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ORIGINAL RESEARCH

SPEAKUP!: A Community-Based Digital Intervention for Youth Violence Prevention and Mental Health

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ABSTRACT

Introduction: Adolescents are highly vulnerable to experiences of violence, bullying, and psychosocial difficulties, yet youth-informed digital approaches that integrate violence prevention and psychosocial support remain limited in Indonesia. Digital interventions may provide an accessible and youth-oriented approach to complement conventional school-based health promotion. This study aimed to develop SPEAKUP! through a formative youth- and stakeholder-informed process and evaluate its short-term effects on violence-prevention knowledge and attitudes, psychosocial functioning, psychosocial health literacy/awareness, and self-efficacy among adolescents.

Methods: A sequential exploratory mixed-methods design was employed. The qualitative phase included three focus group discussions with 24 adolescents (eight per group) and in-depth interviews with six teacher/expert stakeholders to identify needs and design the intervention. Based on these findings, the SPEAKUP! app was developed as an integrated multi-component digital intervention comprising psychosocial self-screening, interactive educational content, consultation support, self-care and relaxation resources, and emotional journaling. In the quantitative phase, a randomized controlled trial was conducted with 416 adolescents (SPEAKUP!, n = 208; control, n = 208). The intervention group used SPEAKUP! for four weeks, while the control group received conventional school-based health promotion. Violence-prevention knowledge and attitudes were assessed using the PVAQ. Psychosocial functioning was assessed using a self-report SDQ-based composite psychosocial score, with lower scores indicating more favorable psychosocial functioning. Psychosocial health literacy/awareness (AMHLQ) and self-efficacy (ASES) were examined as secondary empowerment-related outcomes. Intervention effects were estimated using between-group differences in change with 95% confidence intervals (CIs) and Cohen's d.

Results: The formative phase identified four priorities: awareness and protection, confidential and stigma-sensitive access, interactive youth-friendly learning, and emotional support/self-care. These findings informed the integrated SPEAKUP! intervention. At four weeks, violence-prevention knowledge improved by 11.4 points more in the SPEAKUP! group than in the control group (95% CI, 10.26–12.54; d = 1.93; p < 0.001), while the between-group difference in violence-prevention attitudes was 6.7 points (95% CI, 5.74–7.66; d = 1.34; p < 0.001). Psychosocial functioning also changed more favorably in the SPEAKUP! group, with a between-group difference in the SDQ-based composite psychosocial score of −5.6 points (95% CI, −6.54 to −4.66; d = −1.15; p < 0.001). Secondary outcomes similarly favored SPEAKUP! for psychosocial health literacy/awareness (10.5; 95% CI, 9.57–11.43; d = 2.18) and self-efficacy (8.2; 95% CI, 7.33–9.07; d = 1.82); both p < 0.001.

Conclusion: In this four-week school-based randomized evaluation, adolescents assigned to SPEAKUP! demonstrated greater short-term improvements across violence-prevention, psychosocial, and empowerment-related outcomes than those receiving conventional school-based health promotion. The findings reflect the integrated SPEAKUP! intervention as a whole and support further longer-term and multi-setting evaluation before broader implementation is considered.

Keywords: Adolescents; Community Nursing; Digital Intervention; Mental Health; Violence Prevention

INTRODUCTION

Adolescence is a formative developmental stage characterized by rapid physical, emotional, and social transitions. During this period, young individuals are particularly vulnerable to experiences of violence, bullying, and psychological distress (1,2). Globally, the WHO estimates that one in seven adolescents aged 10–19 years lives with a mental disorder, most commonly depression, anxiety, or behavioral problems (3,4). The COVID-19 pandemic further exacerbated these conditions, with studies reporting increased rates of depressive and anxiety symptoms, social isolation, and disrupted access to mental health support (5,6).

At the same time, sexual and physical violence remain pressing global public health issues. The World Health Organization (2022) and UNICEF (2020) report that millions of adolescents, particularly girls, experience sexual abuse or coercion each year (7,8). Such experiences are associated with trauma, suicidal ideation, substance use, and long-term psychosocial dysfunction (9,10). Exposure to violence at a young age can impair emotional regulation, interpersonal trust, academic performance, and broader psychosocial functioning (11,12).

In low- and middle-income countries, the risk factors for violence and mental distress are often amplified by poverty, gender norms, and limited access to psychosocial care (13,14). Early preventive interventions, particularly those incorporating health literacy, psychosocial support, and meaningful engagement with young people, may strengthen adolescents' capacity to recognize risks, respond to psychosocial challenges, and seek appropriate support (15–17).

In Indonesia, adolescent violence and psychosocial problems remain important concerns. The *Survei Nasional Pengalaman Hidup Anak dan Remaja (SNPHAR)* conducted by the Ministry of Women's Empowerment and Child Protection (2022) found that one in three girls and one in five boys have experienced physical or sexual violence (18). Additionally, about 41% of adolescents reported exposure to bullying either in schools or through social media. A study among junior and senior high school students in Java revealed that approximately 79% had experienced at least one form of violence—physical (43.1%), verbal (12.2%), or sexual (4.5%) (19). Together, these findings indicate the need for youth-friendly preventive approaches that address not only knowledge about violence but also the psychosocial resources adolescents may require to recognize unsafe experiences, manage emotional difficulties, and seek appropriate support.

Schools represent an important setting for adolescent prevention because they provide sustained access to young people during a period in which peer relationships and social experiences strongly influence development. Conventional school-based programs are commonly delivered through classroom education, printed materials, or scheduled counseling activities. Although these approaches remain valuable, their reach may be constrained when adolescents are reluctant to discuss sensitive experiences directly, perceive stigma in seeking help, or have limited opportunities to revisit educational material outside scheduled sessions (20,21). The widespread use of smartphones and digital communication among Indonesian adolescents therefore provides an opportunity for digital interventions to complement, rather than replace, conventional school-based health promotion (17,22).

Globally, mobile health (mHealth) applications have demonstrated potential in improving emotional well-being, promoting self-regulation, and increasing help-seeking behaviors (6,12,23). Integrating digital literacy with psychosocial education can empower adolescents to recognize risks, manage emotions, and access timely support (17,24). In Indonesia, several initiatives—such as SAKTI *Remaja* (22) and *AKSES* (25)—have begun to use digital technology to address adolescent mental health, violence-related education, prevention, reporting, or access to support. These initiatives represent important developments; however, the approaches described in the existing literature generally emphasize selected functions. Evidence remains limited for a youth-informed digital intervention that integrates violence-prevention education, psychosocial self-monitoring, emotional reflection, self-care, and access to supportive consultation within a single platform and subsequently evaluates the resulting intervention package through a randomized school-based design.

This distinction defines the specific research gap addressed in the present study. The need is not simply for another digital application, but for evidence on whether a digital intervention developed from adolescents' and stakeholders' expressed needs can combine cognitive, reflective, and supportive functions within a coherent empowerment-oriented approach. SPEAKUP! was developed to address this gap through five interconnected components: psychosocial self-screening, interactive educational content, emotional journaling, self-care and relaxation resources, and consultation support. These components were derived from formative findings indicating adolescents' need for clearer information about violence and psychosocial health, confidential and stigma-sensitive access, engaging forms of learning, opportunities for emotional self-management, and pathways to additional support.

In this study, digital empowerment refers to the use of digital resources to strengthen adolescents' access to relevant knowledge, awareness of their psychosocial condition, perceived capacity to respond to challenging situations, opportunities for reflection and self-management, and access to supportive communication when needed. This conceptualization extends beyond the digital delivery of health information. Instead, it assumes that empowerment may be supported when adolescents are provided not only with information but also with opportunities to recognize personal experiences, reflect on emotions, practice self-care strategies, and identify appropriate sources of help. Psychosocial health literacy/awareness and self-efficacy were therefore considered empowerment-related outcomes, while violence-prevention knowledge and attitudes and psychosocial functioning represented the principal outcomes of interest.

The design of SPEAKUP! was guided by a hypothesized behavioral pathway connecting the intervention components with the measured outcomes. Interactive educational materials were expected to facilitate recognition of violent behaviors and strengthen violence-prevention knowledge and attitudes. Psychosocial self-screening was intended to support recognition of emotional and behavioral conditions, whereas emotional journaling provided a structured opportunity for self-reflection. Self-

care and relaxation resources offered practical strategies for managing distress, while the consultation function provided an avenue for seeking additional support. Together, these functions were hypothesized to strengthen psychosocial awareness, perceived capability, and self-management, which could be compatible with improvements in violence-prevention and psychosocial outcomes.

Importantly, this conceptual pathway describes the rationale underlying SPEAKUP! rather than a set of empirically established mediating mechanisms. The intervention was evaluated as an integrated, multi-component package. Individual components were not experimentally isolated, and the study did not formally test whether self-efficacy, psychosocial awareness, emotional regulation, or other intermediate processes mediated intervention effects. Accordingly, any observed differences between groups should be interpreted as effects associated with exposure to the complete SPEAKUP! intervention rather than as evidence that a particular feature independently produced the outcome.

The novelty of this study therefore lies in the sequential linkage between formative youth- and stakeholder-informed intervention development and randomized evaluation of the resulting multi-component digital empowerment intervention. Rather than evaluating a single educational or screening function, the study examines an intervention in which learning, self-monitoring, reflection, self-care, and supportive communication were integrated in response to needs identified during the developmental phase. This approach provides evidence concerning the short-term performance of an integrated digital intervention within a school-based Indonesian context while maintaining a clear distinction between observed outcomes and hypothesized mechanisms.

Accordingly, this study aimed to develop the SPEAKUP! digital empowerment intervention through a formative youth-centered process and to evaluate its short-term effects on adolescent violence-prevention knowledge and attitudes and psychosocial functioning compared with conventional school-based health promotion. Psychosocial health literacy/awareness and self-efficacy were additionally examined as empowerment-related outcomes. Given the four-week intervention period and the regional school-based setting, the study was designed to examine short-term outcomes and not to establish the independent effectiveness of individual SPEAKUP! components, long-term effectiveness, scalability, cost-effectiveness, or policy-level impact.

METHODS

Study Design and Mixed-Methods Integration

This study employed a sequential exploratory mixed-methods design comprising two linked phases. The first was a formative qualitative phase conducted to identify adolescents' and stakeholders' needs, preferences, and design requirements for SPEAKUP! Findings from this phase were used to develop the content, functions, and delivery characteristics of the intervention. The second phase was a randomized controlled trial (RCT) evaluating the short-term effects of the resulting multi-component digital intervention.

Mixed-methods integration followed a building approach, whereby findings from the qualitative phase were translated into intervention components before randomized evaluation. Limited awareness of violence and psychosocial health informed the educational content; preferences for confidential and stigma-sensitive access informed self-screening, journaling, and consultation functions; preferences for visual and interactive learning informed the educational delivery format; and expressed needs for emotional support informed self-care and relaxation resources. The resulting SPEAKUP! intervention was subsequently evaluated as an integrated multi-component package rather than as separate intervention components.

Conceptual Intervention Pathway

SPEAKUP! was conceptualized as a digital empowerment intervention in which access to interactive information, opportunities for self-reflection and psychosocial self-monitoring, practical self-care strategies, and supportive communication were expected to strengthen adolescents' awareness and perceived capability to respond to violence and psychosocial challenges. Educational content was expected primarily to support violence-prevention knowledge and attitudes, whereas self-screening and emotional journaling provided opportunities for recognition and reflection on psychosocial experiences. Self-care and relaxation resources provided practical strategies for managing distress, while consultation functions provided an additional avenue for seeking support.

Accordingly, violence-prevention knowledge and attitudes and psychosocial functioning were treated as the principal outcomes, whereas psychosocial health literacy/awareness and self-efficacy were examined as empowerment-related secondary outcomes. These pathways represented the hypothesized intervention logic; the study did not conduct component-specific or formal mediation analyses.

Qualitative Phase

The formative qualitative phase involved 24 adolescents participating in three focus group discussions, with eight participants in each group. Six teacher/expert stakeholders were also involved, comprising two mental health experts, one health promotion expert, and three experts in information technology/education. Semi-structured focus group discussions and in-depth interviews explored participants' needs, preferences, and expectations regarding digital education, violence prevention, psychosocial health, privacy, accessibility, and intervention support.

Qualitative data were transcribed and analyzed thematically. The analytical process involved open coding of relevant statements, organization of related codes into categories, and development and refinement of overarching themes representing adolescents' and stakeholders' needs and preferences. Themes were subsequently mapped to intervention requirements and used to determine the content, functions, and delivery characteristics of SPEAKUP!

This formative process resulted in five integrated components: (1) psychosocial self-screening; (2) interactive educational content; (3) consultation support; (4) self-care and relaxation resources; and (5) emotional journaling.

Research Setting

The study was conducted in senior and vocational high school settings in Pare District, Kediri Regency, East Java, Indonesia. The randomized evaluation reported for the quantitative phase was conducted from January to October 2025. The school setting was relevant to the study objectives because adolescents' peer relationships, social interactions, health-learning activities, and violence-related experiences occur within the everyday school environment.

Quantitative Participants and Recruitment

The source population comprised 6,503 students enrolled in senior and vocational high schools in Pare District. Recruitment was conducted through participating school settings. Potential participants were informed about the study and assessed according to the predefined eligibility criteria. Students who met the eligibility criteria and completed the required consent procedures were enrolled and underwent baseline assessment before randomization.

A total of 416 adolescents entered the randomized phase and constituted the analytical sample reported in the study records, with 208 participants in the SPEAKUP! intervention group and 208 participants in the control group.

Eligibility Criteria

Eligible participants were adolescents who were actively enrolled in participating senior or vocational high schools, had access to an Android smartphone and internet connection, were able to participate throughout the four-week study period, and completed the required consent procedures.

Participants were excluded if they had a history of severe psychiatric disorders requiring intensive treatment or did not have access to the internet.

Sample Size

The original recruitment target was derived from the source population of 6,503 students with an additional allowance for anticipated attrition, resulting in a final target of 416 adolescents. Because the original population-based calculation was not based on a prespecified intervention effect, a retrospective sensitivity assessment was used to contextualize the achieved randomized sample. With 208 participants per group, a two-sided α level of 0.05, and 80% power, the achieved sample was capable of detecting a standardized between-group difference of approximately 0.28.

Randomization and Analysis Population

Following enrollment and baseline assessment, participants were randomly assigned in a 1:1 ratio to either the SPEAKUP! intervention group (n = 208) or the control group (n = 208). The allocation sequence was generated using a computer-based randomization procedure, and group assignment was implemented after completion of baseline assessment.

The reported effectiveness analyses included 208 participants in each study group. The same group allocation and analytical denominators were used for the baseline and four-week outcome comparisons reported in the study records.

SPEAKUP! Intervention

Participants allocated to the intervention group received SPEAKUP! for four weeks. The intervention comprised five integrated components developed through the formative phase: (1) psychosocial self-screening; (2) interactive educational content addressing violence prevention and psychosocial health; (3) consultation support; (4) self-care and relaxation resources; and (5) emotional journaling.

The platform provided opportunities for adolescents to access preventive information, recognize psychosocial concerns, reflect on emotional experiences, engage with self-care strategies, and access supportive information within a youth-oriented digital environment.

SPEAKUP! was evaluated as a complete multi-component intervention. The trial was not designed to estimate the independent effects of self-screening, educational content, journaling, relaxation, consultation, or other individual components.

Control Condition

Participants assigned to the control group received conventional school-based health promotion during the same four-week study period. The control condition consisted of routine health education supported by printed educational materials and standard health-promotion activities in the school setting. Participants assigned to the control group did not receive the SPEAKUP! digital intervention during the evaluation period.

Intervention Exposure, Adherence, and Potential Contamination

Intervention exposure was defined at the study-group level over the four-week intervention period. Participants assigned to SPEAKUP! were encouraged to engage regularly with the integrated platform during this period, while participants in the control group continued to receive the conventional health-promotion condition. The effectiveness analysis evaluated exposure to the assigned intervention package as a whole, rather than adherence to any single SPEAKUP! component.

Control participants were not provided access to SPEAKUP! during the four-week evaluation period. Component-specific engagement was not used to define the primary effectiveness analysis.

Data Collection Procedures

Outcome measurements were conducted at two time points: at baseline before intervention allocation and at the end of the four-week intervention period. The same outcome domains were assessed at both measurement points to evaluate change over time and differences in change between the intervention and control groups.

Participant characteristics, including age, sex, and grade level, were also collected to describe the study population. Data collection was supported by trained research assistants.

Outcome Measures

Violence-prevention knowledge and attitudes were assessed using the Peer Violence Awareness Questionnaire (PVAQ) and represented the principal violence-prevention outcomes. The Adolescent Mental Health Literacy Questionnaire (AMHLQ) assessed psychosocial health literacy/awareness, while the ASES assessed self-efficacy; AMHLQ and ASES were treated as empowerment-related secondary outcomes.

Psychosocial functioning was assessed using the self-report Strengths and Difficulties Questionnaire (SDQ), which evaluates emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior. For the present study, responses were summarized into an SDQ-based composite psychosocial score and analyzed as a continuous outcome. The same scoring procedure was applied consistently at baseline and at the four-week follow-up. Higher composite scores indicated greater psychosocial difficulties, whereas lower scores indicated more favorable psychosocial functioning. Accordingly, reductions in the SDQ-based composite score over time were interpreted as improvement in psychosocial functioning. The score was used for longitudinal and between-group comparisons, and clinical diagnostic categories or normative SDQ cut-off classifications were not applied.

All outcome measures were administered using the same procedures at baseline and four-week follow-up. Higher PVAQ, AMHLQ, and ASES scores represented more favorable outcomes, whereas lower SDQ-derived psychosocial scores represented more favorable psychosocial functioning.

Statistical Analysis

Quantitative data were analyzed using SPSS version 26. Participant characteristics and baseline variables were summarized using descriptive statistics. Continuous variables were presented as means and standard deviations, while categorical variables were summarized as frequencies and percentages.

Within-group pre–post changes were examined using paired-samples t-tests as supportive analyses. The principal intervention comparison was based on the difference in mean change from baseline to four-week follow-up between the SPEAKUP! and control groups. Between-group change scores were compared using independent-samples t-tests.

To provide estimates of both magnitude and precision, intervention effects were reported as between-group mean-change differences with 95% confidence intervals (CIs) and two-sided p-values. Standardized effect sizes were additionally expressed as Cohen's d, calculated using the pooled standard deviation of the change scores. Statistical significance was defined as $p < 0.05$. The same analytical framework was applied to PVAQ knowledge, PVAQ attitudes, the SDQ-derived psychosocial score, AMHLQ, and ASES.

Ethical Approval

Ethical approval was obtained from the STRADA University Health Research Ethics Committee before study implementation. Participation was voluntary. Written informed consent was obtained from all participants and their parents or legal guardians before enrollment. Participants were informed about the purpose and procedures of the study, confidentiality of study information, their freedom to decline participation, and their right to withdraw without penalty.

Because the intervention addressed sensitive issues related to violence and psychosocial health, privacy and confidentiality were maintained throughout outcome assessment and intervention implementation. This confidentiality principles also applied to information generated through psychosocial self-screening, emotional journaling, and consultation functions. Psychosocial screening was used as an intervention and research-support function and was not interpreted as a clinical diagnosis.

RESULTS

Phase 1: Qualitative Findings – Development of SPEAKUP!

The formative qualitative phase involved 24 adolescents who participated in three focus group discussions, with eight adolescents in each group, and six teacher/expert stakeholders who participated in in-depth interviews. The stakeholder group comprised two mental health experts, one health promotion expert, and three experts in information technology/education. The qualitative inquiry explored participants' perceptions, needs, preferences, and expectations regarding violence prevention, psychosocial health, privacy, accessibility, digital learning, and supportive intervention functions.

Thematic analysis identified four overarching themes.

Need for Awareness and Protection

Adolescents described limited awareness of peer violence, bullying, and the distinction between acceptable peer interactions and harmful behavior. Stakeholders similarly emphasized the need for practical preventive education that could help adolescents recognize violence-related risks and appropriate responses.

"Many of my friends don't realize that harsh jokes are already a form of violence." (Female, 16 years)

Accessibility and Confidentiality

Adolescents and stakeholders emphasized the importance of private, accessible, and stigma-sensitive ways of obtaining information and support, particularly when addressing violence and psychosocial concerns.

"It feels more comfortable to use an app; I don't feel embarrassed to speak directly." (Male, 17 years)

Interactive and Youth-Friendly Learning

Adolescents expressed a preference for visual, engaging, and interactive learning formats. Videos, quizzes, and other interactive activities were perceived as more engaging than conventional information delivery.

"*If the lessons are in videos or games, it's more fun and easier to remember."* (Female, 15 years)

"Quizzes and interactive features make it exciting, not boring." (Male, 16 years)

Emotional Support and Self-Care

Participants identified the need for opportunities to monitor emotional experiences, access practical self-care strategies, and seek additional support when psychosocial difficulties became difficult to manage.

"Sometimes I need a place to calm down, like breathing exercises or relaxation." (Female, 17 years)

"It would be helpful if there is guidance on where to go when stress becomes too heavy." (Teacher, 35 years)

The four themes are consistent with the formative findings documented in the final study report.

Integration of Qualitative Findings into SPEAKUP!

The qualitative findings were used as building inputs for SPEAKUP! development. Participant and stakeholder data defined the core user requirements, while the detailed structure, presentation, and technical implementation of the corresponding functions were refined during intervention development and expert review. This process resulted in five integrated components: psychosocial self-screening, interactive educational content, consultation support, self-care and relaxation resources, and emotional journaling.

Table 1. Joint Display of Formative Findings and SPEAKUP! Development

Qualitative Theme	Requirement Identified from Adolescents/Stakeholders	Translation into SPEAKUP!	Developmental Contribution
Need for awareness and protection	Greater understanding of violence, bullying, psychosocial risks, and preventive responses	Interactive educational content addressing violence prevention and psychosocial health	Core requirement derived directly from formative data; specific educational content was refined during intervention development and expert review
Accessibility and confidentiality	Private and stigma-sensitive access to sensitive information and support	Psychosocial self-screening, emotional journaling, and consultation functions	Privacy and accessibility requirements arose directly from participant/stakeholder data; functional implementation was refined during platform development
Interactive and youth-friendly learning	Preference for visual, engaging, and interactive information	Interactive digital educational content and youth-oriented delivery format	Learning-format preference was directly identified by adolescents; presentation and interface characteristics were refined during design development
Emotional support and self-care	Opportunities for emotional reflection, stress management, and additional support	Self-care and relaxation resources, emotional journaling, and consultation support	Support needs were identified in qualitative data; detailed content and delivery were refined with stakeholder/expert input

This joint display demonstrates how the qualitative phase informed the subsequent intervention rather than merely preceding it. The intervention components were not subsequently evaluated separately; the randomized phase evaluated SPEAKUP! as an integrated multi-component package.

Phase 2: Quantitative Findings

Participant Flow and Analysis Population

Following eligibility assessment, consent procedures, and baseline assessment, 416 adolescents entered randomization, with 208 assigned to SPEAKUP! and 208 assigned to the control condition. All 416 randomized participants were represented in the four-week outcome analyses, with 208 participants analyzed in each group. Thus, the randomized and analyzed populations were numerically identical in the reported study data, with no post-randomization attrition reflected in the analytical sample.

Participants were analyzed according to their randomized study-group assignment. Because all randomized participants contributed to the reported four-week analyses, the full randomized and analytical samples comprised the same 416 adolescents.

Participant Characteristics

The quantitative sample comprised 416 adolescents. The largest age category was 16–17 years, accounting for 50.2% of the total sample. Age, sex, and grade-level distributions were broadly similar between the SPEAKUP! and control groups.

Table 2. Characteristics of Quantitative Participants

Variable	Intervention (n = 208)	Control (n = 208)	Total (n = 416)
Age			
14–15 years	68 (32.7%)	65 (31.3%)	133 (32.0%)
16–17 years	102 (49.0%)	107 (51.4%)	209 (50.2%)
18–19 years	38 (18.3%)	36 (17.3%)	74 (17.8%)
Gender			
Male	109 (52.4%)	104 (50.0%)	213 (51.2%)
Female	99 (47.6%)	104 (50.0%)	203 (48.8%)
Grade			
10th grade	69 (33.2%)	66 (31.7%)	135 (32.5%)
11th grade	75 (36.1%)	79 (38.0%)	154 (37.0%)
12th grade	64 (30.7%)	63 (30.3%)	127 (30.5%)

Principal Outcomes

Violence-Prevention Knowledge and Attitudes

Violence-prevention knowledge and attitudes were assessed using the PVAQ. At baseline, mean knowledge scores were 61.8 (SD 8.6) in the SPEAKUP! group and 62.1 (SD 8.3) in the control group. At the four-week follow-up, knowledge increased to 75.6 (SD 7.9) in the SPEAKUP! group and to 64.5 (SD 8.1) in the control group, corresponding to mean changes of +13.8 and +2.4 points, respectively.

For violence-prevention attitudes, scores increased from 64.9 (SD 7.8) to 73.2 (SD 7.1) in the SPEAKUP! group and from 65.2 (SD 7.6) to 66.8 (SD 7.4) in the control group, corresponding to mean changes of +8.3 and +1.6 points, respectively. Within-group changes were statistically significant in the SPEAKUP! group for both outcomes ($p < 0.001$), whereas the corresponding changes in the control group were not statistically significant.

Table 3. Violence Prevention (PVAQ – Knowledge and Attitudes)

Dimension	Group	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Change	p-value
Knowledge	Control (n = 208)	62.1 (8.3)	64.5 (8.1)	+2.4	0.078
	Intervention (n = 208)	61.8 (8.6)	75.6 (7.9)	+13.8	<0.001
Attitude	Control (n = 208)	65.2 (7.6)	66.8 (7.4)	+1.6	0.092
	Intervention (n = 208)	64.9 (7.8)	73.2 (7.1)	+8.3	<0.001

These within-group analyses describe the pre–post pattern. The principal intervention comparison was based on the between-group difference in change, as reported below.

Psychosocial Functioning

Psychosocial functioning was assessed using the SDQ-based composite psychosocial score. Higher scores indicated greater psychosocial difficulties, whereas lower scores represented more favorable psychosocial functioning.

At baseline, mean scores were 70.9 (SD 8.7) in the SPEAKUP! group and 71.4 (SD 9.1) in the control group. At four-week follow-up, the SPEAKUP! group decreased to 64.1 (SD 7.9), corresponding to a mean change of −6.8 points, whereas the control group decreased to 70.2 (SD 8.8), corresponding to a mean change of −1.2 points. The within-group change was statistically significant in the SPEAKUP! group ($p < 0.001$), but not in the control group ($p = 0.210$).

Table 4. Changes in Psychosocial Functioning

Group	Pre-test Mean (SD)	Post-test Mean (SD)	Mean Change	p-value
Control (n = 208)	71.4 (9.1)	70.2 (8.8)	-1.2	0.210
Intervention (n = 208)	70.9 (8.7)	64.1 (7.9)	-6.8	<0.001

Scores represent the SDQ-based composite psychosocial score used in the study. Higher scores indicate greater psychosocial difficulties; therefore, reductions indicate more favorable psychosocial functioning. Clinical diagnostic categories and normative SDQ cut-off classifications were not applied.

The descriptive pattern therefore indicated a more favorable change in psychosocial functioning among participants assigned to SPEAKUP!

Empowerment-Related Secondary Outcomes

Psychosocial health literacy/awareness and self-efficacy were examined as secondary empowerment-related outcomes.

AMHLQ scores increased from 60.1 (SD 8.2) to 72.3 (SD 7.8) in the SPEAKUP! group, corresponding to a mean increase of +12.2 points. The control group increased from 59.8 (SD 7.9) to 61.5 (SD 7.6), corresponding to a mean increase of +1.7 points.

ASES scores increased from 65.0 (SD 8.0) to 74.5 (SD 7.2) in the SPEAKUP! group and from 64.7 (SD 8.1) to 66.0 (SD 7.9) in the control group, corresponding to changes of +9.5 and +1.3 points, respectively. Within-group changes for AMHLQ and ASES were statistically significant in the SPEAKUP! group ($p < 0.001$), whereas changes in the control group were not statistically significant.

Table 5. Changes in Empowerment-Related Secondary Outcomes

Outcome	Group	Baseline Mean (SD)	Four-Week Mean (SD)	Mean Change	Within-Group p
AMHLQ	Control	59.8 (7.9)	61.5 (7.6)	+1.7	0.065
	SPEAKUP!	60.1 (8.2)	72.3 (7.8)	+12.2	<0.001
ASES	Control	64.7 (8.1)	66.0 (7.9)	+1.3	0.080
	SPEAKUP!	65.0 (8.0)	74.5 (7.2)	+9.5	<0.001

These outcomes were treated as secondary empowerment-related outcomes. The study did not test whether changes in psychosocial health literacy/awareness or self-efficacy mediated changes in violence-prevention or psychosocial outcomes.

Between-Group Intervention Effects

The principal quantitative comparison examined differences in participant-level change scores between the SPEAKUP! and control groups using independent-samples t-tests. The change-score standard deviations shown below represent the reported variability in individual pre–post changes within each group. The final study report provides change-score means and SDs for AMHLQ, ASES, PVAQ knowledge, PVAQ attitudes, and psychosocial functioning.

Table 6. Between-Group Differences in Outcome Changes

Outcome	Control Δ Mean (SD)	SPEAKUP! Δ Mean (SD)	Mean-Change Difference[1]	95% CI	t (df=414)	Cohen's d	p
PVAQ Knowledge	+2.4 (5.6)	+13.8 (6.2)	+11.4	10.26 to 12.54	19.68	1.93	<0.001
PVAQ Attitude	+1.6 (4.9)	+8.3 (5.1)	+6.7	5.74 to 7.66	13.66	1.34	<0.001
SDQ-based psychosocial score	−1.2 (4.7)	−6.8 (5.0)	−5.6	−6.54 to −4.66	−11.77	−1.15	<0.001
AMHLQ	+1.7 (4.5)	+12.2 (5.1)	+10.5	9.57 to 11.43	22.26	2.18	<0.001
ASES	+1.3 (4.2)	+9.5 (4.8)	+8.2	7.33 to 9.07	18.54	1.82	<0.001

[1]Mean-change difference = SPEAKUP! minus control.

Between-group tests were independent-samples t-tests applied to participant-level change scores. Cohen's *d* was calculated using the pooled change-score SD. Positive differences favor SPEAKUP! for PVAQ, AMHLQ, and ASES. For the SDQ-based psychosocial score, negative values favor SPEAKUP! because lower scores indicate more favorable psychosocial functioning.

Interpretation of Between-Group Effects

Violence-prevention knowledge increased by 11.4 points more in the SPEAKUP! group than in the control group (95% CI, 10.26–12.54; d = 1.93; p < 0.001). The corresponding between-group difference for violence-prevention attitudes was 6.7 points (95% CI, 5.74–7.66; d = 1.34; p < 0.001).

Psychosocial functioning also changed more favorably in the SPEAKUP! group, with a between-group difference in the SDQ-based composite score of −5.6 points (95% CI, −6.54 to −4.66; d = −1.15; p < 0.001). Given the scoring direction, the negative difference indicates a larger reduction in psychosocial difficulties among participants assigned to SPEAKUP!

For the secondary empowerment-related outcomes, the between-group difference was 10.5 points for AMHLQ (95% CI, 9.57–11.43; d = 2.18; p < 0.001) and 8.2 points for ASES (95% CI, 7.33–9.07; d = 1.82; p < 0.001).

The standardized effects quantify the magnitude of the observed statistical contrasts. Because the study did not prespecify a clinical or educational minimal important difference for these measures, the effect sizes are reported as descriptive estimates of standardized between-group magnitude and are not interpreted as evidence of clinical or educational meaningfulness.

Taken together, the observed between-group differences favored SPEAKUP! across the principal and secondary outcomes over the four-week study period. These findings refer to the integrated SPEAKUP! intervention as a whole and do not establish the independent effects of individual intervention components or the hypothesized mechanisms linking those components to the outcomes.

DISCUSSION

The present study developed and evaluated SPEAKUP! as a youth-informed, multi-component digital empowerment intervention addressing violence prevention and psychosocial functioning among adolescents in a school-based setting in Indonesia. The sequential exploratory mixed-methods design linked formative inquiry with subsequent randomized evaluation, allowing adolescents' and stakeholders' perspectives to inform intervention development before the resulting platform was evaluated as an integrated intervention package. Over the four-week study period, adolescents assigned to SPEAKUP! demonstrated greater improvements in violence-prevention knowledge and attitudes and more favorable psychosocial functioning than those receiving conventional school-based health promotion. Psychosocial health literacy/awareness and self-efficacy also improved more in the SPEAKUP! group, providing additional evidence across the empowerment-related outcomes included in the study.

Adolescent Needs and Design Insights

The formative phase identified four interrelated priorities: the need for greater awareness and protection from violence, confidential and stigma-sensitive access, interactive and youth-friendly learning, and emotional support and self-care. These priorities provided the developmental foundation for the five integrated SPEAKUP! components: psychosocial self-screening, interactive educational content, consultation support, self-care and relaxation resources, and emotional journaling.

The mixed-methods integration was particularly evident in the way participant requirements were translated into intervention functions. The expressed need for greater understanding of violence and psychosocial concerns informed the educational component, while preferences for private and stigma-sensitive access informed self-screening, emotional journaling, and consultation functions. Adolescents' preference for visual and interactive learning informed the digital format of the educational content, whereas expressed needs for emotional support informed the inclusion of self-care and relaxation resources. The qualitative findings therefore established the major user requirements, while the detailed content, interface, and technical implementation were refined through stakeholder, expert, and design input.

This development process is consistent with literature emphasizing privacy, accessibility, responsiveness to user preferences, and youth-centered design in adolescent digital interventions (26,27). Within SPEAKUP!, these characteristics emerged from the formative findings and were incorporated into the intervention design, providing a user-informed foundation for the conceptual pathway subsequently examined in the quantitative phase.

Violence-Prevention Outcomes

The quantitative findings showed greater short-term improvement in violence-prevention knowledge and attitudes among adolescents assigned to SPEAKUP! Knowledge increased by 11.4 points more in the SPEAKUP! group than in the control group, with a 95% confidence interval of 10.26 to 12.54 and a standardized effect size of d = 1.93. The corresponding between-group difference for violence-prevention attitudes was 6.7 points (95% CI, 5.74–7.66; d = 1.34).

These findings are consistent with the conceptual pathway underlying SPEAKUP!, in which interactive information, opportunities for self-reflection, psychosocial self-monitoring, and supportive communication were expected to strengthen adolescents' capacity to recognize violence-related risks and consider preventive responses (28–31). Educational and interactive content may provide repeated opportunities to engage with violence-prevention information, while reflective and supportive functions may help adolescents relate this information to their own social experiences. Similar digital approaches have been associated with improved engagement with health and violence-prevention information among adolescents (13,17,27).

SPEAKUP! was evaluated as an integrated multi-component intervention, and the observed changes therefore reflect the intervention package as a whole. Within the proposed conceptual pathway, interactive learning, self-reflection, psychosocial self-monitoring, and supportive communication represent plausible processes through which adolescents may develop greater understanding of violence-related risks and more preventive attitudes. These mechanisms are consistent with the intervention design and provide directions for future research examining the contribution of individual components.

The findings are particularly relevant because favorable differences were observed in both knowledge and preventive attitudes. Knowledge represents a cognitive dimension of violence prevention, whereas attitudes reflect adolescents' orientations toward recognizing and responding to violence-related situations. Improvement across both domains suggests that the short-term intervention response extended beyond information acquisition and may provide a foundation for subsequent preventive behavior, an area that warrants longer-term evaluation.

Psychosocial Functioning

Psychosocial functioning also changed more favorably among participants assigned to SPEAKUP! The between-group difference in the SDQ-based composite psychosocial score was −5.6 points (95% CI, −6.54 to −4.66; d = −1.15). Because lower scores represented more favorable psychosocial functioning within the study scoring approach, this difference indicates a greater reduction in psychosocial difficulties among adolescents receiving SPEAKUP! over the four-week period. The direction of this finding is consistent with the psychosocial component of the intervention's conceptual pathway. SPEAKUP! incorporated opportunities for emotional reflection, psychosocial self-monitoring, access to self-care resources, and supportive communication. Within the intervention model, self-screening and emotional journaling were intended to support recognition and reflection on psychosocial experiences, self-care and relaxation resources provided practical strategies for managing distress, and consultation functions provided an additional route for seeking support (6,23,32).

These processes are theoretically consistent with previous digital mental health research describing the potential value of self-monitoring, reflective activities, psychoeducation, and guided coping resources for adolescent psychosocial functioning (12,23). In the present study, the psychosocial findings reflect response to the integrated SPEAKUP! intervention, with the specific contribution of individual functions remaining within the proposed conceptual pathway. The reduction in the SDQ-based composite score therefore indicates a more favorable short-term psychosocial outcome among participants receiving SPEAKUP! Because the outcome was analyzed as a continuous psychosocial measure, interpretation focuses on the direction and magnitude of change within the study rather than on diagnostic categories or normative classifications (17, 32).

Psychosocial Health Literacy and Self-Efficacy

Psychosocial health literacy/awareness and self-efficacy, examined as secondary empowerment-related outcomes, also showed favorable changes among adolescents assigned to SPEAKUP! Improvements in AMHLQ and ASES were greater in the intervention group than in the control group, indicating that SPEAKUP! was associated not only with the principal violence-

prevention and psychosocial outcomes but also with greater psychosocial health awareness and perceived capability to respond to violence-related and psychosocial challenges.

These findings are consistent with the digital empowerment framework underlying SPEAKUP! The intervention was designed to provide adolescents with accessible information, opportunities for reflection and psychosocial self-monitoring, practical self-care resources, and supportive communication. Within this framework, psychosocial health literacy/awareness and self-efficacy represent relevant empowerment-related domains that may strengthen adolescents' capacity to recognize psychosocial concerns, consider appropriate responses, and engage with available sources of support. The improvement in self-efficacy is particularly relevant to this framework because perceived capability may influence how adolescents approach challenging interpersonal and psychosocial situations, while greater psychosocial health literacy/awareness may support recognition and understanding of violence- and mental-health-related concerns (33–35).

AMHLQ and ASES are therefore interpreted as measured secondary empowerment-related outcomes that are consistent with the proposed conceptual pathway. Their concurrent improvement suggests that SPEAKUP! was associated with changes in both psychosocial health awareness and perceived capability, while their role in explaining the principal violence-prevention and psychosocial outcomes remains to be examined through longitudinal or mediation analyses.

Overall Pattern and Magnitude of Effects

An important feature of the quantitative findings is the consistency of the between-group pattern across all measured domains. Adolescents assigned to SPEAKUP! demonstrated greater changes in violence-prevention knowledge, preventive attitudes, psychosocial functioning, psychosocial health literacy/awareness, and self-efficacy than those receiving conventional school-based health promotion. The standardized effect estimates ranged from approximately 1.15 to 2.18 in absolute magnitude, indicating clear standardized separation between the study groups within this sample. Reporting these estimates together with 95% confidence intervals provides information about both the magnitude and precision of the observed differences beyond statistical significance alone.

Interpretation of these standardized effects should remain within the measurement context of the study. Prespecified minimal clinically important differences or externally validated educational thresholds were not available for these outcomes. The present findings therefore demonstrate clear short-term statistical differences between the study conditions, while their practical significance can be examined further using behavioral, functional, educational, and clinically relevant benchmarks.

Mixed-Methods Interpretation

The sequential mixed-methods design contributes to the interpretation of the study in two complementary ways. First, the qualitative phase identified adolescents' and stakeholders' priorities and provided an empirical basis for the intervention design. Second, the randomized phase evaluated the short-term outcomes associated with exposure to the resulting integrated intervention.

The qualitative findings therefore help explain why particular components were included in SPEAKUP!, whereas the quantitative findings indicate how outcomes differed between the intervention and control conditions after four weeks. Together, these phases provide a developmental and evaluative sequence from identified user requirements to intervention construction and subsequent testing.

The contribution of the mixed-methods design therefore lies in establishing a transparent developmental pathway from user-identified needs to intervention construction and subsequent randomized evaluation. The formative phase provides the rationale for the intervention components, while the quantitative phase provides evidence regarding outcomes associated with the integrated intervention package. This linkage strengthens the developmental contribution of the study by connecting adolescent and stakeholder priorities with the intervention that was subsequently evaluated.

Public Health and School-Based Implications

The findings suggest that a youth-informed digital intervention such as SPEAKUP! may have potential as a complementary approach to conventional school-based adolescent health promotion. Its integrated structure combines violence-prevention education with psychosocial self-monitoring, reflective activities, self-care resources, and supportive communication in a format informed by adolescent and stakeholder preferences. Such an approach may be relevant to school and community health programs seeking additional ways to address violence prevention and adolescent psychosocial well-being (36,37). The digital format also creates opportunities for adolescents to engage with sensitive information in a more private and self-directed environment, which was an important preference identified during the formative phase (38–40).

The present evaluation focused primarily on short-term participant outcomes within a regional school setting. Broader implementation will benefit from further evidence concerning reach, adoption, sustained engagement, resource requirements, and implementation across different school and community contexts. Accordingly, the current findings provide a foundation for subsequent implementation and scale-up evaluation rather than definitive evidence of scalability or cost-effectiveness. Potential integration into school or adolescent health services would benefit from evaluation across different institutional, geographic, and socioeconomic settings, including assessment of the human and technological support required and the sustainability of participant engagement over time (38,41).

Limitations

Several considerations should be taken into account when interpreting the findings. First, the study was conducted among adolescents attending senior and vocational high schools in one district of East Java and evaluated outcomes over a four-

week period. The findings therefore primarily reflect short-term responses within this school-based context, and further studies across different settings and with longer follow-up would strengthen understanding of generalizability and sustainability.
Second, the study outcomes were primarily assessed using participant-reported measures. Although these instruments allowed consistent comparison between baseline and follow-up, future research incorporating behavioral or externally observed indicators could complement the present findings and provide additional insight into changes in violence-prevention practices and psychosocial functioning.
Third, SPEAKUP! was evaluated as an integrated multi-component intervention. The findings therefore represent the response to the intervention package as a whole, while the relative contribution of individual components and the role of proposed processes such as self-reflection, psychosocial awareness, and supportive engagement remain relevant directions for subsequent component-level and mediation research.

Recommendations for Future Research

Future research should extend the follow-up period to determine whether improvements in violence-prevention attitudes, psychosocial functioning, health literacy, and self-efficacy are sustained and whether they translate into behavioral outcomes such as help-seeking, reporting, bystander action, or reduced exposure to violence. Multi-site evaluation across different school environments and geographic and socioeconomic contexts would further clarify the generalizability of the intervention.
Further evaluation of the conceptual pathway could examine the relative contribution of SPEAKUP! components and the relationships between empowerment-related and principal outcomes. Component-level or factorial designs, together with longitudinal mediation analyses, may help clarify whether changes in psychosocial health literacy, self-efficacy, or other theoretically relevant processes contribute to subsequent violence-prevention and psychosocial outcomes.
Implementation research could subsequently examine acceptability, reach, engagement, fidelity, retention, resource requirements, and sustainability in diverse school and community settings. Economic evaluation would complement this evidence when considering broader implementation.
Overall, the findings support continued evaluation of SPEAKUP! as a youth-informed, multi-component digital approach for adolescent violence prevention and psychosocial health promotion. The study demonstrates favorable short-term differences across violence-prevention, psychosocial, and empowerment-related outcomes and provides a foundation for longer-term and broader evaluation.

CONCLUSION

SPEAKUP! was developed through a sequential exploratory mixed-methods process in which adolescents' and stakeholders' needs informed the design of an integrated digital intervention for violence prevention and psychosocial well-being. In the four-week randomized evaluation, adolescents assigned to SPEAKUP! showed greater improvements than those receiving conventional school-based health promotion in violence-prevention knowledge and attitudes, psychosocial functioning, psychosocial health literacy/awareness, and self-efficacy.
These findings indicate favorable short-term between-group differences across the principal and empowerment-related outcomes under the conditions of this school-based study. Because SPEAKUP! was evaluated as an integrated multi-component intervention, the findings reflect the intervention package as a whole rather than the independent contribution of individual components. The observed improvements are consistent with the proposed digital empowerment pathway, although the specific mechanisms linking individual intervention functions to outcomes require further evaluation.
SPEAKUP! may therefore represent a promising complementary approach for adolescent violence-prevention and psychosocial health promotion in school and community health settings. Longer-term, multi-site, and implementation studies are warranted to examine the sustainability of the observed effects, behavioral outcomes, intervention mechanisms, and applicability across diverse educational and community contexts before broader implementation or policy integration is considered.

DECLARATIONS

Author contributions: Prima Dewi Kusumawati: Conceptualization; Methodology (study design and intervention development); Investigation (data collection); Formal analysis (qualitative); Writing – original draft. Reni Nurhidayah: Methodology (methodology support); Supervision (guidance on digital intervention development); Writing – review & editing (manuscript revision, editing, and proofreading). Dhita Kurnia Sari: Formal analysis (quantitative analysis and statistical interpretation); Visualization (tables and figures); Writing – review & editing.

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REFERENCES

1. World Health Organization. Mental health of adolescents [Internet]. 2025. Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health
2. Worlh Health Organization. SEXUAL VIOLENCE. 2022.
3. Ma KKY, Anderson JK, Burn A. School-based interventions to improve mental health literacy and reduce mental health stigma–a systematic review. Child and adolescent mental health. 2023;28(2):230–40. doi: 10.1111/camh.12592. Available from: https://acamh.onlinelibrary.wiley.com/
4. Freire K, Pope R, Jeffrey K, Andrews K, Nott M, Bowman T. Engaging with children and adolescents: a systematic review of participatory methods and approaches in research informing the development of health resources and interventions. Adolescent Research Review. 2022;7(3):335–54. doi: 10.1007/s40894-021-00170-4. Available from: https://link.springer.com/
5. Nurina P, Hermatasiyah N. Kesehatan Mental Remaja Usia SMA Selama Pandemi Covid 19 (Studi Komparatif Pondok Pesantren Dan Sekolah Umum). Jurnal Consulenza: Jurnal Bimbingan Konseling Dan Psikologi. 2022;5(2):171–9. doi: 10.56013/jcbkp.v5i2.1642. Available from: https://ejurnal.uij.ac.id/
6. Lehtimaki S, Martic J, Wahl B, Foster KT, Schwalbe N. Evidence on digital mental health interventions for adolescents and young people: systematic overview. JMIR mental health. 2021;8(4):e25847. doi: 10.2196/25847. Available from: https://mental.jmir.org/
7. UNICEF. The Sustainable Development Goals Report 2020. New York:; 2020. Available from: https://www.unicef.org/sustainable-development-goals
8. Baiden P, Panisch LS, Kim YJ, LaBrenz CA, Kim Y, Onyeaka HK. Association between first sexual intercourse and sexual violence victimization, symptoms of depression, and suicidal behaviors among adolescents in the United States: findings from 2017 and 2019 National Youth Risk Behavior Survey. International journal of environmental research and public health. 2021;18(15):7922. doi: 10.3390/ijerph18157922. Available from: https://www.mdpi.com
9. Kumar P, Srivastava S, Mishra PS, Sinha D. Suicidal ideation among adolescents—the role of sexual abuse, depression, and impulsive behavior. Frontiers in psychiatry. 2021; 12:726039. doi: 10.3389/fpsyt.2021.726039. Available from: https://www.frontiersin.org/
10. Ramadhani SR, Nurwati RN. Dampak traumatis remaja korban tindakan kekerasan seksual serta peran dukungan sosial keluarga. Share: Social Work Journal. 2022;12(2):131–7. doi: 10.24198/share.v12i2.39462. Available from: https://jurnal.unpad.ac.id/
11. Rai D, Bhattacharjee S, Dhakal R, Chattopadhyay K, Neupane D. Effects of mobile technology-based interventions for promoting mental health and psychosocial well-being among young people in low-and middle-income countries: a systematic review protocol. JBI evidence synthesis. 2023;21(4):744–52. doi: 10.11124/JBIES-22-00214. Available from: https://journals.lww.com
12. Huang KY, Kumar M, Cheng S, Urcuyo AE, Macharia P. Applying technology to promote sexual and reproductive health and prevent gender based violence for adolescents in low and middle-income countries: digital health strategies synthesis from an umbrella review. BMC health services research. 2022;22(1):1373. doi: 10.1186/s12913-022-08738-4. Available from: https://link.springer.com/
13. Lahti M, Groen G, Mwape L, Korhonen J, Breet E, Chapima F, et al. Design and development process of a youth depression screening m-health application for primary health care workers in South Africa and Zambia: an overview of the MEGA project. Issues in Mental Health Nursing. 2020;41(1):24–30. doi: 10.1080/01612840.2019.1663564. Available from: https://www.tandfonline.com/
14. Dodd S, Widnall E, Russell AE, Curtin EL, Simmonds R, Limmer M, et al. School-based peer education interventions to improve health: a global systematic review of effectiveness. BMC public health. 2022;22(1):2247. doi: 10.1186/s12889-022-14718-6. Available from: https://link.springer.com/
15. Mancone S, Corrado S, Tosti B, Spica G, Diotaiuti P. Integrating digital and interactive approaches in adolescent health literacy: a comprehensive review. Frontiers in Public Health. 2024;12:1387874. doi: 10.3389/fpubh.2024.1387874. Available from: https://www.frontiersin.org/
16. Perempuan KP, Indonesia PAR. Survei Nasional Pengalaman Hidup Anak dan Remaja (SNPHAR). Politeknik Kesejahteraan Sosial. 2022. Available from: https://repository.poltekesos.ac.id/items/f1e55d47-cfbb-431d-8158-83b515c49cb4
17. Solehati T, Solahudin A, Juniarti R, Fauziah S, Romadona R, Audina R, et al. Intervensi pencegahan kekerasan seksual pada remaja: Literature review. Holistik Jurnal Kesehatan. Available from: 2023;17(6):522–37. https://repository.unar.ac.id/jspui/handle/123456789/6426
18. Nurnainah N, Nurnaeni N. Strategi Dalam Mengantisipasi Perilaku Kekerasan Seksual Pada Remaja: Strategi Dalam Mengantisipasi Perilaku Kekerasan Seksual Pada Remaja. Jurnal Pengabdian Masyarakat Gunung Sari. 2023;1(1). Available from: https://ojs.stikes.gunungsari.id/index.php/jpmgs/article/view/106
19. Sugiarto H. Aplikasi Edukasi Dirimu Sebagai Sistem Pelaporan Dan Perlindungan Terhadap Perundungan Dan Kekerasan Seksual. Competitive. 2021;16(1):9–14. doi: 10.36618/competitive.v16i1.981. Available from: https://ejurnal.ulbi.ac.id/
20. Nurhidayah R, Bastian A, Wati PDK. PENGEMBANGAN APLIKASI SAKTI REMAJA SEBAGAI UPAYA OPTIMALISASI LAYANAN KESEHATAN JIWA UNTUK REMAJA. Jurnal Abdi Masyarakat. 2024;8(1):266–75. doi: 10.30737/jaim.v8i1.6181. Available from: https://ojs.unik-kediri.ac.id/
21. Eisenstadt M, Liverpool S, Infanti E, Ciuvat RM, Carlsson C. Mobile apps that promote emotion regulation, positive mental health, and well-being in the general population: systematic review and meta-analysis. JMIR mental health. 2021;8(11):e31170. doi: 10.2196/31170. Available from: https://mental.jmir.org/
22. Nobre J, Oliveira AP, Monteiro F, Sequeira C, Ferré-Grau C. Promotion of mental health literacy in adolescents: a scoping review. International journal of environmental research and public health. 2021;18(18):9500. doi: 10.3390/ijerph18189500. Available from: https://www.mdpi.com/
23. Hamidah H, Widodo S. Perancangan Aplikasi “AKSES” sebagai upaya pencegahan dan penanganan kekerasan Seksual. Jurnal Teknologi Informasi. 2024;10(1):58–62. doi: 10.52643/jti.v10i1.2229. Available from: https://ejournal.urindo.ac.id/
24. Čuš A, Edbrooke-Childs J, Ohmann S, Plener PL, Akkaya-Kalayci T. “Smartphone apps are cool, but do they help me?”: A qualitative interview study of adolescents’ perspectives on using smartphone interventions to manage nonsuicidal self-injury. International journal of environmental research and public health. 2021;18(6):3289. doi: 10.3390/ijerph18063289. Available from: https://www.mdpi.com/
25. Marcu G, Ondersma SJ, Spiller AN, Broderick BM, Kadri R, Buis LR. Barriers and considerations in the design and implementation of digital behavioral interventions: qualitative analysis. Journal of medical Internet research. 2022;24(3):e34301. doi: 10.2196/34301. Available from: https://www.jmir.org/

26. Wahyudi G, Raharjo R. Positive Impact Of Health Education Through Video Media to the Improvevement of Adolescent Reproductive Health Knowledge. Jurnal Ners dan Kebidanan (Journal of Ners and Midwifery). 2023;10(3):405–11. doi: 10.26699/jnk.v10i3.ART.p405-411. Available from: https://ojs.phb.ac.id/
27. Xiao X, Wong RM, Yang W. Effectiveness of video-based health promotion: A systematic review and meta-analysis. Patient Education and Counseling. 2023;108095. doi: 10.1016/j.pec.2023.108095. Available from: https://www.sciencedirect.com/
28. Endriyani S, Martini S, Pastari M. Edukasi dan skrining kesehatan jiwa remaja dengan aplikasi. Madaniya. 2024;5(1):192–8. doi: 10.53696/27214834.687. Available from: https://www.madaniya.biz.id/
29. Sarfika R, Malini H, Effendi N, Permata PI, Fitria A, Sagitaria F. Deteksi Dini Masalah Kesehatan Mental Pada Remaja Dengan Self-Reporting Questionnaire (SRQ-29). CARADDE: Jurnal Pengabdian Kepada Masyarakat. 2023;5(3):389–96. doi: 10.31960/caradde.v5i3.1753. Available from: https://journal.ilininstitute.com/
30. Aschentrup L, Steimer PA, Dadaczynski K, Mc Call T, Fischer F, Wrona KJ. Effectiveness of gamified digital interventions in mental health prevention and health promotion among adults: a scoping review. BMC Public Health. 2024;24(1):69. doi: 10.1186/s12889-024-17629-1. Available from: https://link.springer.com/
31. Sarfika R, Malini H, Effendi N, Permata PI, Fitria A, Sagitaria F. Deteksi Dini Masalah Kesehatan Mental Pada Remaja Dengan Self-Reporting Questionnaire (SRQ-29). CARADDE: Jurnal Pengabdian Kepada Masyarakat. 2023;5(3):389–96.
32. Aschentrup L, Steimer PA, Dadaczynski K, Mc Call T, Fischer F, Wrona KJ. Effectiveness of gamified digital interventions in mental health prevention and health promotion among adults: a scoping review. BMC Public Health. 2024;24(1):69. doi: 10.1186/s12889-023-17517-3. Available from: https://link.springer.com/
33. Christens BD. Youth empowerment and community development. Community Dev J. 2019. ISBN: 978-0-19-060558-2.
34. Laverack G. Community empowerment in health promotion. Health Promot Int. 2021. doi: 10.1093/heapol/15.3.255. Available from: https://academic.oup.com/
35. Dewi SM, Saputra B, Daniati M. Self-efficacy and Adolescent Psychological Adjustment. Hang Tuah Nursing Journal. 2022. Available from: https://dergipark.org.tr/
36. Warren JM, Blount TN, Belle G. Implementing effective school-based mental health services: Implications for school counselors. Professional School Counseling. 2024;28(1). doi:10.1177/2156759X241283769. Available from: https://journals.sagepub.com
37. Dodd S. School-based peer education interventions to improve health: a global systematic review. BMC Public Health. 2022. doi:10.1186/s12889-022-14718-6. Availble from: https://link.springer.com
38. UNESCO. Digital learning and education in secondary schools. UNESCO Publishing; 2021.
39. Lustig S, Koenig J, Resch F, Kaess M. The impact of school-based screening on service use in adolescents at risk. Eur Child Adolesc Psychiatry. 2022. doi:10.1007/s00787-022-01990-z. Available from: https://link.springer.com/article/10.1007/s00787-022-01990-z
40. Jourdan D, Gray NJ, Barry MM. Supporting every school to become a foundation for healthy lives. Lancet Child Adolesc Health. 2021;5(4):295–303. doi:10.1016/S2352-4642(20)30316-3. https://www.thelancet.com/journals/lanchi/article/PIIS2352-4642(20)30316-3/abstract
41. Williams C, Griffin KW, Botvin CM, Sousa S, Botvin GJ. Effectiveness of digital health tools to prevent bullying among middle school students. Adolescents. 2023;3(1):110–30. https://doi.org/10.3390/adolescents3010009

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