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Psychosocial approaches for adolescent suicide prevention: An evidence review

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Abstract:

BACKGROUND: Adolescent suicide is a serious public health challenge in the Philippines, with rates among 15–19 year olds increasing by 57% from 2019 to 2021. Although the Mental Health Act (RA 11036) and Universal Health Care Act (RA 11223) require suicide prevention as the part of national health priorities, evidence-based interventions are still underused, especially in geographically isolated and underserved areas (GIDA).

OBJECTIVE: This study systematically reviewed psychosocial suicide prevention interventions for adolescents aged 10–18 years and identified strategies for integrating them into the Philippine health system.

METHODS: A systematic review and meta-analysis of studies published between 2015 and 2020 were conducted, including 20 randomized controlled trials, cohort studies, and cross-sectional studies. Interventions evaluated included Cognitive Behavioral Therapy, dialectical behavior therapy, Motivational Interviewing, family therapy, and psychoeducation. Subgroup analyses examined intervention type, mode of delivery, and setting. Risk of bias was assessed using Cochrane tools.

RESULTS: Psychosocial interventions significantly decreased suicidal ideation, attempts, and deliberate self-harm (DSH). Moderate short to medium-term effects (Cohen's $d = 0.26$ – 0.30) were observed, although benefits lessened over the longer follow-up periods. School-based programs and family-focused approaches yielded the strongest immediate results, while telehealth interventions showed potential for scalability in the resource limited and GIDA settings.

CONCLUSION: Evidence supports integrating psychosocial interventions into Department of Education mental health initiatives, Department of Health adolescent services, and local government programs. To speed up RA 11036 and RA 11223 implementation, development managers should focus on scalable, culturally tailored methods, including digital platforms, to increase access and enhance the nation's response to adolescent suicide.

Keywords:

Adolescent suicide, developmental management, Philippines, policy impact, psychosocial interventions

Introduction

Suicide is a significant global health issue, especially among those aged 10–24 years, with notable increases in some countries and regions over the past decade.^[1,2] Although adolescent suicide is a known problem, there is a lack of detailed local data broken down by age and gender in the Philippines.^[3,4,5] Adolescents

are particularly vulnerable due to factors such as social media influence, internet use, family conflicts, academic stress, and unmet mental health need, all of which worsened during the coronavirus disease 2019 pandemic.^[6–9] Early intervention in adolescence can provide long-term benefits. Psychosocial therapies such as cognitive behavioral therapy (CBT), dialectical behavior therapy (DBT), Motivational Interviewing (MI), and psychoeducation have been shown to reduce suicidal

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behaviors by improving coping skills and resilience.^[10-12] These approaches are especially important in resource-limited settings like the Philippines, where mental health services are scarce.

At the policy level, the 2018 Mental Health Act (RA 11036) and the Universal Health Care Act (RA 11223) have created frameworks to integrate mental health services into schools, community programs, and primary healthcare nationwide.^[13-15] However, significant gaps remain in policy implementation, especially regarding the selection of evidence-based programs, adapting initiatives to local contexts, and scaling interventions through digital and community platforms core challenges in tackling the mental health crisis. This review aims to fill these gaps by synthesizing global and regional evidence on psychosocial interventions for preventing adolescent suicide and translating these insights into practical recommendations for policymakers and development managers in the Philippines. The goal is to help accelerate the implementation of the Mental Health Act of 2018 and the Universal Health Care Act, ensuring adolescent mental health services are evidence-based and tailored to the specific needs of the population.

Methods

Systematic review protocol

This review followed the PRISMA 2020 guidelines for systematic reviews and meta-analyses.^[12] The protocol used the PICOS framework: Population adolescents aged 10–18 years; Intervention psychosocial interventions for suicide prevention (e.g., CBT, DBT, MI, family therapy, and psychoeducation); Comparator usual care, waitlist, or alternative interventions; Outcomes suicidal ideation (SI), suicide attempts (SA), deliberate self-harm (DSH), and protective factors; Study designs randomized controlled trials (RCTs), cohort studies, and cross-sectional studies. Searches were conducted in PubMed, Scopus, Embase, PsycINFO, and regional databases for studies published between January 2015 and December 2020. The timeframe was selected to capture the most recent evidence and reflect evolving practices in adolescent mental health. Search strategies used complete Boolean strings tailored for each database.

Study selection process

The eligibility criteria encompassed adolescent individuals aged 10–18 years, psychosocial interventions aimed at suicide prevention, and outcomes related to SI, attempts, self-harm, or protective factors. Studies lacking primary data, case reports, and interventions not directed at suicide prevention were excluded, while two reviewers conducted independent screenings of titles, abstracts, and full texts, resolving discrepancies through discussion or a third reviewer, with inter-rater reliability

assessed via Cohen's kappa statistic and documented via a PRISMA flow diagram.

Data extraction and quality assessment

A standardized extraction form was used to obtain information on study characteristics, including author, year, country, sample size, intervention type, mode of delivery, setting, outcomes, and follow-up duration. Two reviewers independently extracted data. Risk of bias for RCTs was assessed using the Cochrane RoB 2.0 tool, while observational studies were assessed using ROBINS-I.^[12] Disagreements were resolved through consensus.

Data synthesis

Meta-analyses utilized a random-effects model to derive pooled effect sizes (Cohen's *d*) with 95% confidence intervals (CI), while subgroup analyses were stratified by delivery setting (educational, familial, community, healthcare, and telecommunication), intervention type, and mode of delivery; furthermore, sensitivity analyses evaluated the robustness of outcomes, and heterogeneity was measured with the *I*² statistic.

Statistical software and model specifications

All analyses were conducted using Review Manager (RevMan) version 5.4, consistent with the Cochrane Handbook (v6.2).^[22] Random-effects models were selected due to anticipated clinical diversity and methodological heterogeneity (*I*² > 40%). Effect sizes were interpreted as small (*d* < 0.20), moderate (0.20–0.49), or large (*d* ≥ 0.50), with significance set at *P* < 0.05. Publication bias was explored only where ≥ 10 studies were available per outcome.

Results

Study characteristics

Study selection and overview

The search identified 18,500 records from the databases. After removing 307 duplicates, 18,193 records were screened. Title and abstract screening resulted in 89 full texts, and 20 studies were included in the meta-analysis.^[16-18]

Participant characteristics

The included studies comprised 13,959 adolescents aged 10–18 years at baseline, with sample sizes ranging from 32 to 11,110 participants [Table 1]. Approximately 62% (8,700) were female. Two studies lacked detailed demographic information due to prioritizing anonymity during service delivery (Collins 2018; Tyson 2016).

Intervention characteristics

The studies used various psychosocial strategies to prevent adolescent suicide. Psychoeducation was the

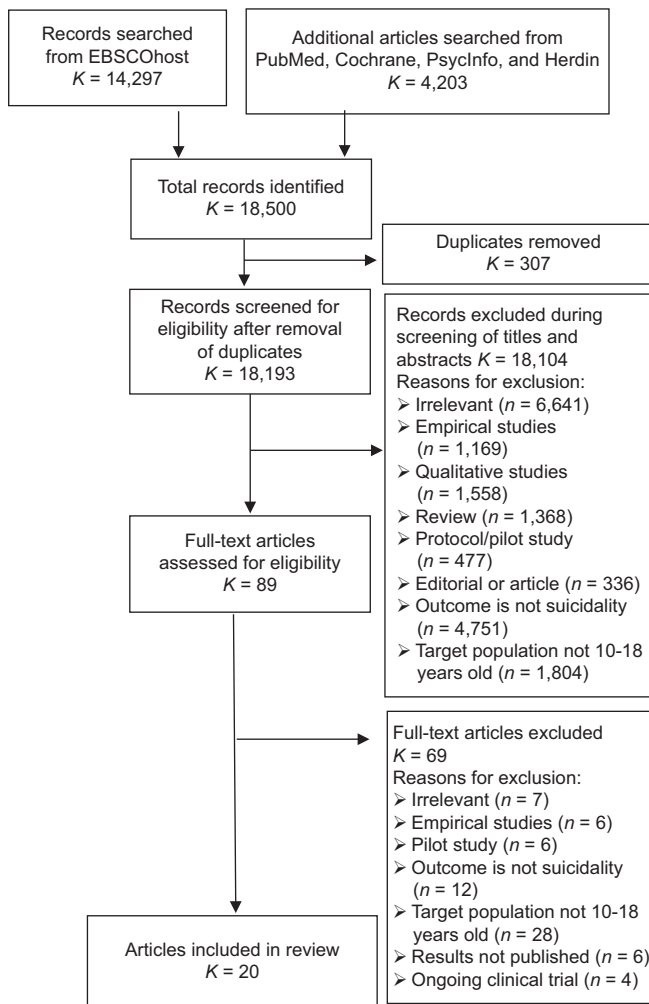


Figure 1: PRISMA items for systematic reviews and meta-analysis flow diagram

most common in five studies (25%). Both CBT and DBT appeared in four studies (20%), with MI also in four (20%). Less common interventions included mentalization-based therapy (MBT) in one study (5%), Intensive Community Care Service (ICCS) in one (5%), and FT in one (5%). Interventions occurred in different settings: half of the studies (10, 50%) in clinical environments, four (20%) used telecommunication methods, two (10%) were community-based, one (5%) was school-based, and three (15%) used mixed or alternative settings. Task sharing paraprofessionals delivered interventions in 55% (11 studies) and healthcare professionals led in 45% (9 studies). Program durations ranged from 3 to 24 sessions. Outcomes mainly measured through self-reports focused on suicide ideation (12 studies), attempts (nine), and self-harm (seven). These outcomes underpinned the pooled analyses of effectiveness.

Excluded studies

During the full-text review, 35 studies were excluded based on predefined criteria. Many were removed

because participants were outside the target age of 10–18 years. Others focused on interventions other than psychosocial methods or investigated treatments that were irrelevant. Some studies lacked key outcomes like SI, SA, or DSH. Studies with unsuitable designs, such as case reports or descriptive research, were also omitted. Finally, some studies lacked enough data for inclusion in the meta-analysis.

Quality assessment results

The RoB in the included studies was assessed using Cochrane guidelines: RoB 2 for RCTs, RoB for cluster trials, and ROBINS-I for observational studies. This enabled a systematic evaluation of study quality. Most studies showed high methodological rigor, with 14 (93%) rated as low risk, 1 (7%) as moderate risk, and none as high risk. Domain-specific assessments indicated that most studies had strong methodological quality. For randomization, 14 studies were considered to be low risk, with one raising concerns. Deviations from interventions were rated low risk in 13 studies and flagged as concerns in two. Missing outcome data were rated low risk in 12 studies, with three concerns. Outcome measurement was low risk in 14 studies and one concern. All 15 studies showed a low RoB in the reported results, indicating consistency. Overall, the evidence is solid with some minor concerns. Both cluster RCTs (Collings *et al.*, 2018; Wasserman *et al.*, 2015)^[19,20] exhibited low bias risk across all domains, including cluster-specific ones, with low risk in participant identification, recruitment, and timing. Cross-sectional studies showed more variability: two studies (Asarnow *et al.*, 2015;^[21] Tyson *et al.*, 2016)^[22] had a serious bias risk (67%), while one (Bo *et al.*, 2016)^[10] was rated critical (33%). These studies identified issues such as confounding, participant selection bias, inconsistencies in intervention classification, and risks related to missing data. The overall quality of evidence was considered moderate to high for RCTs, with most demonstrating strong methodological quality. However, including cross-sectional studies, which have a higher RoB, somewhat limits the strength of the conclusions, particularly for specific subgroup analyses. The predominance of self-reported outcomes across all the study types presents a potential bias source, although this is inherent to suicide-related research.

Quantitative synthesis (meta-analysis)

Overall intervention effects

The meta-analysis indicated that psychosocial interventions are effective in the short to medium term but vary over time [Figure 2]. Short-term effects (≤ 6 months, 32 comparisons) had a small yet significant impact ($d = 0.26$, $P = 0.0003$) with high heterogeneity ($I^2 = 62\%$), reflecting medium-term

Table 1: Characteristics of the studies, k=20

Author (year)	Country	Age (mean)	Treatment strategies (treatment vs. control)	Intervention setting	Delivery format	Approach of intervention	Target Outcome/s (period of follow-up)
Asarnow <i>et al.</i> (2015)	USA	14.89	FF-CBT ^a	Clinical setting	Family-centered	Selective	SI (short-term); SA (short-term)
Asarnow <i>et al.</i> (2016)	USA	14.62	FF-CBT versus E-TAU	Clinical setting	Individual-based	Indicative	SA (short-term)
Bo <i>et al.</i> (2016)	Denmark	16.4	Mentalization-based treatment ^a	Clinical setting	Individual-based	Selective	DSH (short-term)
Collings <i>et al.</i> (2018) ^[9]	New Zealand	Unavailable	Multi-level psychoeducation versus PAU	Clinical setting and telecommunication	Individual-based	Universal	DSH (long-term)
Cottrell, <i>et al.</i> (2018)	England	14.3	Manualized Family Therapy versus TAU	Clinical setting	Family-centered	Indicative	SI (medium and long-term); SA (short-term); DSH (long-term)
Diamond <i>et al.</i> (2018)	USA	14.87	Motivational interview versus Psychoeducation	Clinical setting	Individual-based	Selective	SI (short and medium-term); SA (short-term);
Esposito-Smythers <i>et al.</i> (2019)	USA	14.91	FF-CBT versus E-TAU	Clinical setting	Family-centered	Indicative	SI (short, medium and long-term); SA (short, medium and long-term)
Gillespie <i>et al.</i> (2019)	Ireland	15.67	DBT-A program 16 weeks versus 24 weeks	Community and telecommunication	Individual-based	Selective	SI (short-term); DSH (short-term)
Grupp-Phelan <i>et al.</i> (2019)	USA	15	Motivational Interview versus EUC	Clinical setting and telecommunication	Family-centered	Universal	SI (short-term), SA (short-term)
Hogberg and Hallstrom (2018)	Sweden	15.2	MR-CBT versus TAU	Clinical setting	Individual-based	Selective	SI (short-term); SA (short-term)
Kennard <i>et al.</i> (2018) ^[36]	USA	15.1	Motivational interview versus TAU	Clinical setting and Telecommunication	Family-centered	Indicative	DSH (short, medium, long-term)
King <i>et al.</i> (2018)	USA	13.5	Psychoeducation versus Control	Community and Telecommunication	Family-centered	Universal	SI (short-term)
Lu <i>et al.</i> (2017)	China	11.7	Psychoeducation versus Waitlist control	School	Individual-based	Universal	SI (short-term)
McCauley <i>et al.</i> (2018)	USA	14.89	DBT versus IGST	Community and Telecommunication	Individual-based	Indicative	SA (short and medium-term); DSH (short, medium-term)
Mehlum <i>et al.</i> (2016)	Norway	15.6	DBT-A versus EUC	Clinical setting	Individual-based	Selective	SI (short-term); DSH (medium and long-term)
Mehlum <i>et al.</i> (2019)	Norway	15.9	DBT-A versus EUC	Clinical setting	Individual-based	Selective	SI (short-term); DSH (long-term)
Miklowitz <i>et al.</i> (2020)	USA	13.2	Psychoeducation versus EUC	Community	Family-centered	Selective	SA (short-term)
Ougrin <i>et al.</i> (2021)	England	16.34	ICCS versus TAU	Clinical setting	Individual-based	Indicative	DSH (short-term)
Tyson <i>et al.</i> (2016)	England	Unavailable	Motivational interview ^a	Telecommunication	Individual-based	Indicative	SI (short-term)
Wasserman, <i>et al.</i> (2015) ^[10]	European Union countries: Austria, Estonia, France, Germany, Hungary, Ireland, Italy, Romania, Slovenia, and Spain	14.8	SEYLE program ^c (QPR, YAM, ProfScreen) versus Control	School	Individual-based	Universal, Selective, Indicative	SI (short and medium-term); SA (short and medium-term)

^aCross-sectional studies, ^bCluster randomized controlled trials, ^cOnly the YAM intervention was included in the review for it targeted the same population, as provided in the inclusion criteria. This was accounted as a psychoeducation intervention. FF=family focused, CBT=Cognitive behavioural treatment, E=Enhanced, TAU=Treatment as usual, PAU=Practice as usual, DBT-A=Dialectical behavior therapy for adolescents, EUC=Enhanced usual care, CBT=Cognitive behavioural treatment, MR=Mood regulation-focused, IGST=Individual and group supportive therapy, ICCS=Intensive community care, QPR=Question, persuade, and refer, YAM=Youth Aware of Mental Health Programme, ProfScreen=Professional program, SI=Suicidal ideation, SA=Suicide attempts, DSH=Deliberate self-harm

effects (≤ 12 months, eight comparisons) were slightly higher ($d = 0.30$, $P = 0.03$) with moderate heterogeneity ($I^2 = 45\%$), indicating more consistency. These results suggest that while these interventions initially help, their effects may diminish without ongoing support. In contrast, long-term effects (>12 months, six comparisons) showed no evidence of sustained benefit the pooled effect size was small and nonsignificant ($d = 0.08$, 95% CI: -0.19 – 0.35 ; $Z = 0.58$, $P = 0.56$), with no detected heterogeneity ($I^2 = 0\%$, τ^2

$= 0.00$, $Q = 3.45$, $df = 5$, $P = 0.60$). Overall, meta-analysis reveals that psychosocial interventions provide significant short-term benefits for suicidal behaviors. Regarding SI, the effect size was $d = 0.20$ ($P = 0.03$) with moderate heterogeneity ($I^2 = 56\%$). For SA, the effect was larger at $d = 0.32$ ($P = 0.006$), with low to moderate heterogeneity ($I^2 = 33\%$). The most pronounced effect was observed in DSH ($d = 0.39$, $P = 0.03$), although with high heterogeneity ($I^2 = 78\%$). These findings suggest that psychosocial interventions effectively reduce

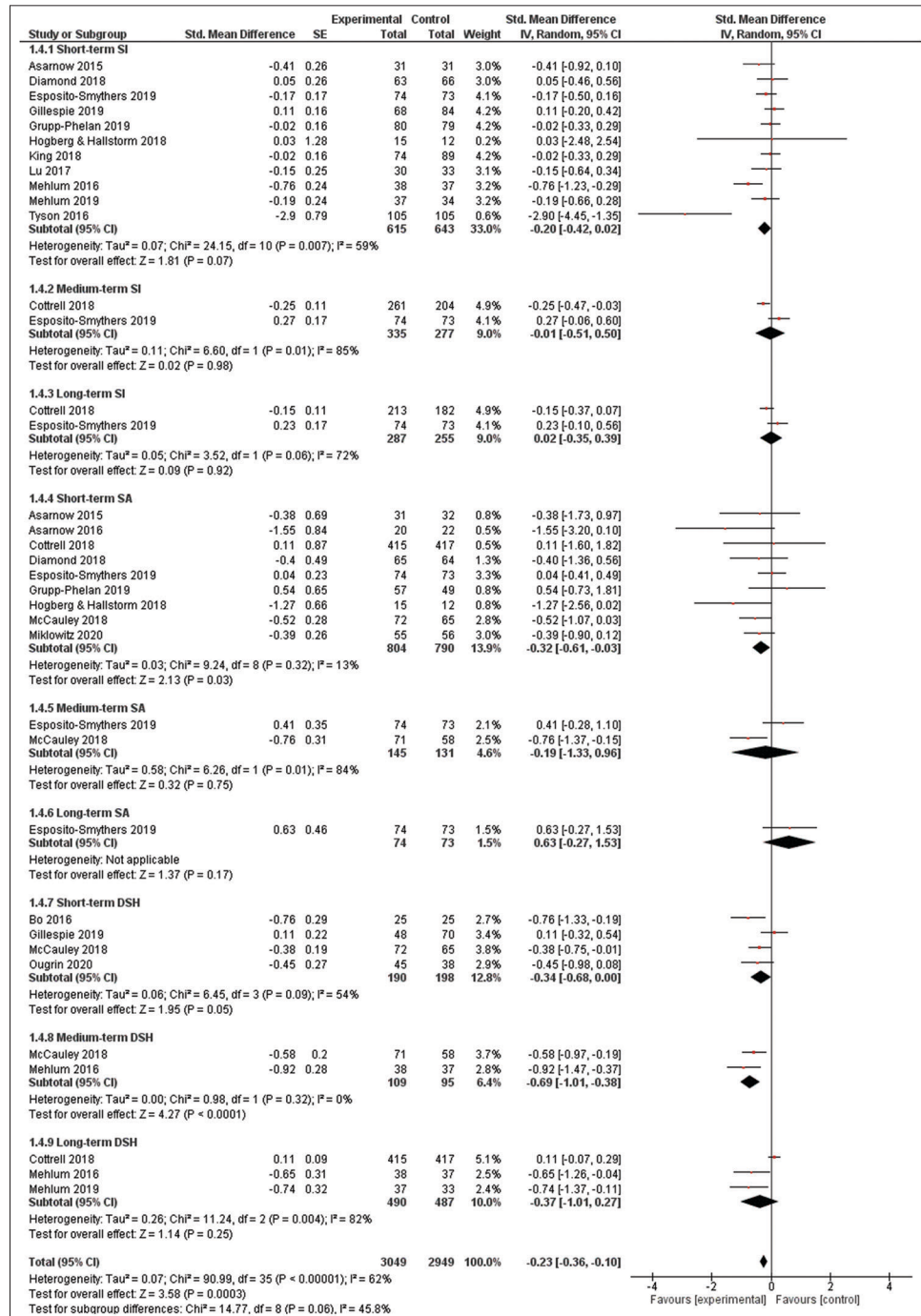


Figure 2: Forest plot of overall intervention effect by period of evaluation and type of suicide behavior

Table 2: Subgroup Analysis at End-of-Treatment (K=17)

		K	Total # of outcome measured	d (95% CI)	P	I ²	Q (df)
Intervention							
Content	Cognitive Behavioural Therapy	4	7 (SI & SA)	0.26 (0.02, 0.53)	0.07	15%	7.02 (6)
	Dialectical Behavior Therapy	4	8 (SI, SA, & DSH)	0.37 (0.09, 0.66)	0.009	67%	21.50 (7)
	Motivation Interview	3	4 (SI & SA)	0.54 (0.47, 1.55)	0.29	79%	13.13 (3)
	Psychoeducation	3	3 (SI & SA)	0.13 (0.11, 0.36)	0.28	0%	1.48 (2)
	Mentalization-Based Therapy	1	1 (DSH)	0.76 (0.19, 1.33)	0.009	n/a	n/a
	Intensive Community Care Service	1	1 (DSH)	0.45 (0.08, 0.98)	0.10	n/a	n/a
	Family Therapy	1	3 (SI, SA & DSH)	0.06 (0.26, 0.37)	0.72	69%	6.44 (2)
Setting	Clinical setting	10	19 (SI, SA & DSH)	0.40 (0.19, 0.61)	0.0003	57%	39.86 (17)
	Combined with telecommunication	4	6 (SI, SA & DSH)	0.30 (0.09, 0.69)	0.13	72%	17.66 (5)
	Community	2	3 (SI, SA & DSH)	0.01 (0.28, 0.30)	0.95	33%	2.96 (2)
	School	1	1 (SI)	0.15 (0.34, 0.64)	0.55	n/a	n/a
Delivery Format	Individual-based	11	17 (SI, SA & DSH)	0.45 (0.22, 0.68)	0.0002	62%	41.59 (16)
	Family-centered	6	11 (SI, SA & DSH)	0.08 (0.04, 0.20)	0.18	15%	11.79 (10)
Approach	Indicative	6	10 (SI, SA & DSH)	0.28 (0.03, 0.52)	0.03	69%	28.80 (9)
	Selective	8	14 (SI, SA & DSH)	0.38 (0.15, 0.61)	0.001	53%	27.81 (13)
	Universal	3	4 (SI & SA)	0.03 (0.17, 0.23)	0.78	0%	1.01 (3)
Outcome							
	Suicide Ideation	12	12 (SI)	0.20 (0.01, 0.38)	0.03	56%	24.94 (11)
	Suicide Attempt	9	9 (SA)	0.32 (0.03, 0.61)	0.006	33%	13.34 (9)
	Deliberate Self-Harm	7	7 (DSH)	0.39 (0.05, 0.72)	0.03	78%	27.75 (6)

suicidal outcomes among adolescents in the short term, especially self-harm, attempts, and ideation.

Subgroup analyses

Intervention type analysis

The effectiveness of psychosocial interventions varied by modality is shown in Figure 2.

- MBT showed the strongest effect ($d = 0.76$).^[23]
- DBT produced significant moderate effects ($d = 0.37$).^[24]
- MI demonstrated large but nonsignificant effects.^[24]
- CBT showed borderline effects.
- Psychoeducation, FT, and ICCS yielded minimal or nonsignificant effects.

Setting analysis

Effectiveness varied by setting. Clinical interventions showed the most substantial evidence with a moderate, statistically significant effect ($d = 0.40$, 95% CI: 0.19–0.61; $P = 0.0003$), but with moderate heterogeneity ($I^2 = 57\%$). Telecommunication approaches had a moderate effect ($d = 0.30$, 95% CI: 0.09–0.69) but no significance ($P = 0.13$) and high heterogeneity ($I^2 = 72\%$). School-based ($d = 0.15$, 95% CI: –0.34–0.64; $P = 0.55$) and community-based ($d = 0.01$, 95% CI: –0.28–0.30; $P = 0.95$) interventions were ineffective, although the community approach had low heterogeneity ($I^2 = 33\%$).

Delivery format analysis

When comparing delivery formats, individual-based interventions demonstrated a moderate, statistically significant effect ($d = 0.45$, 95% CI: 0.22–0.68;

$P = 0.0002$) across 11 studies, although with moderate heterogeneity ($I^2 = 62\%$). Conversely, family-centered interventions showed a negligible and nonsignificant effect ($d = 0.08$, 95% CI: –0.04–0.20; $P = 0.18$) across six studies, with minimal heterogeneity ($I^2 = 15\%$).

Intervention approach analysis

The effectiveness of interventions varies depending on the prevention approach [Table 2]. Selective interventions targeting at-risk groups had the most notable effect ($d = 0.38$, 95% CI: 0.15–0.61; $P = 0.001$), with moderate heterogeneity ($I^2 = 53\%$). Indicated interventions for adolescents showing suicidal behaviors demonstrated a smaller but still significant effect ($d = 0.28$, 95% CI: 0.03–0.52; $P = 0.03$), with higher heterogeneity ($I^2 = 69\%$). Universal interventions for the general population were ineffective ($d = 0.03$, 95% CI: –0.17–0.23; $P = 0.78$), with no heterogeneity ($I^2 = 0\%$). The subgroup analyses suggest that targeted and specific interventions, whether clinical or personalized, have the greatest impact, while general programs and family-centered approaches offer only minor benefits. These findings highlight the importance of tailoring suicide prevention strategies for high-risk groups and emphasizing clinically integrated, individualized methods.

Heterogeneity assessment

Overall heterogeneity

The meta-analysis showed different levels of heterogeneity across different time frames. The short-term effects showed high heterogeneity ($I^2 = 62\%$, $P < 0.00001$), indicating significant variability among

the studies. Medium-term effects showed moderate heterogeneity ($I^2 = 45\%$, $P = 0.08$), while long-term effects had no significant heterogeneity ($I^2 = 0\%$, $P = 0.63$). Possible sources of heterogeneity were examined. For short-term effects, variability was partly explained by intervention type (test for subgroup differences: $\chi^2 = 14.77$, $df = 8$, $P = 0.06$, $I^2 = 45.8\%$), as well as differences in setting, delivery format, and study population characteristics.

Sensitivity analysis

To assess the stability of the findings, sensitivity analyses were conducted by excluding the three cross-sectional studies identified as having a serious to critical RoB. The results remained consistent: short-term effects ($d = 0.28$, 95% CI: 0.12–0.44, $P = 0.001$), medium-term effects ($d = 0.32$, 95% CI: 0.08–0.71, $P = 0.02$), and long-term effects ($d = 0.09$, 95% CI: –0.18–0.36, $P = 0.52$). These minor changes in effect estimates confirm the robustness of the overall findings.

Model selection justification

Random-effects models were used throughout the analyses. This approach was justified by the expected clinical and methodological diversity across studies, the presence of significant statistical heterogeneity in primary analyses and differences in populations, interventions, and delivery settings.

Studies requiring separate analysis

Three studies employed different analytical methods due to variations in data structures. Collings *et al.* (2018)^[19] observed mixed results regarding long-term self-harm outcomes by cluster, with some showing nonsignificant results (Cluster A: $RR = 0.95$, $P = 0.21$) and others displaying significant effects (Cluster B: $RR = 0.93$, $P = 0.02$; Cluster C: $RR = 1.09$, $P = 0.02$; Cluster D: $RR = 1.34$, $P < 0.00001$). Kennard *et al.* (2018)^[11] reported combined results at 4, 12, and 24 weeks, finding no significant effects on SI ($d = 0.18$, $P = 0.49$) or attempts ($d = 0.36$, $P = 0.15$). Wasserman *et al.* (2015)^[20] reported a small, short-term, nonsignificant effect on ideation ($d = 0.07$, $P = 0.64$), but a significant effect on attempts ($d = 0.44$, $P = 0.01$). Results for medium-term outcomes were nonsignificant for both measures.

Publication bias

Formal publication bias assessments, such as funnel plots and Egger's test, were not conducted due to the limited number of studies in each subgroup; the recommended minimum of ten studies per analysis was not consistently achieved across outcome categories. Visual inspection of the available data indicated no clear asymmetry, although this assessment is limited by the small number of studies and should be interpreted cautiously.

Discussion

Our findings are consistent with previous meta-analyses and systematic reviews showing moderate short-term effects of psychosocial interventions on suicidal behaviors.^[1,2,16-20] That can translate into significant public health benefits when scaled. These findings align with global evidence supporting structured psychotherapeutic approaches for adolescents^[25] and offer new, context-specific insights for Philippine mental health policy.^[26]

Intervention-specific effects

DBT demonstrated the strongest impact ($d = 0.37$), supported by high-quality adolescent trials. MI showed the largest effect size ($d = 0.54$), indicating promise as a brief, engagement-focused intervention, although findings remain mixed. CBT yielded moderate effects ($d = 0.26$), reinforcing its role as a core intervention in youth mental health, while single-session CBT continues to show limited long-term benefit.^[27] Evidence for psychoeducation, FT, and intensive community care was weaker, underscoring the need for more rigorous trials in these modalities.

Settings and implementation

Clinical settings emerged as the most effective platforms ($d = 0.40$), emphasizing the need to integrate suicide prevention directly into healthcare services. Telehealth interventions ($d = 0.30$) also showed promise, with adolescent tele-mental health programs demonstrating engagement rates above 80%,^[6] suggesting feasibility in geographically isolated and disadvantaged areas (GIDA). Universal prevention programs produced minimal impact compared to targeted interventions, supporting a risk-stratified approach and aligning with calls for systematic suicide risk screening in primary care.^[7]

Temporal patterns and sustainability

Short- and medium-term benefits of psychosocial interventions are clear, but effects diminish beyond 1 year. Even DBT-A, the most effective modality, shows reduced gains in long-term follow-up.^[7] This highlights the importance of maintenance strategies, such as booster sessions, stepped-care approaches, and technology-based follow-up. Emerging innovations including digital safety planning, automated text messaging, and app-based interventions are promising for sustaining treatment gains.^[8,9]

Family and cultural dynamics

Although individual-based interventions outperformed family-centered ones, strong evidence continues to link family support to lower suicide risk. The weaker outcomes likely reflect implementation challenges

rather than the irrelevance of family involvement. In collectivist societies such as the Philippines, family plays a central role in adolescent well-being.^[12] Promising models such as Attachment-Based FT and the FASE framework, which combine individual therapy with structured family engagement, have shown synergistic benefits.^[13,28] Culturally adapted family interventions are thus essential for national implementation.

Clinical and policy implications in the Philippines

Adolescent suicide has risen sharply in the Philippines, with a 57% increase among 15–19 year olds between 2019 and 2021.^[29] The Mental Health Act (RA 11036) mandates suicide prevention, yet its implementation remains uneven, especially in schools and rural areas. The UHC Act (RA 11223) theoretically expands access to mental health services, but integration into primary care and community programs remains limited.^[30] Current initiatives, such as the Philippine Council for Mental Health's Strategic Framework (2024–2028) and DepEd's draft school mental health policy, provide momentum, but operational gaps persist.^[31]

Our findings directly address these gaps by demonstrating that evidence-based psychosocial interventions, particularly DBT, CBT, and MI, produce measurable benefits for adolescents. This research advances the field by: (1) synthesizing effectiveness data specific to Filipino and low- and middle-income country-relevant contexts; (2) highlighting intervention formats and delivery settings best suited for resource-constrained environments; and (3) translating evidence into actionable strategies for schools, barangays, and telehealth platforms.

Policy recommendations

To accelerate the enforcement of the Mental Health Act (RA 11036) and the Universal Health Care Act (RA 11223), policymakers and program managers should prioritize:

- Development of a culturally adapted family interventions that complement individual therapy and reflect collectivist Filipino values^[32]
- Scaling evidence-based interventions like CBT, DBT, and MI within DepEd curricula, DOH adolescent services, and LGU programs^[32]
- Routine suicide risk screening in schools, primary care, and barangay health centers^[32]
- Investing in digital health platforms for telehealth services, follow-up, and booster interventions in the resource-limited areas^[33–36]
- Sustainable financing mechanisms that focus on affordable, scalable methods within the UHC framework.

These recommendations ensure that adolescent mental health services are not only accessible but may also be practical, culturally relevant, and sustainable.

Implementation considerations

Key facilitators include the Philippines' barangay health infrastructure, expanding digital health systems, and high youth digital engagement. Barriers remain in the form of stigma, workforce shortages, and disparities between urban and rural services. To maximize impact, culturally adapted interventions must be prioritized, with resource allocation focusing on cost-effective strategies like MI and telehealth. Strong capacity-building through DOH and DepEd is needed to ensure quality implementation.

Limitations and future directions

Heterogeneity in study design, outcomes, and follow-up periods may have affected the combined estimates. Most trials included were carried out in high-income countries which limit their direct relevance to the Philippine context. Few studies have examined MI and digital interventions, and evidence on their long-term effects remains limited.^[37] Future research should focus on culturally tailored interventions for Filipino schools and communities.^[38] explore implementation challenges related to feasibility and scalability, and include economic evaluations to support sustainable financing within UHC. In addition, while this study adds valuable insights, it cannot address all contributing factors, highlighting a limitation of the current research landscape in the Philippines, not just this particular study.

Future research priorities in the Philippines

Future work should focus on:

1. Culturally adapted interventions tested in schools, families, and communities in the Philippines
2. Implementation research on feasibility, scalability, and cost-effectiveness in low-resource areas
3. Longitudinal studies on relapse prevention, booster strategies, and digital health follow-up
4. Economic evaluations to guide sustainable financing for UHC implementation
5. Local evidence generation involving aggregating local data through meta-analysis to establish clearer baseline statistics, critical for national programs under DOH and DepEd, via collaborations with LGUs and academic institutions.

Conclusion

The Mental Health Act and UHC provide vital frameworks, but suicide prevention delivery remains a work in progress. This study contributes novel, policy-relevant evidence that psychosocial interventions effectively reduce adolescent suicidal behaviors and are

feasible for integration into schools, communities, and digital platforms.^[39] By aligning global best practices with local realities, this research bridges the gap between legislative intent and operational strategies, providing a roadmap for measurable reductions in adolescent suicide risk in the Philippines.

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Conflicts of interest

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