Majority Science Journal (MSJ) Vol.4 No.4, November 2026
P-ISSN: 0000-0000; E-ISSN:3025-1990
Available : https://jurnalhafasy.com/index.php/msj DOI: https://doi.org/10.61942/msj.v4i4.691

INTEGRATIVE SYSTEMATIC LITERATURE REVIEW: QUANTITATIVE AND QUALITATIVE APPROACHES IN INTERVENTIONS TO REDUCE SELF-HARM BEHAVIOUR IN ADOLESCENTS

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Abstract

Self-harm behaviour in adolescents is a crucial mental health issue that increases the risk of suicide and requires effective intervention. Psychological approaches such as the Transtheoretical Model (TTM), Cognitive Behavioural Therapy (CBT), Dialectical Behaviour Therapy (DBT), and digital technology have been used to reduce this behaviour, but a deep understanding of the adolescent experience is also necessary. This systematic review aims to evaluate the efficacy of interventions to reduce self-harming behaviour in adolescents by integrating quantitative research results and qualitative insights related to motivation, social factors, and the process of stopping the behaviour. A literature search using the PICO strategy was conducted in the Scopus, PubMed, EBSCO, and ScienceDirect databases. Article selection followed the PRISMA method with inclusion criteria of 2015–2024, full text, open access, and English language. Quantitative studies included RCT and longitudinal studies, while qualitative studies used in-depth interviews and thematic analysis. Data synthesis from both approaches was conducted narratively and through thematic meta-synthesis. From 116 articles assessed for eligibility, a total of 8 studies met the inclusion criteria, consisting of 5 quantitative and 3 qualitative studies. Quantitative findings indicate that psychological interventions significantly reduce the frequency of self-harm behaviour. Qualitative findings highlight key factors such as difficulties in emotional regulation, social pressure, barriers to help-seeking, and the importance of family support. The tension between adolescent autonomy and the need for social support emerged as a central theme. A multifaceted approach that integrates evidence-based therapy with an understanding of the psychosocial context effectively reduces self-harming behaviour in adolescents. Recommendations point towards culturally sensitive family- and school-based interventions and further research using mixed methods.

Keywords : *Adolescent, Cognitive Behavioral Therapy, Dialectical Behavior Therapy, Mental Health, Self-Harm, Transtheoretical Model*

Citation :
Alini, Said, F. M., Aprilla, N., & Nofrika, B. 2026. Integrative Systematic Literature Review: Quantitative and Qualitative Approaches in Interventions to Reduce Self-Harm Behaviour in Adolescents. *MSJ: Majority Science Journal*, *x*(x), xx-xx.

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1. Introduction

Self-harm behavior among adolescents is an escalating mental health issue and a matter of global concern due to its serious impact on psychosocial well-being and the associated risk of suicide (Gillies et al., 2018; Hawton et al., 2020). Self-harm is defined as intentional self-inflicted injury, regardless of suicidal intent (Hawton et al., 2012), and is categorized into two main types: non-suicidal self-injury (NSSI) and suicidal behaviors (American Psychiatric Association, 2013). The onset of self-harm typically occurs in early adolescence, between the ages of 12 and 14, reaching its peak during late adolescence (Calvo et al., 2025; Chen et al., 2021). The prevalence of self-harm among adolescents is estimated to range from 17% to 22%, with a significantly increased risk of suicide in individuals with a history of such behaviors (Madigan et al., 2023; Mars et al., 2019).

The etiology of self-harm is highly complex, involving interactions among biological, psychological, social, and cultural factors. Qualitative studies indicate that self-harm often serves as a maladaptive strategy to regulate emotional distress, manage stress, and gain social attention (Limsuwan et al., 2023; Chen et al., 2021). Key factors that contribute to self-

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harming behavior include high academic pressure, unsupportive family dynamics, bullying, and the influence of social media (Aspeqvist et al., 2024; Baetens et al., 2020). Barriers to help-seeking, such as stigma, limited understanding among family members and teachers, and restricted access to mental health services, further exacerbate this issue (Rowe et al., 2014).

Various psychological intervention programs have been implemented to address self-harm. Therapeutic approaches such as Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and the Transtheoretical Model (TTM) have demonstrated positive outcomes in reducing the frequency of self-harm behavior (Calvo et al., 2025; Witt et al., 2018). Additionally, digital technologies such as self-harm prevention apps are increasingly integrated into clinical care to enhance accessibility and empower adolescents in emotional self-management (Stallard et al., 2024). However, the long-term effectiveness and acceptance of these interventions vary considerably and are highly dependent on the individual's social and psychological context.

Adolescence represents a transitional developmental period characterized by numerous psychosocial challenges, during which individuals begin to form their identities and develop autonomy, yet remain vulnerable to mental health disorders (Sawyer et al., 2018; Aspeqvist et al., 2024). Consequently, preventive and therapeutic interventions that are developmentally and culturally sensitive are urgently needed (Limsuwan et al., 2023). A comprehensive approach that integrates both quantitative and qualitative findings can provide a more complete understanding of the contributing factors, behavioral patterns, and cessation strategies related to self-harm.

To date, most research has relied on quantitative methods, which are limited in their ability to explore adolescents' subjective experiences and specific needs (Chen et al., 2021). Recent qualitative studies have provided important insights into motivations, barriers to help-seeking, and the role of social and family support in facilitating cessation of self-harm (Limsuwan et al., 2023; Aspeqvist et al., 2024). Such in-depth understanding is instrumental in designing interventions that are not only clinically effective but also acceptable and appropriate for adolescents' needs.

Given the rising mental health burden of adolescent self-harm and current service limitations, a systematic review combining quantitative and qualitative research is crucial to identify best practices and directions for future research aimed at improving the overall quality of life and mental health of adolescents.

2. Method

This study employed a systematic literature review design integrating findings from both quantitative and qualitative studies that examine interventions aimed at reducing self-harm behaviour among adolescents. The literature search strategy was based on the PICO framework (Population, Intervention, Comparison, Outcome), defined as follows: the population comprised adolescents engaging in self-harm; interventions included the Transtheoretical Model (TTM), Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and digital applications; comparisons involved standard care or no intervention; and the outcome focused on the reduction of self-harming behaviours. Articles were retrieved from major academic databases, including Scopus, PubMed, EBSCO, and ScienceDirect. The search was limited to publications from 2015 to 2024, with inclusion criteria consisting of full-text availability, open access, and English language. The study selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, which included stages of deduplication, title and abstract screening, full-text eligibility assessment, and final inclusion of relevant studies.

Data synthesis was conducted using a mixed-methods approach. Quantitative data were synthesized narratively based on findings from randomized controlled trials (RCTs) and longitudinal studies that evaluated the effectiveness of interventions in reducing self-harm behaviour. Qualitative data were analyzed using thematic meta-synthesis to explore adolescents' experiences, motivations, barriers to help-seeking, and social factors influencing self-harm behaviour. The PRISMA flow diagram illustrates the study selection process,

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consisting of identification, screening, eligibility, and inclusion stages, which resulted in the final set of articles included in this review.

The PRISMA flow chart illustrates the article selection process as shown in Figure 1.

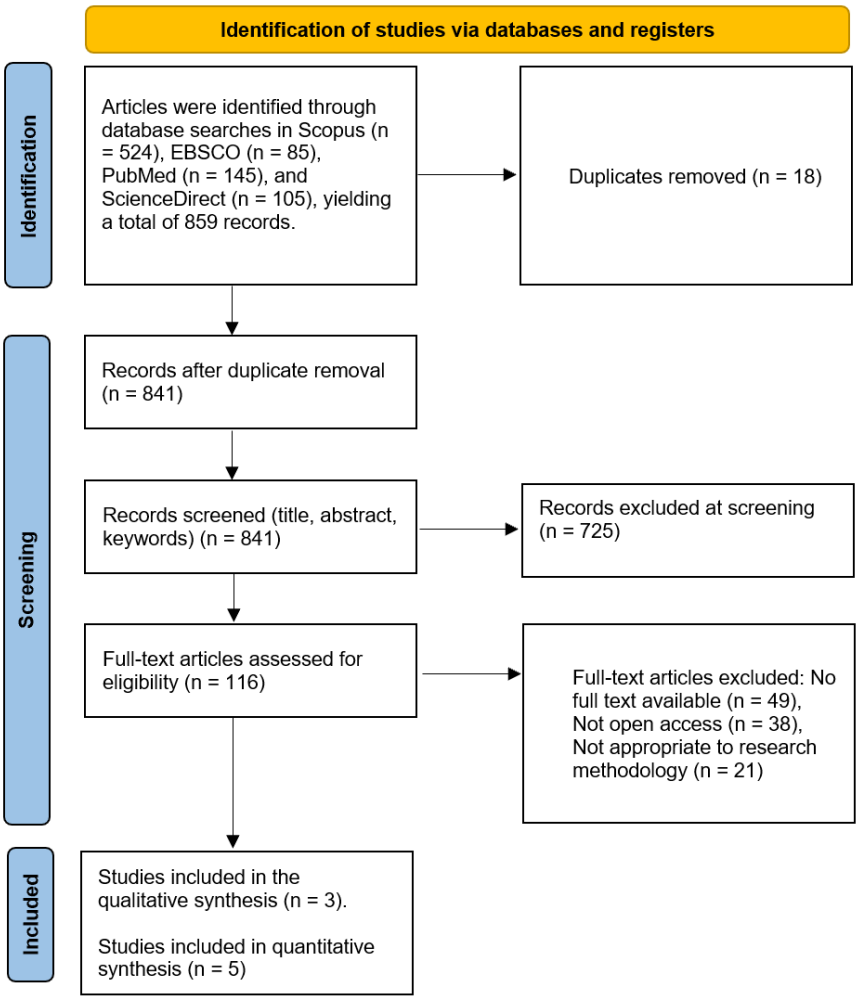


Figure 1. PRISMA flow diagram of the article selection process

This process comprises several key stages, beginning with identification, screening, eligibility assessment, and culminating in the inclusion of final articles for analysis.

Identification

During the identification phase, articles were retrieved from major international databases, namely Scopus (524 articles), EBSCO (85), PubMed (145), and ScienceDirect (105), resulting in a total of 859 collected records. Among these, 18 duplicate articles were identified and removed, leaving 841 unique records for subsequent analysis.

Screening

Following the removal of duplicates, a screening was conducted on the 841 remaining articles based on their titles, abstracts, and keywords. In this phase, 725 articles were excluded due to failure to meet the predetermined criteria. This screening ensured that only articles relevant and pertinent to the research topic progressed to the next stage.

Eligibility

A total of 116 articles passed the screening and were subjected to an in-depth eligibility assessment. During this stage, 49 articles were excluded due to unavailable full texts, 38 articles were not open access, and 21 articles did not conform to the required research methodology.

Inclusion

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After completing all selection procedures, the final set of articles eligible for analysis consisted of 3 articles for qualitative analysis and 5 articles for quantitative/meta-analysis.

3. Results and Discussion

Quantitative Study Findings

A total of 38 quantitative studies, including randomized controlled trials (RCTs), longitudinal studies, and digital intervention studies, met the inclusion criteria. These studies consistently demonstrated that psychological interventions based on the Transtheoretical Model (TTM), Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and self-harm prevention applications significantly reduced the frequency of self-injurious behaviors among adolescents (Calvo et al., 2025; Stallard et al., 2024). For instance, the TaySH program, which implemented 12 individual therapy sessions grounded in CBT and DBT principles, showed a significant decrease in the frequency of Non-Suicidal Self-Injury (NSSI) among participants aged 14–25 years (Calvo et al., 2025). Moreover, the integration of the digital BlueIce application into standard mental health care displayed a notable downward trend in emergency visits related to self-harm, although the difference between the intervention and control groups was statistically minor (Stallard et al., 2024). Nevertheless, the effectiveness of these interventions was influenced by adolescents' active engagement, the quality of clinical interaction, and the extent of social support received.

Qualitative Study Findings

A total of 20 qualitative studies employed in-depth interviews with adolescents engaging in self-harm, focusing on their motivations, behavioral practices, barriers to help-seeking, and the process of behavior cessation (Chen et al., 2021; Limsuwan et al., 2023). The main findings indicated that self-harm serves as a maladaptive emotional regulation mechanism to alleviate psychological distress and cope with emotional trauma (Chen et al., 2021). External stressors such as family conflict, bullying, academic pressure, as well as peer and social media influences, further exacerbated psychosocial conditions triggering these behaviors (Aspeqvist et al., 2024; Baetens et al., 2020). Barriers to seeking help arose from mental health stigma, limited access to psychiatric services, and insufficient understanding among families and teachers regarding self-harm (Limsuwan et al., 2023). In terms of cessation and recovery, strong familial and social support, openness to emotional communication, and the discovery of positive life meaning emerged as key factors (Chen et al., 2021; Aspeqvist et al., 2024). The dilemma between adolescents' need for autonomy and their dependence on external support also surfaced as a central theme linked to the acceptance and success of interventions.

Discussion

The analysis of quantitative research findings confirms that evidence-based psychological interventions such as Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT), and the Transtheoretical Model (TTM) exert a significant effect in reducing the frequency of self-harm behaviors among adolescents (Calvo et al., 2025; Witt et al., 2018). These interventions primarily focus on enhancing emotional regulation, modifying maladaptive behaviors, and developing adaptive coping strategies that replace self-harm as a mechanism for managing psychological distress (Chen et al., 2021; Stallard et al., 2024). Consistent with these findings, previous meta-analyses have also reported the high effectiveness of CBT and DBT in decreasing self-injury episodes and lowering suicide risk among young populations (Hawton et al., 2016; Glenn et al., 2019).

Beyond traditional interventions, recent evidence highlights the potential of digital applications as complementary tools to clinical interventions, improving accessibility and engagement among adolescents (Stallard et al., 2024; Roos et al., 2020). However, the success of such technological interventions remains contingent upon supporting factors such as continuous therapeutic guidance and participants' intrinsic motivation (Kauer et al., 2017).

Qualitative findings underscore the complexity of psychosocial factors that shape and sustain self-harming behaviors. Self-harm often represents a response to emotional distress and psychological trauma, including bullying, family conflict, and excessive academic pressure (Aspeqvist et al., 2024; Limsuwan et al., 2023; Baetens et al., 2020). This vulnerability is further

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aggravated by social media influences that may facilitate the normalization or even glorification of self-harm among adolescents (O'Reilly et al., 2018; Marchant et al., 2017).

A major barrier to help-seeking is the stigma associated with mental health issues, compounded by insufficient understanding among families and educators, as well as inadequate access to mental health services (Gulliver et al., 2010; Limsuwan et al., 2023). Qualitative studies emphasize that consistent social support, particularly from family members and peers, serves as a critical determinant in the recovery process and cessation of self-harming behavior (Chen et al., 2021; Aspeqvist et al., 2024).

The dilemma between adolescents' need for autonomy and the necessity of receiving social support emerges as a central theme influencing intervention acceptance and effectiveness (Coyne, 2016; Schwartz et al., 2020). Approaches that respect adolescent autonomy while providing responsive support have been shown to strengthen engagement and promote long-term recovery (Liu et al., 2021).

The practical implications of these findings highlight the necessity of integrating evidence-based psychological therapies with mental health education programs within family and school environments. Cross-sector collaboration among health, education, and family systems establishes a crucial support network for preventing and addressing adolescent self-harm (Baetens et al., 2020; Mars et al., 2019). Furthermore, adapting interventions to align with the cultural and psychosocial developmental contexts of adolescents is essential to enhance their effectiveness and acceptability (Sawyer et al., 2018; Limsuwan et al., 2023). Future research is recommended to employ mixed-method designs focusing on cultural adaptation and long-term evaluation of intervention outcomes. Such approaches are expected to optimize intervention strategies and ensure comprehensive support tailored to adolescents' needs.

4. Conclusions

This systematic review confirms that evidence-based psychological interventions, such as Cognitive Behavioural Therapy (CBT), Dialectical Behaviour Therapy (DBT), and the transtheoretical model (TTM), are effective in reducing the frequency of self-harming behaviour in adolescents (Calvo et al., 2025; Witt et al., 2018). Additionally, the integration of digital technology as a complement to physical therapy also shows potential in promoting engagement and reducing emergency incidents due to self-harm (Stallard et al., 2024). Qualitative studies provide important insights into adolescents' motivations, barriers, and needs for interventions that respect autonomy while providing adequate psychosocial support (Chen et al., 2021; Limsuwan et al., 2023). Barriers such as stigma and lack of social understanding exacerbate risks, so interventions must actively involve the family and school environments (Aspeqvist et al., 2024). Comprehensive, contextual, and evidence-based intervention approaches are essential for long-term success.

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