social conditions support healthy development.

This review synthesizes the evidence linking psychological well-being to individual, interpersonal, school, community-digital, and societal conditions in secondary-school adolescents, with particular attention to Indonesia. Its contribution is an explicitly ecological interpretation of

findings, their relative evidentiary strength, and feasible school-level priorities; it does not claim to establish causal effects or prevalence through new primary data.

METHODS

1. Review Design and Rationale

A structured narrative review was used to integrate heterogeneous evidence on the determinants of adolescents' psychological well-being within secondary-school settings. The synthesis was informed by Bronfenbrenner's ecological perspective and the social ecological model of health promotion. This design was selected because the review addresses multiple exposures, outcomes, study designs, and policy reports across interacting ecological levels rather than a single intervention–outcome comparison. It is not presented as a systematic review, scoping review, or meta-analysis. The original manuscript describes a targeted search updated to 22 September 2026 and a primary emphasis on literature from 2018 onward, with older foundational sources retained. The available manuscript does not document a registered protocol or a complete contemporaneous search audit trail.

2. Information Sources and Search Strategy

The documented evidence sources were PubMed-indexed scholarly publications and institutional reports from the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD), and the Indonesia National Adolescent Mental Health Survey (I-NAMHS). The search concepts covered three domains: (i) adolescents and secondary-school settings; (ii) psychological well-being and mental-health outcomes; and (iii) ecological determinants, including sleep, physical activity, resilience, emotional regulation, family and peer relationships, teacher support, school climate and connectedness, bullying, academic pressure, digital experiences, socioeconomic adversity, and access to support. The manuscript records an overall search update date of 22 September 2026 but does not preserve the individual database/report search dates, exact queries executed, or the number of records retrieved. Therefore, those details cannot be reported as completed procedures.

a. Allustrative, reproducible PubMed search for an author-verified rerun (not the verified historical search):

(adolescen*[tiab] OR teen*[tiab] OR youth[tiab]) AND (school*[tiab] OR "secondary education"[tiab] OR "secondary school"[tiab]) AND ("psychological well-being"[tiab] OR "psychological wellbeing"[tiab] OR "mental health"[tiab] OR depress*[tiab] OR anxi*[tiab]) AND (sleep[tiab] OR "physical activity"[tiab] OR resilien*[tiab] OR "emotion regulation"[tiab] OR famil*[tiab] OR peer*[tiab] OR teacher*[tiab] OR "school connectedness"[tiab] OR "school climate"[tiab] OR bully*[tiab] OR "academic pressure"[tiab] OR "social media"[tiab] OR socioeconomic[tiab] OR "help seeking"[tiab]).

b. Search transparency note

The Boolean expression above is a proposed standardized search that the authors can execute and date during revision; it must not be represented as the original exact search unless confirmed



against records. Broad determinant blocks may miss papers using other terminology; separate searches for each ecological domain, reference-list checking, and searches of the named institutional websites should be logged if actually performed. For each source searched, the final manuscript should state the platform, exact query/keywords, date, limits, and records retrieved, based on the authors' actual search documentation.

3. Eligibility and Scope

The review focused on adolescents approximately 10–19 years of age, especially students in lower and upper secondary education. Eligible evidence concerned psychological well-being, mental-health symptoms, or determinants plausibly related to functioning in school. Empirical observational studies (cross-sectional and longitudinal), intervention studies, systematic reviews, meta-analyses, representative surveys, and major institutional reports were considered, with their distinct evidentiary roles identified in the synthesis. Literature published from January 2018 to the documented update date of 22 September 2026 was prioritized; seminal theoretical and measurement publications published earlier could be retained. University-only or adult-only studies, sources without a substantive connection to adolescent or school well-being, and unsupported commentary were not used as direct evidence for secondary-school students. The original records do not establish a language filter, minimum sample size, screening software, or full-text accessibility rule; no such restriction or procedure is retrospectively claimed.

4. Record Selection and Data Charting

The original manuscript describes prioritization of systematic reviews and meta-analyses, followed by longitudinal and large observational studies, national surveys, school-based investigations, and relevant Indonesian research. Sources were selected for relevance to the review question and mapped to the applicable ecological domains. For transparency, the revised review distinguishes these documented selection priorities from a fully auditable systematic screening process. No deduplication log, title-and-abstract screening log, full-text exclusion list, or verified total of included sources was supplied with the manuscript. Consequently, this article does not report invented identification, exclusion, or inclusion counts, and does not claim independent screening by two reviewers. For a future verified search update, a study-level extraction sheet should record author/year, country, recruitment setting, age range, sample size where applicable, design, exposure, outcome measure, key estimates or findings, limitations, and ecological level; counts and exclusions should be reported only after that sheet is completed from actual records.

5. Evidence Synthesis and Interpretation

Evidence was summarized narratively in five interacting domains: (1) individual characteristics and behaviors; (2) family, peer, and teacher relationships; (3) school and organizational conditions; (4) community and digital environments; and (5) societal and structural circumstances. For each determinant, findings were compared with attention to direction and consistency of association, study design, population and school setting, outcome measurement, and

transferability to Indonesian adolescents. Synthesis distinguished higher-level research syntheses from individual observational studies and distinguished national prevalence estimates from nonrepresentative local samples. Where studies diverged, plausible reasons—including exposure definitions, sample composition, geography, confounding, and follow-up duration—were considered rather than treating findings as interchangeable. Evidence from longitudinal research may strengthen temporal interpretation but cannot automatically establish causality. Intervention findings were interpreted in light of the setting, intervention content, and outcome studied. Because exposure and outcome measures were heterogeneous, no pooled effect size was calculated.

6. Appraisal, Limitations, and Ethics

No formal study-by-study risk-of-bias assessment or certainty-rating instrument was documented in the underlying review. Comparative statements about evidence strength are therefore qualitative judgments based on study designs, replication across studies, methodological limitations reported by the source authors, and coherence across settings—not formal GRADE ratings or equivalent scores. The targeted search may omit relevant studies; missing source-specific search logs prevent independent reproduction of the historical selection process; and the mixture of well-being, symptom, and diagnostic outcomes limits direct comparability. Much evidence is observational and context-dependent. These constraints are considered when drawing conclusions and recommendations. The review analyzed published evidence and did not recruit participants or collect primary individual-level data; research ethics approval for human-participant recruitment was therefore not applicable.

RESULT

1. Overview of the Social Ecological Determinants

The evidence clusters around interdependent determinants rather than a single explanation of adolescent psychological well-being. Systematic reviews and meta-analyses provide relatively broad support for associations involving sleep, physical activity, bullying, school connectedness, school climate, academic pressure, and social-emotional learning, although populations, measures, and designs differ substantially. Indonesian national reports describe population-level patterns, whereas individual school and community studies illuminate local relationships without establishing national prevalence. Table 1 separates protective correlates, risk exposures, and practical implications; these categories do not imply that every association is causal or equally well established.

Table 1. Social-Ecological Factors Influencing Adolescent Psychological Well-Being in Secondary Schools

Ecological level	Protective correlates	Risk factors	Implications for schools
Individual	Adequate sleep; activity; emotion	Poor sleep; prolonged inactivity; maladaptive coping	Promote healthy routines; teach



	regulation; adaptive coping		coping; provide early support
Interpersonal	Supportive family communication; peer support; trusted teachers	Family conflict; peer exclusion; bullying; stigma	Engage caregivers; support peers; train teachers and referral staff
School / organizational	Belonging; safety; fair practices; SEL; counseling access	Unsafe climate; excessive pressure; bullying; lack of confidentiality	Whole-school prevention; workload review; private referral pathways
Community / digital	Youth services; safe spaces; digital literacy	Service gaps; poverty; online harassment; risky platform use	Coordinate services; teach digital literacy; address access barriers
Societal / structural	Equitable access; inclusive and supportive policies	Inequality; discrimination; structural exclusion	Monitor equity; strengthen intersectoral support

2. Individual-Level Factors

Sleep is a modifiable correlate supported by the longitudinal-study meta-analysis of Bacaro et al. (2024), which examined bidirectional links between sleep and mental-health indicators and reported prospective associations involving positive well-being. Longitudinal evidence strengthens temporal interpretation relative to single-time-point surveys, but residual confounding and reciprocal relationships still preclude simple causal claims. School workload, early start times, digital activity, and family routines may affect both sleep and distress; sleep promotion should therefore address environmental conditions as well as individual behavior.

The umbrella review of Purgato et al. (2024) provides synthesis-level evidence that physical-activity interventions can benefit some psychosocial outcomes in children and adolescents. However, intervention modality, implementation intensity, comparison conditions, measured outcomes, and certainty of estimates vary. Physical activity should therefore be described as a promising and generally supportive strategy, not a universally effective intervention with a fixed magnitude of benefit. Schools can expand inclusive opportunities for active breaks, physical education, and safe recreation while evaluating participation and student-reported outcomes.

Psychological resources such as resilience, emotion regulation, self-efficacy, and self-esteem also matter, but the social ecological perspective cautions against treating them as fixed traits. School-based resilience interventions have produced significant improvements in resilience across adolescent samples, particularly when they include structured skill-building and supportive group processes (Llistosella et al., 2023). Their value is likely greatest when paired with efforts to reduce environmental stressors rather than used to teach students to tolerate avoidable adversity.

3. Interpersonal Factors: Family, Peers, and Teachers

Family relationships remain influential throughout adolescence even as autonomy increases. A systematic review found that higher-quality parent-child communication was generally associated with better adolescent mental health across multiple outcomes, with most relationships in the small-to-moderate range (Zapf et al., 2024). Indonesian findings are consistent with this pattern: family attachment and parental connectedness have been associated with lower psychological distress in school-going adolescents (Putra et al., 2023; Pham et al., 2024). Family engagement in school mental health should therefore go beyond notifying parents when problems emerge; it should also strengthen communication, supportive monitoring, and shared problem solving.

Peer relationships can offer social support while also exposing adolescents to rejection and exclusion. In a study of 1,364 Indonesian junior and senior high school students, Kholiq et al. (2026) reported positive correlations of psychological well-being with peer support and help-seeking. Because these observations are associational, they do not demonstrate that improving peer acceptance alone will cause improvements in well-being; well-being may also influence perceived support. Peer-support initiatives are therefore reasonable to evaluate, but should complement professional referral and adult supervision.

Bullying exposure is a consistently reported risk marker for poorer mental health. Ye et al. (2023) synthesized evidence linking victimization to depressive symptoms; Indonesian school-survey analyses reported adverse associations (Putra and Dendup, 2022). The meta-analysis of Hu et al. (2021) likewise found an association between cyberbullying victimization and depression. Differences in timing, confounder control, and measurement mean that these associations should not be read as causal estimates for an individual student. Nonetheless, schools have independent safeguarding grounds to prevent bullying, improve confidential reporting, and coordinate responses with families.

Teacher-student relationships are another important interpersonal pathway. Supportive teachers can increase students' perceived safety, competence, and willingness to seek help, whereas conflictual or humiliating interactions can amplify stress. Recent evidence from Indonesian conflict-affected secondary schools found that perceptions of the school psychological environment, student-teacher relationship quality, and school connectedness were closely interrelated, with school climate emerging as a central predictor of school bonding (Aditama et al., 2026). This suggests that teachers influence well-being not only through direct support but also by shaping how students experience the school as an institution.

4. School and Organizational Factors

School connectedness has support from several synthesis-level sources: Raniti et al. (2022) reviewed prospective associations with depressive and anxiety symptoms, while Yuen and Wu (2024) synthesized positive associations with psychological well-being. Agreement across reviews and prospective evidence makes connectedness a plausible school-level priority. However, constructs and instruments differ, school contexts are heterogeneous, and observed relationships



can be reciprocal or confounded by the wider school climate. 'Protective' is therefore used here to describe a recurring correlational pattern, not definitive intervention causality.

School climate is a broader organizational construct that includes relationships, safety, fairness, academic expectations, norms, and the physical and emotional learning environment. A systematic review by Aldridge and McChesney (2018) concluded that school climate dimensions are meaningfully associated with adolescent mental health and well-being, although the evidence base remains methodologically heterogeneous. Current Indonesian studies reinforce the importance of school climate and school bonding, including evidence that internal and external predictors together show a moderate association with school well-being among senior high school students (Hadziq et al., 2026).

Academic pressure encompasses perceived achievement demands, examination-related stress, heavy workloads, competitive expectations, and timing of assessments; the definitions vary across studies. In the systematic review by Steare et al. (2023), 48 of 52 studies reported an association between academic pressure or academic-year timing and at least one adverse mental-health outcome. This proportion refers to reports within a heterogeneous review, not the prevalence of distress or a pooled effect size. Designs and contexts varied, so one cannot assume identical effects by age, school type, or educational system, or infer that academic demands independently cause poor mental health. Schools can still review avoidable pressure while maintaining appropriately challenging learning goals.

Universal social and emotional learning (SEL) can strengthen the organizational environment when implemented with sufficient quality. A contemporary meta-analysis of 424 studies across 53 countries found that universal school-based SEL programs improved social-emotional skills, attitudes, behaviors, school climate and safety, peer relationships, school functioning, and academic outcomes, although effects varied with program and implementation characteristics (Cipriano et al., 2023). Reviews of universal school-based mental health and transdiagnostic interventions similarly suggest that program design, implementer competence, and fit with the school context are critical to outcomes (Scholz et al., 2023; Wang et al., 2024).

Accessible school-based services are also necessary because universal prevention will not meet every student's needs. Help-seeking is influenced by confidentiality, stigma, peer perceptions, awareness of services, referral pathways, and scheduling barriers (McPhail et al., 2024). In the Indonesian I-NAMHS, school staff were a prominent source of help among adolescents who accessed services, which underscores the importance of school personnel being able to recognize concerns, respond non-judgmentally, protect privacy, and refer appropriately rather than attempting to manage all problems themselves.

5. Community, Digital, and Societal Factors

Adolescents' school experiences are shaped by socioeconomic and community conditions. Economic hardship can affect nutrition, transport, access to learning resources, parental stress, neighborhood safety, and the availability of mental health services. Indonesian survey evidence has linked hunger as a proxy of socioeconomic disadvantage with psychological distress, while broader

international literature consistently identifies socioeconomic adversity as a risk context for child and adolescent mental health (Putra et al., 2023). Equity-sensitive school supports are therefore essential so that interventions do not assume all students have the same time, privacy, technology, transport, or family resources.

The digital environment cuts across ecological levels. Social media can provide connection, identity exploration, peer support, and access to information, but it can also intensify social comparison, cyberbullying, sleep displacement, exposure to harmful content, and pressure for constant availability. An umbrella review concluded that the relationship between social media use and adolescent mental health is not uniform; it depends on individual characteristics, patterns of use, content, and platform design, with both risks and opportunities present (Sala et al., 2024). This evidence argues against simplistic 'screen time is bad' messages and supports teaching critical digital literacy while addressing harmful online experiences and platform-level risks.

At the policy level, WHO guidance emphasizes multi-level promotion and prevention, supportive school environments, school health services, and health-promoting school systems rather than isolated classroom lessons (WHO, 2021a; WHO, 2021b; WHO and UNESCO, 2021). Policies influence whether schools have trained personnel, referral networks, anti-bullying procedures, reasonable academic practices, crisis protocols, confidential counseling space, family engagement mechanisms, and systems for monitoring student well-being.

DISCUSSION

Taken together, the findings indicate a pattern of mutually reinforcing exposures rather than independent additive causes. For example, demanding school schedules and persistent peer conflict may disrupt sleep, which in turn can coincide with poorer emotion regulation and greater vulnerability to daily academic stress. Family communication may influence whether online harassment is disclosed, while teacher responsiveness and confidential referral practices may determine whether a student receives help. These pathways are theoretically plausible within the social ecological model, but this narrative review does not test mediation, interaction effects, or directionality. It therefore distinguishes evidence of association from hypotheses about how levels may influence one another.

School connectedness is a useful integrative concept because it reflects multiple social and organizational experiences: trusted adults, peer inclusion, fair procedures, perceived safety, and meaningful participation. Review-level and some prospective evidence supports an association with better well-being and lower distress (Raniti et al., 2022; Yuen and Wu, 2024). However, connectedness may also result from already-positive mental health, and measures sometimes overlap conceptually with school climate and social support. A practical implication is to evaluate concrete school conditions and students' experiences, not merely raise a single belonging score.

Evidence from Indonesia must be interpreted by sampling frame. I-NAMHS is used for national estimates of adolescent mental-health burden, and PISA 2022 characterizes the surveyed student population rather than all Indonesian adolescents (I-NAMHS, 2022/2023; OECD, 2023). By contrast, Pham et al. (2024) and the school-based findings of Kholiq et al. (2026), Aditama et al.



(2026), and Hadziq et al. (2026) concern their specified populations and settings; their associations should not be converted into national prevalence rates. The coexistence of reported school belonging and substantial mental-health needs does not imply that the same students have both outcomes. Together, these sources support school-based action while emphasizing that implementation should be adapted and locally evaluated.

An evidence-informed response is tiered. Universal school measures may combine relationship-supportive teaching, anti-bullying procedures, social-emotional learning, reasonable workload practices, and opportunities for activity. More targeted attention is justified for students facing exclusion, repeated bullying, economic barriers, or persistent distress. Indicated responses require protected confidentiality, trained staff, clear escalation and referral protocols, and links with qualified health professionals. The support for these components comes from different evidence types: meta-analyses of interventions are stronger for some SEL outcomes, whereas referral arrangements and equity-sensitive supports are chiefly implementation and policy recommendations, not effects directly quantified by this review.

Family engagement should also be relational rather than merely administrative. Schools can provide parent education on adolescent development, supportive communication, digital supervision, sleep routines, and warning signs while preserving adolescents' legitimate need for privacy. Peer-based approaches may complement professional services by normalizing help-seeking and creating supportive networks, but peer supporters require clear role boundaries and adult supervision so that they are not placed in a therapeutic role beyond their competence.

Academic policy deserves specific attention. The evidence does not justify eliminating challenge or assessment; rather, it supports reducing unnecessary chronic pressure. Schools can review homework volume, examination clustering, remedial practices, ranking systems, public shaming, and communication about failure. Academic rigor is more likely to coexist with well-being when students experience autonomy support, clear expectations, constructive feedback, recovery time, and realistic opportunities to improve.

Digital well-being requires a similarly balanced approach. Because social media effects vary across adolescents and forms of use, blanket restrictions may miss important mechanisms. Schools can focus on cyberbullying response, sleep-protective routines, critical evaluation of online content, social comparison literacy, privacy, reporting pathways, and early identification of students whose online experiences are clearly associated with distress. Coordination with families is essential because much digital exposure occurs outside school hours.

For research, the social ecological model suggests the value of multilevel and longitudinal designs in which students are nested within classes and schools, while family, neighborhood, and digital variables are measured concurrently. Indonesian research would benefit from validated measures of psychological well-being, school connectedness, school climate, family communication, peer support, academic pressure, bullying, sleep, and help-seeking, together with school-level data such as counselor availability, class size, disciplinary climate, workload, and referral systems. Youth participation in the design and interpretation of studies would further improve ecological validity.

This review has important methodological limitations. Its targeted and incompletely logged search may have missed relevant or contradictory findings; lack of source-specific dates, executable search strings, screening totals, and exclusion records prevents independent replication. No formal risk-of-bias scoring or duplicate extraction was documented, so apparently consistent findings may reflect publication bias, confounding, shared measurement weaknesses, or selective emphasis. The studies also use non-equivalent definitions of well-being, diverse age groups, and different school systems, restricting direct comparison. Much underlying evidence is observational, limiting causal inference; high-income settings are prominent in the literature. Indonesian national surveys and narrower school-based samples answer different questions, further limiting generalization. This work should consequently be read as a structured interpretation of cited evidence, not a comprehensive systematic review or a quantitative estimate of effects.

CONCLUSIONS

Adolescent psychological well-being in secondary schools is associated with conditions spanning personal routines, relationships, schools, digital environments, and wider social structures. Across the reviewed syntheses, evidence is comparatively consistent for relationships involving school connectedness, bullying, sleep, and academic pressure, but much is observational and does not prove causality. Indonesian national indicators and local studies offer complementary, not interchangeable, insights.

Priorities for Indonesian secondary schools are to strengthen supportive teacher–student and peer relationships, prevent bullying, review avoidable academic pressure, and establish confidential counseling and referral routes. Social-emotional learning, physical activity, sleep-supportive routines, and digital literacy can complement these priorities, with their local effectiveness monitored. Cross-sector coordination and equity-sensitive resourcing are broader policy implications that warrant evaluation rather than assumed benefits.

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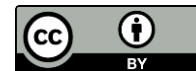
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