



Empowering Educators, Supporting Students: A Quasi-Experimental Evaluation of a Train-the-Trainer Model for School Mental Health in Indonesia

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ABSTRACT

Adolescent mental health is a pressing concern in urban Indonesian schools, where a significant gap exists between student needs and the availability of professional support. This study evaluated the efficacy of a culturally-adapted, school-based "Train-the-Trainer" (TtT) community service model designed to build sustainable mental health support capacity by empowering teachers. A quasi-experimental study with a matched control group was conducted in 20 public high schools in South Sumatera, Indonesia. Ten schools (n=150 teachers, n=1500 students) received the TtT intervention, where core teachers were trained to cascade mental health literacy and foundational support skills to their peers. Ten matched schools (n=145 teachers, n=1450 students) served as a control group. Data on teacher self-efficacy, student-reported support awareness, and school mental health policies were collected at baseline, 6-months, and 12-months. A linear mixed-effects model revealed a significant time-by-group interaction, with teachers in the intervention group reporting substantially higher confidence in supporting students at 12 months (M=4.15, 95% CI [4.01, 4.29]) compared to the control group (M=2.51, 95% CI [2.37, 2.65]), a large effect (d=2.41). Intervention students were significantly more likely to know how to access support (78% vs. 27%; OR=9.82, 95% CI [8.11, 11.89], p < 0.001). Intervention schools demonstrated a massive increase in formalized mental health protocols compared to control schools (IRR=7.94, p < 0.001). In conclusion, the TtT model is a highly effective and scalable strategy for building a foundational mental health support system within existing school structures in resource-constrained settings. By investing in local educators, this model fosters a sustainable, multi-tiered support ecosystem, offering a viable pathway for national policy and practice in Indonesia.

1. Introduction

Adolescent mental health is a global public health imperative with profound, lifelong consequences for individual well-being, academic attainment, and societal prosperity. The World Health Organization reports that up to one in five adolescents globally experiences a mental health condition, with 50% of all mental illnesses emerging by the age of 14. In low- and middle-income countries such as Indonesia, this

challenge is amplified by the convergence of rapid urbanization, socioeconomic flux, and evolving cultural pressures, creating a formidable environment of vulnerability for young people. Schools, as the epicenters of adolescent life, are uniquely and strategically positioned to function as the frontline for mental health promotion, prevention, and crucial early intervention.^{1,2}

Indonesia, the world's fourth most populous

nation, confronts a stark reality: a severe deficit in its mental healthcare infrastructure. The national ratio of psychiatrists is approximately 0.5 per 100,000 people, a figure dramatically below the global average and critically insufficient to address the escalating demand for services. This scarcity permeates the educational system, where dedicated mental health professionals like school psychologists or credentialed counselors are a rarity. This systemic gap results in teachers often becoming the de facto first responders to the emotional and psychological distress of their students. However, these educators are seldom equipped with the formal training, validated resources, or systemic support necessary to fulfill this complex role safely and effectively. This "treatment gap" leaves countless adolescents struggling in silence, vulnerable to poor academic outcomes, social marginalization, and the onset of enduring mental illness.³⁻⁵

Conventional models of mental healthcare delivery, which are predicated on one-on-one interventions by specialized professionals, are neither scalable nor financially sustainable within the Indonesian context. There is an urgent and undeniable need for innovative, community-embedded approaches that build local capacity and weave a sustainable support system from within the existing social fabric. The "Train-the-Trainer" (TtT) model, a pedagogical strategy widely and successfully employed in public health and education for cascading knowledge and skills, presents a highly promising solution. By intensively training a core group of motivated individuals who then assume the responsibility of educating their peers, the TtT model facilitates the rapid, cost-effective dissemination of expertise. Crucially, this approach fosters a profound sense of local ownership, collective efficacy, and long-term sustainability that external, top-down initiatives often fail to achieve. While the utility of TtT models is well-documented in various health promotion domains, their rigorous application and evaluation for school-based mental health in Southeast Asia, and specifically Indonesia, remains a significant gap in the scientific literature.^{6,7}

This study was designed to address this critical gap

by developing, implementing, and rigorously evaluating a TtT community service program for school-based mental health support across urban centers in South Sumatera, Indonesia. The program was born from a collaborative partnership between university-based mental health experts and regional education authorities, with the shared goal of empowering high school teachers with the core competencies essential for supporting student well-being. These competencies included enhanced mental health literacy, practical skills for identifying students experiencing distress, foundational communication and psychological first aid skills, and a functional knowledge of local referral pathways. The TtT model was deliberately chosen to maximize reach and catalyze the program's integration into the schools' own operational and cultural fabric, thereby creating a self-perpetuating ecosystem of support.

The primary aim of this study is to evaluate the efficacy of this TtT model using a quasi-experimental design. Specifically, we sought to determine if the intervention could produce statistically and educationally significant improvements in: (1) teachers' confidence and self-efficacy in providing initial mental health support; (2) students' awareness of and perceived access to supportive resources within their school; and (3) the formalization of mental health support protocols at the institutional level.

The novelty of this research is threefold. First, it provides a rigorous evaluation of the TtT model as a scalable community service solution to a systemic deficit in school mental health infrastructure within an under-resourced, non-Western context. Second, by focusing on building capacity within the existing educational workforce, this study offers a powerful alternative to externally-driven, specialist-dependent service delivery models. Third, it contributes crucial evidence for a sustainable, culturally-attuned approach that can be adapted and scaled to address the urgent mental health needs of adolescents across the diverse archipelago of Indonesia and in other similar LMIC settings. The findings are intended to provide policymakers, educational leaders, and

community service programs with an evidence-based blueprint for building resilient, health-promoting school environments from the ground up.

2. Methods

This study utilized a quasi-experimental, non-equivalent control group design with data collection at three time points: baseline (T0), 6-month follow-up (T1), and 12-month follow-up (T2). This design was selected for its high external validity and practical feasibility in educational setting where the random assignment of individual schools was precluded by administrative and logistical constraints.

The study was conducted in twenty public senior high schools (Sekolah Menengah Atas - SMA) located in three major urban centers of South Sumatera province, Indonesia. These schools serve students aged 15-18 and are characteristic of urban Indonesian public schools, featuring large class sizes and limited ancillary student support services. The study protocol received ethical approval from the Institutional Review Board of Enigma Institute, Indonesia, and was registered with the local education authority.

To mitigate selection bias inherent in a non-randomized design, a rigorous matching procedure was employed. First, a pool of 35 eligible schools was identified. School-level data were obtained from the Regional Education Authority database. Socioeconomic status (SES) of the school's catchment area was operationalized using a composite index based on district-level data of mean parental education level and income. Schools were then stratified into ten pairs based on this SES index. Within each pair, schools were matched for similarity on school size (total student enrollment) and student-to-teacher ratio. Finally, within each matched pair, one school was quasi-randomly assigned to the intervention group (n=10) and the other to the control group (n=10) via a coin toss conducted by a researcher not involved in recruitment. This procedure ensured the groups were balanced on key potential confounding variables at baseline.

A total of 295 teachers (150 in the intervention

group, 145 in the control group) were recruited. Inclusion criteria were: (1) full-time teaching status at a participating school, (2) a minimum of two years of teaching experience, and (3) provision of written informed consent. There were no exclusion criteria based on subject taught. A two-stage stratified random sampling procedure was used to recruit a representative sample of students. First, within each of the 20 schools, students were stratified by grade level (Grade 10 and Grade 11). Second, within each stratum, a systematic random sample was drawn from official school enrollment lists by selecting every 5th student. This resulted in a total sample of 2,950 students (1,500 in the intervention group, 1,450 in the control group). Written informed consent was obtained from parents or legal guardians, and written assent was obtained from all participating students. The intervention was a culturally-adapted, multi-phase TtT program developed through a co-design process involving university researchers, educational psychologists, and a panel of local senior teachers and school principals.

Phase 1: Master Trainer Selection and Intensive Training (Months 1-2)

School principals in the 10 intervention schools were asked to nominate 3-5 teachers to become "Master Trainers" based on criteria including intrinsic motivation, strong interpersonal skills, and being respected by their peers. The selected teachers (N=40) attended a 5-day (40-hour) intensive workshop facilitated by university experts. The curriculum was highly interactive and included: (1) Module 1: Adolescent Mental Health Literacy: This module was culturally adapted to frame discussions of mental health challenges using local idioms of distress (such as *tekanan batin* or 'inner pressure') alongside clinical terms for anxiety, depression, and stress. It focused on recognizable behavioral, emotional, and academic signs in adolescents and used case vignettes reflecting local contexts to challenge stigma; (2) Module 2: Psychological First Aid (PFA) for Schools: The standard PFA model was adapted from a disaster-response framework to an everyday school context. It

emphasized the core principles of "Look, Listen, and Link" for providing immediate, non-intrusive psychosocial care in a supportive, practical manner to any student appearing distressed; (3) Module 3: Foundational Support and Communication Skills: This module focused on practical skills. Active listening was taught with an emphasis on non-verbal cues and patience, aligning with Indonesian communication norms that often value indirectness. Empathy was framed through the Javanese cultural concept of *tepo seliro* (the ability to feel what others feel), a familiar and valued social trait. Crucially, this module established professional boundaries, explicitly defining the teacher's role as a supportive first responder, not a therapist; (4) Module 4: Ethical Protocols and Referral Pathways: This section provided clear, step-by-step protocols for high-risk situations, such as disclosures of self-harm, suicidal ideation, or abuse, mandating immediate reporting to a designated school leader who would activate a link with the local community health center (Puskesmas). The module involved mapping locally available (though scarce) resources, including the Puskesmas, religious leaders, and youth organizations, and training teachers on how to perform a "warm handover." (5) Module 5: Teacher Well-being and Self-Care: Acknowledging the risk of burnout, this module provided teachers with strategies for managing the emotional toll of their supportive role and emphasized the importance of peer support; (7) Module 6: Adult Learning and Facilitation: This TtT component provided the Master Trainers with pedagogical techniques, facilitation skills, and materials to effectively train their peers. Competence was assessed through role-playing scenarios with standardized feedback.

Phase 2: Cascaded In-School Training and Fidelity Monitoring (Months 3-6)

The Master Trainers returned to their schools and delivered a standardized, 16-hour version of the training to their colleagues over several weeks. To ensure implementation fidelity, Master Trainers used a detailed facilitator's guide and a content checklist for each module. The research team conducted

unannounced fidelity observations for a random sample of 15% of the cascaded training sessions, using a standardized fidelity assessment tool.

Phase 3: Implementation and Consolidation (Months 7-12)

Following the training, schools were mandated to form a "Student Well-being Committee" led by the Master Trainers and including the school principal and other key staff. This committee was tasked with embedding the new practices into the school's formal systems, developing written protocols, organizing awareness events, and establishing a safe, designated space for students to seek support. The research team provided bi-weekly mentorship calls to the Master Trainers throughout this phase. The control group schools received no intervention and continued with their standard practices. The full training program was offered to the control schools after the completion of the 12-month data collection.

Data were collected via paper-based surveys administered by trained research assistants who were independent of the intervention team and blind to school allocation. All instruments underwent a rigorous translation and back-translation process from English to Bahasa Indonesia to ensure conceptual and linguistic equivalence. (1) Teacher Confidence in Mental Health Support (Primary Outcome): The 15-item Teacher Self-Efficacy in Mental Health Support Scale (TSEMHS) was developed for this study. Item generation was based on a review of existing literature and three focus groups with Indonesian teachers. An expert panel of five educational psychologists and three senior educators established content validity (average Scale-Content Validity Index = 0.92). A pilot study with 120 teachers was conducted. An Exploratory Factor Analysis (EFA) revealed a clear two-factor structure (Identification Skills and Response Skills), which was then confirmed with a Confirmatory Factor Analysis (CFA) on the main study sample at baseline, demonstrating excellent model fit (CFI=.97, TLI=.96, RMSEA=.05, SRMR=.04). Sample items, like "How confident are you in recognizing the signs of depression in a student?",

were rated on a 5-point Likert scale (1=Not at all confident, 5=Very confident). The scale showed high internal consistency (Cronbach's $\alpha = 0.91$) and good test-retest reliability over a two-week period in the pilot sample ($r = 0.85$); (2) Student Perceptions of Support (Secondary Outcome): The 10-item School Mental Health Environment Scale (SMHES) was adapted from the School Climate and Connectedness Survey, with permission. It assessed students' awareness of support systems and willingness to seek help. It included binary items, like "If you were feeling very stressed or sad, would you know who to talk to at school?", and Likert-scale items; (3) School Policy and Protocol (Secondary Outcome): A School Mental Health Policy Checklist, an 8-item tool developed for this study, was completed by the school principal at each time point. It assessed the presence (1) or absence (0) of formal, documented procedures, such as, "Does the school have a written protocol for referring a student to external mental health services?". The total score ranged from 0 to 8.

All data were analyzed using SPSS Version 28.0 and R for mixed-effects modeling. Independent t-tests and chi-square tests were used to compare the intervention and control groups on all demographic and school-level variables at baseline. To account for the nested structure of the data (teachers within schools) and repeated measures, a linear mixed-effects model (LMM) was used. The model included fixed effects for time, group (intervention vs. control), and

the time-by-group interaction, with teacher age, gender, and years of experience as covariates. A random intercept for school was included to account for school-level clustering. The intraclass correlation coefficient (ICC) was calculated at baseline. The magnitude of the intervention effect at 12 months was calculated using Cohen's d. A logistic regression was used to analyze the binary student awareness item at 12 months, controlling for group assignment and clustering at the school level. The result is presented as an Odds Ratio (OR) with a 95% confidence interval.

Given the nature of the policy checklist score as count data (0-8), a generalized linear mixed model (GLMM) with a Poisson distribution and a log link function was used to analyze changes over time. The model included fixed effects for time, group, and their interaction, with a random intercept for school. The effect is reported as an Incidence Rate Ratio (IRR). An alpha level of $p < 0.05$ was used to determine statistical significance for all analyses.

3. Results and discussion

A total of 20 schools, 295 teachers, and 2,950 students participated. Attrition was minimal, with over 95% of participants retained at the 12-month follow-up. The intervention and control groups were well-matched at baseline on all measured school-level and teacher demographic characteristics, with no statistically significant differences observed (Table 1). This confirms the success of the matching procedure.

Table 1. Baseline Characteristics of Participating Schools and Teachers

CHARACTERISTIC	INTERVENTION GROUP	CONTROL GROUP	TEST STATISTIC	P-VALUE
School Level (n=20 schools)				
Mean School Size (Students)	850 (SD=120)	835 (SD=115)	$t(18)=0.28$	0.782
Mean Student-Teacher Ratio	18.5 (SD=2.1)	18.2 (SD=2.4)	$t(18)=0.46$	0.651
SES Index Score	5.6 (SD=1.1)	5.5 (SD=1.3)	$t(18)=0.19$	0.851
Teacher Level (n=295 teachers)				
Mean Age (Years)	41.2 (SD=8.5)	40.8 (SD=9.1)	$t(293)=0.34$	0.733
Gender (% Female)	68.0%	71.0%	$\chi^2(1)=0.29$	0.590
Mean Years of Experience	14.5 (SD=7.2)	13.9 (SD=6.8)	$t(293)=0.65$	0.514
Prior Mental Health Training (%)	5.3%	4.1%	$\chi^2(1)=0.13$	0.712
Baseline TSEMHS Score	2.45 (SD=0.61)	2.42 (SD=0.58)	$t(293)=0.41$	0.682

Notes: Comparison of intervention and control groups at the start of the study. Values are presented as mean (SD) or percentage (%)

The intraclass correlation coefficient (ICC) for the TSEMHS score at baseline was 0.14, indicating that 14% of the variance in teacher confidence was attributable to differences between schools, justifying the use of a mixed-effects model. The linear mixed-effects model revealed a highly significant time-by-group interaction effect ($F(2, 582) = 52.81, p < 0.001$), indicating that the trajectory of change in confidence scores was substantially different between the intervention and control groups. As depicted in Figure 1, both groups began with similar low levels of confidence. The intervention group demonstrated a

sharp increase at 6 months ($M=3.85, 95\% \text{ CI } [3.71, 3.99]$) which further increased at 12 months ($M=4.15, 95\% \text{ CI } [4.01, 4.29]$). In contrast, the control group's confidence remained consistently low across the study period ($T2 \text{ } M=2.51, 95\% \text{ CI } [2.37, 2.65]$). The model's fixed-effects coefficients are detailed in Table 2. The interaction term for the intervention group at 12 months was large and significant ($\beta = 1.67, p < 0.001$), confirming the intervention's powerful effect. The between-group difference at the 12-month follow-up corresponds to a large effect size ($d = 2.41$).

Mean Teacher Confidence (TSEMHS) Scores Over Time

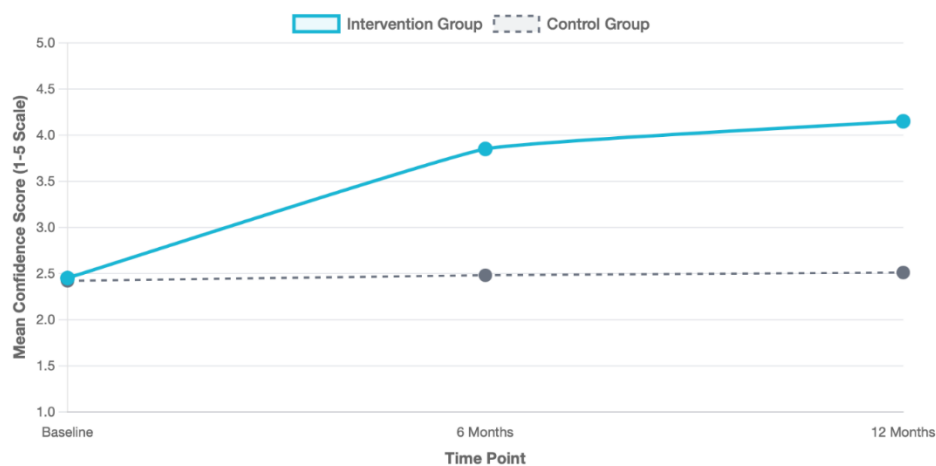


Figure 1. Mean Teacher Confidence (TSEMHS) scores over time. This chart illustrates the change in teacher self-efficacy in providing mental health support over a 12-month period. The intervention group shows a dramatic and sustained increase in confidence following the training, while the control group's confidence remains unchanged.

Table 2. Fixed-Effects from Linear Mixed-Effects Model Predicting Teacher Confidence

PARAMETER	COEFFICIENT (B)	STD. ERROR	95% CONFIDENCE INTERVAL	P-VALUE
Intercept	2.42	0.11	[2.20, 2.64]	<0.001
Time (6 Months)	0.06	0.04	[-0.02, 0.14]	0.138
Time (12 Months)	0.09	0.04	[0.01, 0.17]	0.025
Group (Intervention)	0.03	0.16	[-0.28, 0.34]	0.850
Time (6 mo) * Group (Int)	1.34	0.06	[1.22, 1.46]	<0.001
Time (12 mo) * Group (Int)	1.67	0.06	[1.55, 1.79]	<0.001

Note: Covariates for teacher age, gender, and years of experience were included in the statistical model but are not shown for brevity.

There was a profound effect of the intervention on students' reported awareness of how to access mental health support. At baseline, the proportions were similar (28% in intervention vs. 25% in control). At the 12-month follow-up, 78% of students in intervention schools reported knowing who to talk to at school,

compared to only 27% in control schools (Figure 2). A logistic regression confirmed that students in the intervention group had nearly 10 times the odds of knowing how to access support compared to control students at 12 months (OR=9.82, 95% CI [8.11, 11.89], $p < 0.001$).

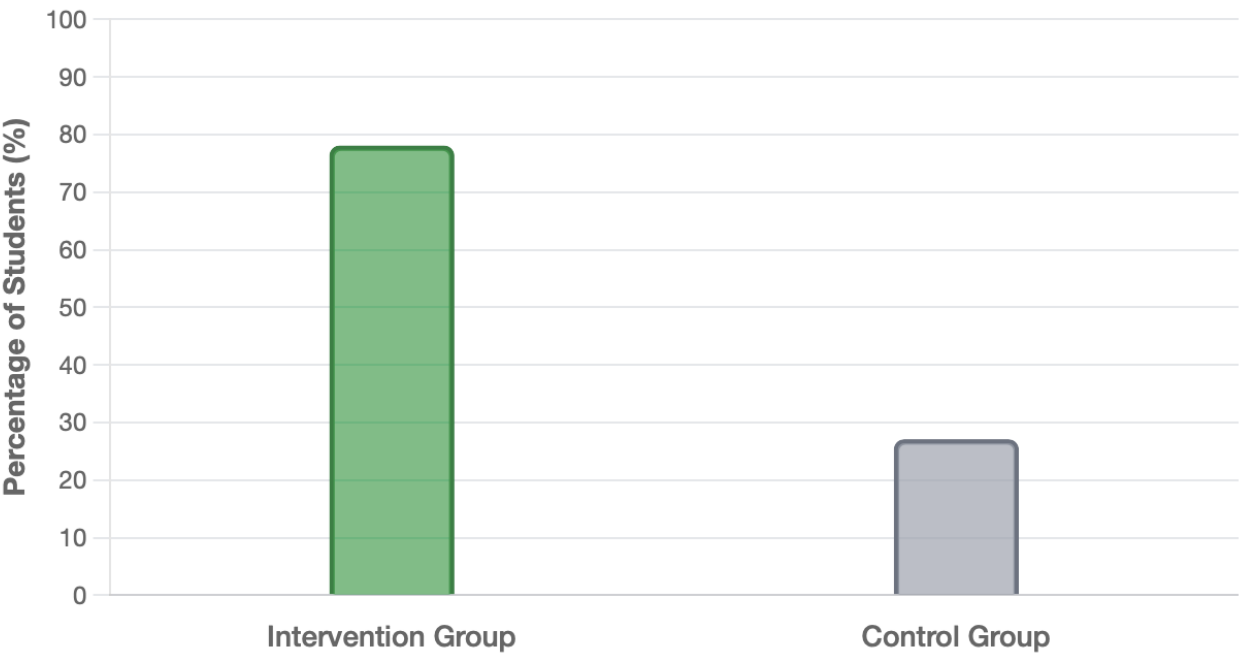


Figure 2. Percentage of students reporting knowledge of how to access support at 12-month follow-up. This chart displays the percentage of students who answered "Yes" to the question: "If you were feeling very stressed or sad, would you know who to talk to at school?". The result highlights a dramatic difference in awareness between students in the intervention and control schools after 12 months.

The GLMM analysis of the School Mental Health Policy Checklist scores revealed a significant time-by-group interaction ($p < .001$). At baseline, schools in both groups had minimal formal policies (mean scores of 0.8 and 0.7, respectively). By the 12-month follow-up, the mean score for intervention schools had surged to 6.4 (SD=1.2), while the control schools showed negligible change with a mean score of 1.1 (SD=0.9). The model indicated that the rate of having formal policies in place was nearly 8 times higher in the intervention group compared to the control group over the study period (Incidence Rate Ratio [IRR] = 7.94, 95% CI [5.51, 11.45], $p < .001$). This signifies a

systemic shift from informal practices to formalized, institutionalized support structures in the intervention schools.

This study provides robust evidence that a culturally-adapted, university-led Train-the-Trainer (TtT) community service model can be a powerful catalyst for building foundational school-based mental health support systems in urban Indonesia. The intervention yielded large and statistically significant improvements across all primary and secondary outcomes, demonstrating a multi-level impact on individual teacher capacity, student-level access to care, and the school's organizational environment.

Mechanisms of Change: From Individual Efficacy to Systemic Transformation

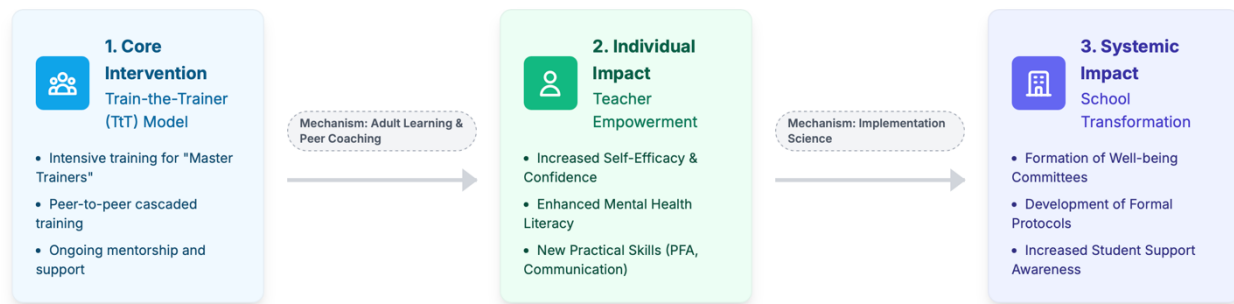


Figure 3. Mechanisms of change: from individual efficacy to systemic transformation

The dramatic increase in teacher confidence is the cornerstone of the program's success. Teacher self-efficacy is a potent predictor of their engagement and persistence in challenging tasks, including supporting the emotional needs of students (figure 3). The TtT model appears to operate through several interconnected mechanisms. First, from the perspective of adult learning theory, the peer-to-peer training model is critical. Training delivered by familiar, trusted colleagues, rather than external experts alone, can dismantle hierarchy, enhance the perceived relevance of the content, and foster a shared sense of professional responsibility and collective efficacy. This peer-led approach transforms the training from a passive reception of information into an active, collaborative process of professional growth.⁸⁻¹²

Second, the intervention acted as a powerful vehicle for organizational change, a process best understood through the lens of implementation science. The Master Trainers, empowered by their new expertise and leadership roles, became effective "internal champions"—a key construct in implementation frameworks like the Consolidated Framework for Implementation Research (CFIR). They were not merely passive adopters of an innovation; they were its active agents, advocating for and developing school-wide systems. The mandated formation of Student Well-being Committees provided the formal "implementation climate" and "structural characteristics" necessary to translate individual skills

into institutionalized practice. These committees provided legitimacy and a mandate to create the very policies and protocols measured as a secondary outcome. This demonstrates the model's ability to move beyond individual skill-building to fostering systemic change, embedding the support system into the school's operational DNA and making it resilient to future staff turnover.^{9,10}

The TtT program can be effectively framed as the creation of a foundational layer for a Multi-Tiered System of Support (MTSS) within the schools. The cascaded training in mental health literacy for all teachers represents a powerful Tier 1 (universal) intervention, aimed at creating a safer, more aware, and destigmatized environment for all students. By training teachers to recognize signs of distress and making support pathways visible, the program universally benefits the entire school population. Concurrently, the skills in PFA and supportive communication equip teachers to provide Tier 2 (targeted) support for students identified as being at-risk. They become the accessible, initial point of contact for students needing more than the universal curriculum provides. The formalization of referral pathways is the crucial link to Tier 3 (intensive) services, ensuring that students with severe needs are connected to the professional care that teachers are not equipped to provide. This study demonstrates that in resource-scarce settings, a TtT model is not just a training program but a strategic method for building the human and structural architecture of Tiers 1 and

2, without which a functional MTSS cannot exist.¹¹⁻¹³

A key driver of the program's success was likely its deep cultural adaptation. By framing concepts like empathy through local constructs such as *tepo seliro* and acknowledging local idioms of distress, the intervention avoided being perceived as a foreign, top-down imposition. This co-design process ensures that the program is not just translated, but is culturally resonant, which is essential for engagement and uptake.¹⁴⁻¹⁶

Furthermore, the program's explicit focus on professional boundaries is a critical and non-negotiable component of its ethical framework. Task-shifting mental health support to educators carries the inherent risk of role strain, teacher burnout, and inadvertently causing harm if boundaries are not clearly delineated. Our intervention repeatedly emphasized that the teacher's role is "first responder, not therapist." By providing clear protocols for referral and immediate action in high-risk scenarios, the program aimed to empower teachers to act confidently within a strictly defined, supportive role, thereby protecting both students and the teachers themselves.¹⁷⁻²⁰

While the findings are compelling, their generalizability must be considered. The study was conducted in urban schools in South Sumatera. Several factors specific to this context may have contributed to the program's success: a higher baseline level of teacher education, greater (though still limited) access to *Puskemas* for referrals, and potentially a greater receptivity to new educational initiatives compared to more remote, rural settings. Adapting this model for rural or remote areas in Indonesia would require a more intensive focus on mapping scarce resources, potentially integrating with traditional healers or community leaders, and addressing different cultural norms and logistical challenges. The principles of the TtT model are highly adaptable, but the content and implementation strategy must always be tailored to the unique ecological context of the community it aims to serve.

The primary limitation of this study is its quasi-

experimental design. Although a rigorous matching procedure was employed, the absence of true randomization means we cannot definitively rule out the influence of unmeasured confounding variables. Second, the reliance on self-report measures for both teacher confidence and student awareness may be subject to social desirability bias. Future research should strive to incorporate a cluster randomized controlled trial (c-RCT) design and supplement self-report data with more objective measures, such as behavioral observations or analyses of school records on absenteeism and disciplinary incidents.

4. Conclusion

This study provides compelling evidence that a university-community partnership utilizing a Train-the-Trainer model is a highly effective, scalable, and sustainable strategy for building essential mental health support systems in urban Indonesian high schools. By investing in the capacity, skills, and leadership of existing teachers, the intervention significantly enhanced their confidence to act as effective first responders, dramatically increased students' access to care, and catalyzed the development of institutionalized support protocols. This model offers a powerful, pragmatic alternative to specialist-dependent approaches, creating a locally-owned and self-perpetuating cycle of support. The findings have profound implications for public health policy and educational practice in Indonesia and other LMICs, offering an evidence-based roadmap for leveraging one of the most valuable community assets—teachers—to address the urgent challenge of adolescent mental health.

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