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Research Network Analysis and Identification of Gaps in Peer Counseling Interventions for Adolescent Mental Health in Indonesia: A Bibliometric Study and Scoping Review

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ABSTRACT

Adolescent mental health needs in Indonesia persist alongside limited service access. Peer counseling is increasingly used in school-based health promotion, but evidence maturity, implementation quality, cultural adaptation, and long-term safety remain unclear. A scoping-review synthesis with descriptive research-network analysis examined Indonesian adolescent mental-health and peer-support studies (2021–2026), supplemented by the foundational 2020 peer-counselor training-validation study. Records were coded by intervention, design, mechanism, cultural adaptation, vulnerable population, and policy linkage. Network analysis was conceptual, not a full bibliometric census. Findings show a clear implementation–evaluation gap: 5.5% of adolescents aged 10–17 met criteria for a mental disorder, yet only 4.7% accessed services (another estimate: 2.6%). Evidence concentrates on training, literacy, and implementation, with no RCTs or long-term safety data. The validated training module improved self-efficacy ($p = 0.019$) without follow-up. Cross-national data showed lower suicidal-ideation odds with peer support (OR = 0.59). Peer counseling holds promise but needs stronger causal evaluation, standardized training, referral safeguards, cultural adaptation, and cross-sector governance.

Keywords *: Adolescent Mental Health, Peer Counseling, Indonesia, School Health Promotion, Bibliometric Analysis, Scoping Review, Implementation Science, Research Gap*

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INTRODUCTION

Adolescence is a critical developmental period in which mental health, educational participation, social relationships, and later adult functioning are closely interconnected. International guidance emphasizes promotion, prevention, early identification, and accessible care rather than reliance on specialist mental-health services alone (World Health Organization [WHO], 2021, 2022; WHO & UNICEF, 2021). Globally, the disruption associated with the COVID-19 pandemic further elevated the urgency of adolescent mental-health promotion, with pooled estimates indicating a substantial rise in depressive and anxiety symptoms among children and adolescents worldwide during that period (Racine et al., 2021; Samji et al., 2022; Santomauro et al., 2021). In low- and middle-income settings such as Indonesia, the practical challenge is not only the prevalence of mental-health problems but also the persistent distance between need and appropriate, timely support.

Indonesia illustrates this challenge with particular clarity. National survey evidence indicates that a substantial minority of Indonesian adolescents experience clinically significant mental-health problems and unmet psychosocial needs, including anxiety, depressive symptoms, and adjustment difficulties among transitional-age youth (Kaligis et al., 2021). The Indonesia National Adolescent Mental Health Survey similarly documents a considerable population-level burden of common mental disorders alongside markedly low treatment-seeking behavior among Indonesian adolescents (Center for Reproductive Health, Universitas Gadjah Mada et al., 2022). The synthesized evidence examined in the present review reports that 5.5% of adolescents aged 10–17 years met criteria for a mental disorder during the preceding 12 months, while only 4.7% of adolescents with a disorder accessed services. A separate estimate cited in the same evidence set suggests that only 2.6% of young people with mental-health problems reached services (Margaretha et al., 2026a; Wahdi et al., 2025; Yani et al., 2025). These figures should not be treated as interchangeable, because they refer to different populations, survey instruments, and operational definitions of service access; together, however, they document a substantial and persistent service-access problem among Indonesian adolescents.

School settings are consequently an important platform for population-level mental-health promotion. Schools can provide universal mental-health literacy, stigma reduction, early identification, referral, and social support while reaching adolescents who might not independently approach formal health services. A school-based survey conducted in Surabaya identified mental-health promotion as one of five key school mental-health program areas, while also describing counselor workforce shortages and implementation constraints that limit program reach (Margaretha et al., 2026a). Complementary qualitative work indicates that Indonesian school communities perceive mental health as an important but under-resourced priority, with ambiguous role boundaries between teachers, counselors, and health services (Margaretha et al., 2026b).

Peer counseling is particularly relevant in this context because adolescents often disclose distress to peers before approaching adults or professionals; qualitative accounts of Indonesian

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adolescents' help-seeking preferences and perceived barriers reinforce this pattern (Yani et al., 2025). Family and peer social support have both been associated with improved access to mental-health services and better psychological outcomes among Indonesian adolescents (Isni et al., 2023). However, the mechanism underlying peer counseling is not simple substitution of students for professional counselors: a safe peer model requires explicit role definition, structured training, ongoing supervision, referral pathways, confidentiality boundaries, safeguarding procedures, and integration with professional services. International systematic and umbrella reviews of peer-support and peer-led interventions confirm that effectiveness and safety depend heavily on these implementation features rather than on peer contact alone (Brinsley et al., 2025; Cooper et al., 2024). The evidence examined in the present review indicates that Indonesian peer-counseling programs remain unevenly developed across these implementation domains.

The evidence gap is particularly visible in causal evaluation. The only Indonesian peer-counselor training study identified in the corpus was a quasi-experimental validation of a structured training module, reporting a statistically significant improvement in counselor self-efficacy ($p = 0.019$) without follow-up beyond the immediate post-test (Supriyadi & Setiyawati, 2020). Community-based peer-education initiatives reported in the Indonesian gray and applied-practice literature similarly emphasize knowledge and attitude change as proximal outcomes, with limited longer-term or comparative evaluation (Febriana & Rochmawati, 2023). Thus, evidence that a peer model exists and can be delivered should not be confused with evidence that it improves population-level adolescent mental-health outcomes.

Cultural adaptation is another unresolved issue central to health-promotion practice. Brooks et al. (2021) described the participatory co-development of a culturally appropriate, user-centred mental-health literacy resource for young people in Java, while Hendayani et al. (2026) reported a film-based cultural narrative intervention addressing mental-health literacy and resilience among Indigenous adolescents. Qualitative work in Central Java further suggests that cultural norms emphasizing stoic endurance of hardship may shape how Indonesian adolescents disclose distress and seek peer support (Kholiq et al., 2025). These studies collectively demonstrate the value of locally grounded, participatory intervention design, but none directly establishes the effectiveness or long-term safety of a peer-counseling model specifically.

The present study consequently asks three research questions: (1) What is the structure of the available evidence on peer counseling for adolescent mental health in Indonesia? (2) Which intervention, implementation, and research domains remain under-evaluated? and (3) What study designs and implementation safeguards are needed to close the identified gaps? The objective is to provide a transparent, decision-relevant evidence map for Indonesian health-promotion researchers, school administrators, and policy stakeholders seeking to strengthen adolescent mental-health promotion through peer-mediated models.

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METHODS

This manuscript combines scoping-review logic with a descriptive research-network analysis, following the broad principles of evidence mapping: define the population and intervention, identify the available evidence, code study characteristics, group evidence by conceptual domain, and identify priority gaps. The curated evidence corpus underlying this review does not constitute a complete record export from Scopus, Web of Science, PubMed, or Dimensions; accordingly, the network component is explicitly limited to the analyzed corpus and should not be interpreted as a comprehensive, database-wide bibliometric census. This limitation is stated transparently in Section 4.9 and Appendix A specifies the reproducible protocol required before a full bibliometric submission.

The target population was adolescents in Indonesia, with supporting evidence drawn from closely related low- and middle-income-country adolescent populations (e.g., Kenya, Vietnam, and regional Southeast Asian contexts) when it directly informed mechanisms or implementation relevant to the Indonesian setting. The intervention domain of interest was peer counseling, peer support, peer education, or school-based peer-mediated mental-health promotion. Evidence on mental-health literacy, stigma, social support, and program implementation was retained when it provided a mechanism or contextual pathway relevant to peer counseling. The primary publication window was 2021–2026. The 2020 Indonesian training-validation study (Supriyadi & Setiyawati, 2020) was retained as a foundational intervention-development record because it is the only validated Indonesian peer-counselor training module identified and is directly cited by more recent Indonesian school mental-health literature.

Each record was coded for publication year; country and population; setting; intervention or exposure; study design; outcome domain; implementation mechanism; cultural adaptation; vulnerable subgroup; policy or intersectoral dimension; and evidence gap. The evidence-coverage matrix (Table 1) was preserved as the primary gap matrix. Counts in that matrix represent evidence coverage coded from the source synthesis and are not re-estimated as pooled effect sizes; no meta-analytic pooling was attempted given the heterogeneity of designs and outcomes. Each record was additionally classified by its directness to the review question (direct, partly direct, or indirect with respect to peer counseling for Indonesian adolescents) and by the kind of claim it can support (intervention feasibility, mechanism, need, or implementation context); this qualitative appraisal is summarized in Table 2 and was used to weigh sources against one another in the Results.

Network analysis in this review was conceptual rather than inferential. Nodes were defined as evidence domains peer-counselor training, school-based delivery, digital/peer integration, vulnerable subgroups, and policy/intersectoral integration with links representing shared mechanisms, shared populations, or cited evidence connecting domains. This approach avoids producing false numerical precision from a small, non-exported corpus. In a full bibliometric submission, the preferred workflow would export records from at least Scopus and/or Web of Science, deduplicate them, and calculate co-authorship, co-citation, bibliographic-coupling,

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and keyword co-occurrence networks using VOSviewer or Bibliometrix/Biblioshiny, as detailed in Appendix A.

The primary evidence gap was defined as the absence of randomized controlled trial (RCT) evaluation of peer counseling for Indonesian adolescents. Secondary gaps were the absence of long-term follow-up (beyond immediate post-test), inadequate evidence for vulnerable subgroups, incomplete cultural adaptation, workforce sustainability concerns, and weak health–education policy integration. Statistical evidence was reported only where it was present in the source material reviewed; no effect size, p-value, or confidence interval was generated or imputed from assumptions.

RESULTS

1. Evidence landscape

The mapped evidence is concentrated in five domains: peer-counselor training, school-based delivery, digital/peer integration, vulnerable subgroups, and policy/intersectoral integration. Table 1 reproduces the evidence-coverage matrix derived from the reviewed corpus. The matrix should be read together with the directness of the underlying sources. Only two records evaluate an Indonesian peer-based intervention directly (a quasi-experimental training validation and a community practice report). Most other records are Indonesian observational or qualitative studies of context and mechanism, or studies of adjacent populations and intervention categories (Table 2). Coverage counts therefore overstate the evidence available for peer counseling itself, and the sections below state, for each claim, how directly the cited source bears on it.

Table 1. Evidence coverage across five conceptual domains. "GAP" indicates that no evidence meeting the stated criterion was identified in the reviewed corpus; numerical entries indicate the number of mapped evidence items.

Evidence domain	RCT data	Mechanism	Long-term safety	Cultural adaptation
Peer-counselor training	1	2	GAP	1
School-based delivery	GAP	3	GAP	2
Digital/peer integration	GAP	1	GAP	2
Vulnerable subgroups	GAP	2	GAP	1
Policy/intersectoral	GAP	2	GAP	1

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Table 2. Directness and transferability of the principal evidence sources to peer counseling for Indonesian adolescents.

Source(s)	Evidence type and directness	What it can and cannot support
Supriyadi & Setiyawati (2020); Febriana & Rochmawati (2023)	Direct. Quasi-experimental training validation (pre–post); community peer-group counseling report without comparison group.	Supports feasibility of training and short-term gains in counselor self-efficacy and adolescent knowledge or attitudes. Cannot support recipient mental-health benefit, durability, or safety.
Isni et al. (2023); Kholiq et al. (2025); Maravilla et al. (2025)	Partly direct. Observational studies of naturally occurring social support among Indonesian adolescents (Maravilla pooled with Kenya and Vietnam).	Supports a plausible protective mechanism. Cannot support causal claims or effect sizes for structured peer counseling.
Wahdi et al. (2025); Kaligis et al. (2021); Yani et al. (2025)	Partly direct. National or population surveys and a qualitative study of Indonesian adolescents; no intervention.	Establishes need, the service-access gap, and help-seeking preferences. Has no bearing on effectiveness.
Margaretha et al. (2026a, 2026b); Nuryana & Herdian (2025)	Partly direct. School survey (Surabaya), qualitative school-community study, and policy-oriented analysis; no peer intervention tested.	Supports implementation constraints in schools. The two Margaretha studies share authors, and the survey is from one city, which limits independence and generalizability.
Brooks et al. (2021); Hendayani et al. (2026)	Indirect. Co-development and co-design studies targeting mental-health literacy.	Supports participatory design as feasible. Cannot show that peers are acceptable or effective delivery agents.
Tjandrarini et al. (2025); Ermiati et al. (2026)	Indirect. National survey analysis (disability and depression); research synthesis on pregnant adolescents; no peer	Supports equity-oriented design requirements and documents need. Cannot support effectiveness in these groups.

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Source(s)	Evidence type and directness	What it can and cannot support
	intervention.	
Newman et al. (2021); Cooper et al. (2024); Brinsley et al. (2025)	Indirect. Qualitative study in Southeast Asian HIV-related contexts; umbrella review of peer support for mental health; meta-analysis of peer-led health-behaviour interventions.	Supports general implementation principles (supervision, role clarity, referral). Effect sizes are not transferable without adaptation because topic, population, or intervention category differs.

2. Access and burden

The reviewed evidence reports two complementary indicators of unmet need, which are best read as convergent rather than additive. First, 5.5% of Indonesian adolescents aged 10–17 years met criteria for a mental disorder in the previous 12 months, and only 4.7% of those with a disorder accessed services (Wahdi et al., 2025). Second, a separate cited estimate indicates that only 2.6% of young people with mental-health problems reached services (Margaretha et al., 2026a). These measures use different denominators and survey instruments and should not be combined arithmetically. Both place service use below 5%, which is the consistent finding, but the corpus does not allow the difference between them to be attributed to any single cause. Complementary local evidence from Yogyakarta reports a significant association between peer social support and adolescents' access to mental-health services ($p = 0.018$, 95% CI [1.108, 2.608]), alongside a comparable association for family support (Isni et al., 2023). The lower bound of this interval lies close to 1.0, the null value for ratio measures, so the estimate is imprecise, and the cross-sectional design from one region cannot show whether peer support promotes service access or whether adolescents who already use services simply report more support. Together, the three indicators establish need and a plausible role for peer support, but they do not quantify what a structured peer-counseling program could add. Their importance for peer counseling is therefore conceptual: when specialist access is limited, low-intensity, school-linked, and supervised peer-support models may assist early engagement, provided that clear referral pathways to professional care are maintained.

3. Training evidence

The Indonesian peer-counselor training module validated by Supriyadi and Setiyawati (2020) is the key intervention-development study retained in the reviewed evidence. The study demonstrated a statistically significant improvement in peer-counselor self-efficacy ($p = 0.019$) using a quasi-experimental pre–post design; no effect size was available in the reviewed material

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and none was imputed, and no follow-up beyond the immediate post-test was reported. Related community-practice reports describe short peer-education sessions that improved adolescents' mental-health knowledge and attitudes in the immediate term, again without extended follow-up or comparison groups (Febriana & Rochmawati, 2023). Read together, the two records measure different links in the causal chain from training to benefit. The training study measures the confidence of the counselors, whereas the community report measures the knowledge and attitudes of adolescents; neither connects the two, neither measures recipient mental-health outcomes, and neither monitors adverse events. Because their participants, outcomes, and designs differ, the two results cannot be treated as mutually corroborating, and without a comparison group the community report cannot separate program effects from time or selection effects. In addition, improved self-efficacy shows greater confidence, not necessarily greater competence, and confidence that outpaces competence may itself be a safety concern in peer roles. The evidence therefore supports short-term training-related self-efficacy and knowledge improvement, but not long-term clinical effectiveness, safety, or population-level mental-health impact.

4. School implementation

The Surabaya school survey indicates that school mental-health promotion is already operational in Indonesia, but implementation is constrained by workforce limitations (Margaretha et al., 2026a). Guidance counselors reportedly experience high workloads and counselor-to-student ratios below national standards, producing over-reliance on peer counselors. Peer counselors may consequently be given responsibilities exceeding their training and may experience negative social responses to their role. Qualitative accounts of school-community perspectives corroborate this pattern, describing ambiguity in who is responsible for identifying and responding to student distress (Margaretha et al., 2026b), and policy-oriented analysis points to the same fragmentation between school and health systems (Nuryana & Herdian, 2025). Two qualifications temper this apparent convergence. First, the two Margaretha studies come from the same research group, so their agreement is not fully independent corroboration. Second, the survey was conducted in a single urban setting, and it is unknown whether the same counselor shortage and reliance on peers holds in rural or remote districts, where professional scarcity may plausibly be greater. Even so, peer counselors operating beyond their training is the finding with the most direct safety implication in the corpus, because it is the only Indonesian school evidence of peers working outside a supervised role. This makes supervision and referral safeguards central components of any future peer-counseling intervention.

5. Social support and peer mechanisms

The reviewed evidence also identifies a plausible mechanism through social support. Maravilla et al. (2025), using National Adolescent Mental Health Survey data from Kenya, Indonesia, and Vietnam, found that caregiver-focused support was associated with substantially lower odds of mental disorder and that peer support was associated with lower odds of suicidal

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ideation (OR = 0.59, reported here without a confidence interval, which limits judgment of its precision). A cross-sectional study in Central Java similarly found that peer support moderated and amplified the positive association between psychological help-seeking and psychological well-being among Indonesian adolescents (Kholiq et al., 2025). These studies, together with Isni et al. (2023) in Section 3.2, agree in direction but are not interchangeable: they differ in outcome (suicidal ideation, well-being, service access), in sample (a three-country survey, Central Java, Yogyakarta), and in what was measured (everyday perceived support rather than structured counseling). One pattern is worth noting. In Maravilla et al., caregiver support was linked to disorder status and peer support to suicidal ideation, which suggests that peer support is better framed as complementing family and professional support than as substituting for them, consistent with the stepped-care positioning in Section 4.2. All of these findings are observational, and reverse causation and confounding are plausible, since adolescents with fewer symptoms may find it easier to maintain peer relationships. They should therefore not be interpreted as evidence that a structured peer-counseling intervention would reproduce the same effect size; nevertheless, they justify testing peer-mediated support as a modifiable protective mechanism within a formal health-promotion program.

6. Cultural adaptation

The evidence for cultural adaptation is emerging but not yet intervention-specific to peer counseling. Brooks et al. (2021) co-developed a mental-health literacy resource with young people aged 11–15 years in Java, demonstrating the feasibility of user-centred and culturally appropriate design. Hendayani et al. (2026) reported a film-based cultural narrative intervention addressing mental-health literacy and resilience among Indigenous adolescents. Together with qualitative evidence on cultural norms of emotional restraint (Kholiq et al., 2025), these studies suggest that local language, narrative, identity, and community participation should be incorporated into peer-counselor models. Two features limit what can be drawn from them. First, both co-design studies target literacy through a resource or a film rather than peer delivery, so they show that participatory design is feasible, not that peers are acceptable delivery agents. Second, the finding that norms of stoic endurance shape disclosure cuts in two directions that the corpus cannot resolve: such norms might make peers a more acceptable first point of disclosure than adults, or might equally inhibit disclosure to peers. This is an empirical question for formative research in any adapted model, and the reviewed studies do not establish that a peer-counseling intervention has been culturally validated across Indonesia's diverse regions.

7. Vulnerable populations

The evidence map identifies major gaps for adolescents with disabilities, pregnant adolescents, Indigenous communities, and other groups experiencing structural barriers. Tjandrarini et al. (2025) reported markedly higher odds of depression among young adolescents with disabilities in underdeveloped areas of Indonesia, using the 2018 Indonesia Basic Health

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Survey. Ermiati et al. (2026) synthesized future adaptations of psychosocial programs for Indonesian pregnant adolescents. Both sources are of limited transferability to peer counseling: the first quantifies burden without evaluating any intervention, and the second concerns psychosocial programs generally rather than peer models. Their weight is therefore as evidence of need and of design requirements, not of what works, and the gap labelled for these groups is a gap defined by the absence of evaluation; it does not indicate that peer counseling would be effective, or ineffective, for them. A further consideration is that adolescents with disabilities and those in underdeveloped areas may be the hardest to reach through a school-based model, so the groups with the highest documented need could be those least served by the model under study. These populations require tailored safeguarding, accessibility, confidentiality, and referral pathways rather than simple replication of a general school-based peer-counseling model.

8. Workforce sustainability and policy

Newman et al. (2021) described burdens experienced by peer educators in HIV-prevention contexts in Southeast Asia, including insufficient referral options, workload concerns, and the need for ongoing professional supervision; systematic evidence on peer-support interventions more broadly confirms that supervision, role clarity, and organizational support are consistent determinants of both effectiveness and peer-provider well-being (Cooper et al., 2024). Two points limit transfer. Newman et al. is a qualitative study from other Southeast Asian settings, so it shows what peer providers report when referral options and supervision are lacking, not how often this happens or whether it happens in Indonesian schools. Cooper et al. pool peer support across populations and settings, so their conclusions on supervision and role clarity are general implementation principles rather than adolescent-specific estimates. Nonetheless, the pattern matches the Indonesian school evidence in Section 3.4: peer burden arises where referral options are thin and professional backup is stretched. Agreement between sources of different countries, designs, and authorship carries more weight than any single study, so this is relevant implementation evidence even though it is not a direct test of mental-health peer counseling in Indonesian schools. The reviewed corpus also identifies fragmented coordination between health and education sectors; Nuryana and Herdian (2025) and Margaretha et al. (2026a, 2026b) point to the need for stronger policy integration and clearly assigned intersectoral responsibility.

9. Network structure

The evidence network can be interpreted as a hub-and-gap structure (Table 3). Training connects to school delivery through counselor capacity; school delivery connects to social support and referral; cultural adaptation connects to literacy and stigma reduction; vulnerable populations connect to safeguarding and accessibility; and policy integration connects all domains through workforce and referral governance. The network is therefore more mature around implementation descriptions and mechanistic evidence than around causal effectiveness, mirroring patterns observed in international systematic reviews of peer-support interventions, where implementation

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heterogeneity outpaces the availability of rigorous trial evidence (Brinsley et al., 2025; Cooper et al., 2024). The structure is also asymmetrical. Workforce and referral governance is the one node linked to every other domain, and it is the node the Indonesian evidence describes as weakest (Sections 3.4 and 3.8). Gains in training, cultural adaptation, or digital reach would therefore be constrained by this link unless it is addressed first or at the same time. This is an interpretation of a conceptual network and not an empirical network metric.

Table 3. Evidence-to-research-priority matrix derived from the network analysis.

Domain	Evidence status	Priority research question
Training	Foundational module; quasi-experimental evidence	Does standardized training improve counselor competence and recipient outcomes over 6–12 months?
School delivery	Implemented; substantial workforce constraints	What supervised delivery model is feasible across school types?
Digital/peer	Early literacy and digital evidence; no peer-counseling RCT	Can hybrid peer–digital models expand reach without reducing safety?
Vulnerable groups	Large unmet evidence need	How should peer models be adapted for disability, pregnancy, Indigenous identity, and other vulnerabilities?
Policy	Fragmented health–education linkage	What national standards define supervision, referral, confidentiality, and accountability?

10. Cross-cutting synthesis

Weighing the sources against one another yields four patterns. First, every intervention-level record reports proximal outcomes only (self-efficacy, knowledge, attitudes), so every link in the chain from training to recipient benefit beyond the first is untested. Second, implementation sources converge: Indonesian school and policy evidence (Margaretha et al., 2026a, 2026b; Nuryana & Herdian, 2025) and non-Indonesian peer-provider evidence (Newman et al., 2021; Cooper et al., 2024) all identify supervision, role clarity, and referral as the binding constraints. The Indonesian sources are not fully independent, but concordance with international sources of different design raises confidence in this finding relative to others. Third, the observational studies agree in direction but not in outcome, since peer support is associated with favorable results in all of them while each measures something different, so no quantity can be compared or pooled. Fourth, there is a transferability gradient: the sources strongest by design (national surveys, an umbrella review, a meta-analysis) are the most indirect to Indonesian peer counseling, whereas the

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most direct sources are the weakest by design (Table 2). This gradient is the structural reason why further descriptive work cannot close the gap and the basis for prioritizing trial evidence in Section 4.4. No source in the corpus contradicts another on a substantive point, but this reflects thin evidence rather than consensus, because few studies address the same question with the same outcome.

DISCUSSION

This review identifies a central implementation–evaluation paradox: peer support is attractive because it can be embedded in the places where adolescents already live and learn, yet the Indonesian evidence base has not progressed to the level required to establish causal effectiveness, durability, and safety. The issue is therefore not whether peer counseling is intuitively acceptable as a health-promotion strategy; it is whether it can be implemented as a clearly defined intervention with measurable benefits and controlled risks.

The Indonesian evidence base can be positioned against two international syntheses on which this review draws, although neither is an exact comparator. Brinsley et al. (2025) meta-analyzed peer-led health-behaviour interventions for adolescent mental health and wellbeing, and Cooper et al. (2024) conducted an umbrella review of peer support approaches for mental health across populations.

Three comparisons follow regardless of the exact estimates. First, the intervention categories differ from the object of this review: the meta-analysis concerns peer-led health-behaviour interventions evaluated on mental-health outcomes, and the umbrella review pools peer support across populations, so neither provides an effect size that can be carried over to school-based peer counseling in Indonesia. Second, whether the Indonesian gap is typical or exceptional depends on the volume of trial evidence from low- and middle-income and Southeast Asian settings within these syntheses. If that evidence is sparse, the Indonesian shortfall is a local expression of a global imbalance; if it is well represented, the absence of an Indonesian trial is a genuine exception, which strengthens the case for local trials. The inserted data above should be used to state which of the two holds. Third, as noted in the Introduction, both syntheses tie effectiveness and safety to implementation features such as training, supervision, and defined roles. Because the Indonesian evidence suggests that these conditions are inconsistently met (Section 3.4), pooled international effects are better treated as upper bounds on what Indonesian programs might achieve than as predictions.

Health-promotion frameworks emphasize enabling people and communities to increase control over the determinants of their health. In adolescent mental health, peer models can operationalize this principle by increasing mental-health literacy, normalizing help-seeking, providing low-threshold social support, and strengthening links between students and adult services. However, peer counseling should be positioned as one component of a stepped-care support system rather than a replacement for professional assessment and treatment. The service-access findings strengthen this argument but also highlight a risk: if schools compensate for

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insufficient professional capacity by transferring clinical responsibility onto students, the intervention may reproduce the workforce gap rather than solve it. The reviewed evidence on counselor workload and peer-counselor burden supports a model in which students hold clearly bounded roles, receive regular supervision, and have rapid escalation pathways to qualified professionals. The risks of this approach are examined separately in Section 4.5.

The $p = 0.019$ finding from the Indonesian training-validation study is encouraging as an educational outcome, but it should be interpreted narrowly, since self-efficacy is a proximal rather than a clinical or behavioral outcome. Because training outcomes to date were measured as self-efficacy, future evaluations should also assess observed competence (for example, through role-play or standardized scenarios) so that confidence outpacing competence can be detected. Future trials should include competency-based assessments, fidelity measures, recipient outcomes, adverse-event monitoring, referral completion rates, and counselor well-being indicators. Training curricula should cover active listening, recognition of risk indicators, confidentiality limits, cultural humility, safeguarding procedures, referral pathways, and professional boundaries. Supervision should be scheduled and structured rather than ad hoc, consistent with implementation lessons from international peer-support and peer-education literature (Cooper et al., 2024; Newman et al., 2021).

A cluster-randomized controlled trial is the most informative next design, because randomization can occur at the school or classroom level while reducing contamination between peer counselors and control participants. A pragmatic design should compare peer counseling plus usual school support against usual school support alone, with outcomes measured at baseline, immediate post-intervention, 6 months, and 12 months. Primary outcomes could include validated measures of psychological distress or well-being; secondary outcomes could include help-seeking behavior, mental-health literacy, stigma, referral completion, school attendance, and peer-counselor burden. The trial should be powered for clustering and anticipated attrition and should pre-specify subgroup analyses for vulnerable populations. Where school-level randomization is not feasible, for example because of district-led rollout, a stepped-wedge design and an embedded process and cost evaluation are alternatives that still permit comparison. Importantly, absence of evidence is not evidence of no effect: the current gap means that effect estimates for Indonesian peer counseling remain genuinely uncertain. The objective of the next generation of studies should be to replace implementation anecdotes with reproducible estimates of benefit, harm, and cost, in line with methodological standards established by international peer-support meta-analyses (Brinsley et al., 2025).

Safety is thinner in evidence than effectiveness: the Indonesian corpus contains no study that systematically measures harm. The risks can nonetheless be organized by who bears them and by what in the corpus supports the concern (Table 4). For peer counselors, Margaretha et al. (2026a) report negative social responses and responsibilities exceeding training, and Newman et al. (2021) describe workload and burden where referral options are limited. For recipients, the principal risks are missed or under-recognized risk, unsafe or inappropriate advice, breaches of

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confidentiality, and delayed referral. The association between peer support and lower suicidal ideation (Maravilla et al., 2025) and the finding that adolescents tend to disclose to peers first (Yani et al., 2025) indicate that peers are present at exactly the point where risk detection matters, yet no study in the corpus evaluates how well peers detect or escalate risk. At the system level, the main risk is displacement: if peer counselors compensate for a counselor shortfall, the program may entrench the workforce gap rather than reduce it (Section 4.2).

Indonesia's linguistic, cultural, geographic, and educational diversity makes a single national script unlikely to be sufficient for all regions and communities. Cultural adaptation should be participatory and iterative, involving adolescents, parents or caregivers, teachers, school counselors, health workers, and community representatives. The Java-based co-development work reported by Brooks et al. (2021), the Indigenous cultural narrative intervention reported by Hendayani et al. (2026), and qualitative evidence on cultural norms of emotional restraint (Kholiq et al., 2025) together support the principle of participatory co-design. For peer counseling specifically, adaptation should also address culturally specific interpretations of distress, help-seeking norms, family involvement, privacy expectations, gender, disability, and community authority structures.

Digital mental-health literacy and peer-support platforms may extend reach to adolescents who are geographically isolated or reluctant to seek face-to-face support. The corpus offers limited support for this: the film-based narrative intervention of Hendayani et al. (2026) and the co-developed resource of Brooks et al. (2021) show that digitally mediated or resource-based literacy content can be co-designed with Indonesian adolescents. Neither evaluates peer interaction online, and no study in the corpus tests a moderated peer-support platform in Indonesia; the current evidence map accordingly records digital/peer integration as a domain with some mechanistic and cultural-adaptation evidence but no identified RCT evidence for an Indonesian peer-counseling model delivered digitally. The requirements usually listed for digital delivery (data privacy, content moderation, identity verification, crisis-escalation protocols, misinformation control, and unequal access to devices or connectivity) therefore derive from general principles of online safety rather than from Indonesian findings, and are best treated as design requirements to be tested. Two considerations specific to this corpus affect their priority. First, the groups with the greatest documented need, such as adolescents with disabilities in underdeveloped areas (Tjandrarini et al., 2025), plausibly face the greatest connectivity and device constraints, so digital reach could widen equity gaps unless offline pathways are retained. Second, an online peer channel moves peer interaction outside the supervised school day, which makes the escalation problem in Table 4 harder, because crisis disclosures may occur when no supervisor is available. A defensible research sequence is therefore to test digital components as an adjunct to a supervised school-based model, with out-of-hours escalation pathways specified in advance, rather than as a stand-alone alternative. This represents a clear opportunity for hybrid implementation research combining school-based and digital delivery channels.

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Peer counseling cannot be sustained by schools alone. A national implementation framework should specify minimum training standards, supervision ratios, referral pathways, confidentiality rules, safeguarding procedures, documentation requirements, and quality indicators. Such a list becomes actionable only when each element is assigned to existing Indonesian structures, three of which are relevant to the setting described in the corpus. School guidance counselors (guru BK) provide first-line professional counseling in schools and are the natural supervisors of peer counselors. However, their workloads and ratios below national standards (Margaretha et al., 2026a) mean that supervision cannot simply be added to existing duties without adjusting workload or ratios, or the supervisory link on which the model depends will fail. The school health program (Usaha Kesehatan Sekolah, UKS) is the established platform for school health promotion and involves both education and health sectors, positioning peer counseling within UKS rather than as a stand-alone initiative would anchor the intersectoral accountability called for by Nuryana and Herdian (2025). Primary health centers (Puskesmas), including adolescent-friendly health services (PKPR) where are the closest health-sector referral point. Referral works only if Puskesmas staff can assess and manage adolescent mental-health problems, and neither this capacity nor referral completion is documented in the corpus, so referral completion should be an explicit outcome rather than an assumption. One plausible division of responsibility is that peers provide supportive contact, literacy, and early identification; guru BK provide supervision and school-level case management; and Puskesmas provide assessment and clinical care, with UKS coordinating the arrangement. Health and education authorities should jointly define accountability so that peer counselors are not placed in quasi-clinical roles without adequate professional backup. Policy evaluation should examine not only whether a program is formally adopted but whether it is delivered with fidelity and sustained over time, echoing recommendations for stronger health–education policy integration in the Indonesian context (Nuryana & Herdian, 2025).

The principal strength of this review is the direct integration of Indonesian implementation evidence, adolescent mental-health service-use data, cultural-adaptation studies, and a structured evidence-gap matrix, distinguishing intervention evidence from contextual and mechanistic evidence. The principal limitation is equally important: the reviewed corpus is not a complete bibliographic export from major databases. Consequently, this manuscript cannot honestly claim exhaustive bibliometric coverage, publication-count trends, author-centrality metrics, or database-wide co-citation statistics. The numerical evidence map should therefore be understood as a structured, transparent synthesis of the identified evidence rather than a definitive bibliometric census. Before journal submission, a reproducible multi-database search, screening log, PRISMA-ScR flow diagram, complete bibliographic export, and software-generated network files (e.g., from VOSviewer or Bibliometrix) should be added, following the protocol outlined in Appendix A. A second limitation concerns the evidence itself. Most of the corpus is indirect (Table 2), some sources share authors, and the two international syntheses discussed in Section 4.1 address adjacent intervention categories. The directness and transferability judgments in Table 2 are

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qualitative appraisals by the author, no formal risk-of-bias assessment is reported in the Methods, and the proposed safeguards in Table 4 are derived from the reviewed evidence and general implementation principles rather than from tested Indonesian models.

CONCLUSIONS

The available evidence indicates that peer counseling is already relevant to Indonesian school-based mental-health promotion, but the research base remains substantially stronger for training, literacy, social-support mechanisms, and implementation description than for causal effectiveness or long-term safety. The most important gaps are the absence of Indonesian randomized controlled trials of peer counseling, lack of 6–12-month follow-up, limited evidence for vulnerable groups, incomplete cultural adaptation, workforce sustainability concerns, and fragmented health–education integration. Because most of the supporting evidence is indirect, these conclusions describe the structure of the evidence and priorities for research rather than the effectiveness of peer counseling.

A next-generation research agenda should therefore prioritize cluster-randomized pragmatic trials, standardized competency-based training, routine and structured supervision, explicit safeguarding and referral systems anchored in existing school and health structures (guru BK, UKS, and Puskesmas), participatory culturally adapted models, digital governance frameworks, and rigorous implementation-outcome measurement. Such an agenda would allow Indonesia to move from promising school-based practice toward a measurable, equitable, and sustainable adolescent mental-health promotion system, consistent with global guidance on adolescent mental-health promotion (WHO, 2021, 2022; WHO & UNICEF, 2021).

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