

A Scoping Review of School-Based Mental Health Measurement in Adolescents

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Abstract

Adolescent mental health issues, especially depression, anxiety, and stress, are highly prevalent and significantly impact their overall development. Given that schools are places where many adolescents spend a substantial amount of time, they have a crucial role in promoting mental well-being. Nonetheless, there is a shortage of valid and effective measurement tools for evaluating adolescent mental health in school settings. This study seeks to identify the measurement instruments utilized in school-based research to assess adolescent mental health, as well as the data collection and interpretation methods employed. Following the PRISMA protocol and Arksey and O'Malley's methodology, a thorough literature search was conducted across various databases, leading to the selection of articles meeting specific inclusion criteria. Out of 1,441 articles identified, 26 were deemed suitable for analysis. The results revealed that the most commonly used tools for measuring depression, anxiety, and stress in adolescents include the DASS-21, PHQ-9, CES-DC, GAD-7, and DQ5, with a majority of studies employing Likert scales for assessment. Data collection predominantly relied on self-reports from adolescents, with variations observed in the duration of questionnaire administration and the timeframes for measurement, generally demonstrating good internal consistency. These findings highlight the necessity of selecting appropriate and reliable measurement tools to acquire valid and accurate data on adolescent mental health. The review provides valuable insights for developing more effective tools to enhance school-based mental health interventions.

Keywords: mental health; adolescents; schools; measurement; depression; anxiety; stress; measurement tools

1. Introduction

Health goes beyond simply not being ill; it includes a person's overall well-being. Mental health is equally important as physical health for attaining a balanced and fulfilling life. People who maintain good mental health can realize their potential, handle daily challenges more effectively, engage with their community, and work productively (Solmi et al., 2022). Globally, mental health disorders have high prevalence, chronicity, and morbidity rates (Jorns-Presentati et al., 2021), and are known to significantly contribute to increasing burden of disease (Esmaelzadeh et al., 2018). It also lowers life expectancy up to 10-15 years compared to the general population (Hjorthøj et al., 2017; Walker et al., 2015).

The adolescent stage is a crucial period of development. During this time, individuals undergo various changes, including biological, psychological, and social transformations. These transitions can lead to internal conflicts within adolescents and conflicts with their surroundings. If these conflicts are not addressed successfully, they can result in negative consequences, including mental health disorders. Notably, adolescents tend to have higher rates of mental health challenges compared to other age groups (Aguirre Velasco et al., 2020). According to the World Health Organization (WHO), approximately 20% of adolescents are at risk of developing mental health disorders (Bell et al., 2019). Regional WHO of Asia Pacific shows that 3,7% of Indonesia's population suffers from depression. Recent literature indicates that 50% of mental health disorders manifest by the age of 14 (Colizzi et al., 2020). Depression, anxiety, and stress are common mental health issues experienced by adolescents (Gupta et al., 2023). Depression results in maladaptive behavior, one of which is self-injury (Lan et al., 2019). Supporting this concern Hidayati et al. (2023) reported that 25% of 909 respondents reported engaging in self-harming behavior before turning 14. This data underscores that adolescence is both a critical risk period and an ideal opportunity for prevention and early intervention.

Schools are frequently seen as the most scalable environment for promoting adolescent mental health and early identification. Research indicates that adolescent mental health is influenced by personal factors and different environmental contexts, with the school setting being especially important for their overall development and well-being (Cavioni et al., 2021). School environments provide significant opportunities to enhance mental health of adolescents, with the majority of adolescents attending school (Aston et al., 2023). Schools provide a structured and secure environment where most adolescents can interact. The daily routines and experiences at school can



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either support or negatively impact their overall health and well-being. Additionally, schools provide adolescents with opportunities to apply skills learned across different areas of their lives (King & Fazel, 2019). Providing mental health support in schools can yield educational, social, and psychological benefits for adolescents while enhancing access to necessary resources (Laurenzi et al., 2024).

Support for mental health can be fostered in school settings, where adolescents spend most of their time (M. Te Wang & Degol, 2016). Reliable collection of mental health data across different environments depends on valid measurement tools that truly capture how adolescents experience and show these symptoms (Carvajal-Velez et al., 2023). Some commonly used psychological tools for assessing mental health include the Beck Depression Inventory and the Depression, Anxiety, and Stress Scale-21 (DASS-21). These instruments are well-regarded for their ability to evaluate depression, anxiety, and stress symptoms and are frequently used in clinical and research settings (Kim et al., 2024). Nevertheless, there is still a limited availability of measurement tools specifically designed for adolescent populations, particularly in school settings. These tools need to be tailored to reach adolescents in their primary environment—schools. It is essential to involve adolescents actively in creating and spreading these solutions to ensure the tools remain relevant and effective (Laurenzi et al., 2023; Mawn et al., 2015).

Despite increasing attention to adolescent mental health in schools, there is still limited consolidated evidence on the psychometric validity and cross-cultural relevance of measurement tools used in school environments. This review concentrates on assessment instruments for depression, anxiety, and stress among adolescents aged 10-19, with clear conceptual and contextual boundaries. This gap emphasizes the need for more tailored, context-specific tools that can effectively monitor mental health in school settings. The primary goal of this scoping review, titled "A Scoping Review of School-Based Setting Mental Health Measurement in Adolescents," is to examine existing measurement tools and their use in schools. Its findings aim to offer practical guidance to educators, school psychologists, and policymakers for selecting and implementing appropriate mental health assessments.

2. Research Methods

The scoping review adheres to the PRISMA protocol for systematic reviews and meta-analyses (Wilson et al., 2023). The selected approach aims to identify and map existing evidence and examine how research evaluates and interprets mental health data collected in school settings. The review framework is based on Arksey and O'Malley's methodology, which includes developing research questions, identifying relevant studies, selecting articles, map-ping and synthesizing data, and reporting findings (Firdasannah et al., 2022). The primary research questions guiding this review are: which measurement tools have been used? Who is responsible for data collection, and what methods are employed for gathering and analyzing mental health data? The literature search was carried out across several databases, including ScienceDirect, APA PsycInfo, PubMed, and Google Scholar. The article search strategy involved combining keywords based on Medical Subject Headings (MeSH), specifically "mental health" AND "depression, anxiety, stress scale" AND "measurement" AND "screening" AND "adolescent" AND "school-based." Articles retrieved from the database search were then imported into Mendeley reference management software for screening based on eligibility criteria. These criteria included publications from 2014 to 2024, involving adolescents aged 10-19 years, studies conducted in school settings (whether during school hours or after school), and research focusing on mental health assessments (depression, anxiety, stress) that present original data and are published in English or Indonesian. Exclusion criteria included studies involving children under 10 years old or adult populations (>19 years), research conducted out-side school environments, studies not specifying the mental health measurement tools used, and non-empirical studies such as review articles, protocols, theses, and dissertations. Data were collected from the included studies using a standardized form, capturing variables such as author/year, country/setting, study design, sample characteristics (age range and size), school context (e.g., junior/senior high school, during/after school), mental health constructs assessed (depression, anxiety, stress), measurement tools used, who administered them, mode of administration (paper-based, digital/online), and reported psychometric information (e.g., reliability, validity). The findings were summarized descriptively by examining the frequency of instruments used and patterns of administration and psychometric reporting. While scoping reviews primarily aim to map evidence rather than evaluate effectiveness, a quality appraisal was performed to enhance interpretation and assess the validity of conclusions. Each study was evaluated for methodological quality and risk of bias using a structured checklist suitable for its design.

Quality indicators included clarity of sampling strategy, appropriateness of measurement tools for adolescent school populations, reporting of psychometric properties, transparency of data collection procedures, and completeness of reporting. The quality assessment results were not used to exclude studies but to contextualize findings and identify limitations within the evidence base. The databases search through the review process according to PRISMA guidelines in detailed in a Figure 1.

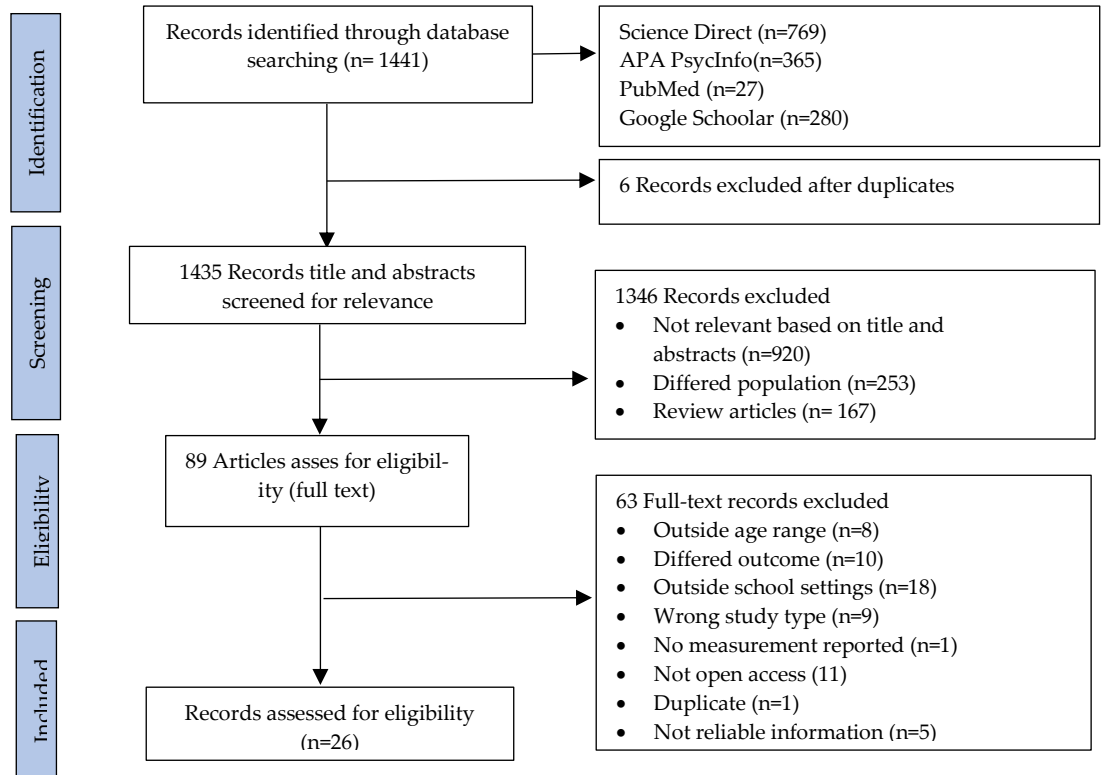


Figure 1. PRISMA flow diagram

3. Results and Discussion

3.1. Results

3.1.1 Study Selection

After deduplication, initial searches retrieved 1441 sources. These were first screened by title and abstract, then 89 sources underwent full-text review. Ultimately, 26 studies were selected for extraction. All 26 sources cited in this review are listed in Table 1.

3.1.2 Study Characteristics

The scoping review analyzed 26 studies, using various research designs, mostly cross-sectional (50%, n=13) (see Table 1). Sample sizes varied greatly, from as few as 100 participants to as many as 22,868. Most participants were secondary and high school students aged 12 to 18 years (average age = 14.5 years). Gender representation differed across studies, with some reporting up to 70% female students. The studies were conducted in multiple countries, notably including Australia, Vietnam, and several Western nations.

3.1.3 Mental Health Measurement

This scoping review examined mental health data, analyzed as either independent or dependent variables. The mental health assessment used a scoring system from 0 to 120, with most studies (n = 17, 63.3%) employing a Likert scale (see Table 2). Questionnaires identified depression in 16 studies (61.5%), anxiety in 10 (38.4%), stress in 3 (11.5%), a combination of anxiety and depression in 2 (7.69%), depression and stress in 1 (3.84%), and all three—depression, anxiety, and stress—in 5 studies (19.2%). Data collection was conducted via self-report in all articles, with adolescents completing the questionnaires independently. Only two articles (7.69%) specified the completion time, reporting a range of 5 to 10 minutes for the PHQ-9 (Sekhar et al., 2021) and the CES-DC (Hinze et al., 2021). The measurement time period was reported in 20 articles (76.9%).

Among these, 8 articles (30.7%) used a one-week timeframe, 9 (34.6%) used a two-week period, 1 (3.48%) used a one-month period, and 2 (7.69%) used a three-month timeframe. Internal consistency values ranged from .71 to .94.

Table 1. Characteristics of studies included in the scoping review

Authors and year	Study design	N	Age M (SD)	Gender (% Female)	Target population	Country
Khoza & Mokgatle (2021)	Cross-sectional	301	16.7 (1.07)	58.4	High school students	South Africa
Robinson et al. (2017)	Cross-sectional	797	13.5 (.63)	61.6	High school students	New Zealand
Sekhar et al. (2021)	Randomized clinical trial	12.909	16 (-)	Target screening: 45.7 Universal screening: 46.4	High school students	America
Su et al. (2024)	Cross-sectional	3368	15-18 (-)	56.1	High school students	Chinese
Staines et al. (2023)	Randomized clinical trial	1112	13.7 (.7)	45.7	Secondary school students	Irish
Gouveia et al. (2024)	Cross-sectional	454	14.96 (1.11)	56.3	Secondary and Primary school students	Portugal
Mousset et al. (2024)	Quasi experimental pre-post	1705	12.59 (.93)	54	Secondary school students	Canada
Vinh, Hanh, et al. (2024)	Cross-sectional	845	14.6 (1.6)	70.7	Secondary and senior school students	Vietnam
O’Dea et al. (2021)	Randomized controlled trial	1802	14.3 (.87)	51.6	Secondary school students	Australia
Bagana (2014)	Cross-sectional	100	17.97 (.43)	50	High school students	Greece
Osokina et al. (2023)	Cross-sectional	2766	Donetsk region: 13 (1.3) Kirovograd region: 12.9 (1.3)	Donetsk region: 52.6 Kirovograd region: 49.4	-	Ukraine
Vinh, Thanh, et al. (2024)	Cross-sectional	1275	-	73.1	High school students	Vietnam
Wong et al. (2014)	Randomized controlled trial	976	-	70	High school students	Australia
Fonseca-Pedrero et al. (2023)	Validation study	2235	14.49 (1.76)	52.9	Secondary school students	Spain
Busby Grant et al. (2023)	Cluster Randomized controlled trial	1428	-	58.1	Secondary school students	Australia
Hinze et al. (2021)	Cluster Randomised controlled trial	8072	12.62 (.61)	54.3	Secondary school students	United Kingdom
López-López et al. (2021)	Observational longitudinal study	3809	10.6 (.26)	50.8	Secondary and senior school students	United Kingdom
Li et al. (2024)	Surveillance study	22.868	14.64 (1.77)	50.6	Secondary and senior school students	China
Tejada-Gallardo et al. (2021)	Cross-sectional	317	15.07 (.64)	45.1	Senior school students	Spain
Wuthrich et al. (2021)	Longitudinal survey	T1: 367 T2: 200 T3: 165	T1: 16.7 (.5) T2: 16.9 (.4) T3: 17.4 (.5)	T1: 80.7 T2: 85 T3: 69.1	Senior school students	Australia
Yang et al. (2018)	Longitudinal study	5487	-	50.1	Secondary school students	Hongkong
Marlow et al. (2023)	-	300	14.90 (2.86)	56.9	Secondary and senior school students	South Africa
Juliansen et al. (2024)	Cross-sectional	2021	14 (-)	56.4	Secondary and senior school students	Indonesia
Ward-Smith et al. (2024)	Cross-sectional	733	16.67 (.9)	72.6	Senior school students	South Africa
Cheng et al.,2014)	Cross-sectional	2339	-	47.3	-	Amerika, India, Nigeria, Afrika, China
Mkhize et al. (2024)	Cross-sectional	621	12.09 (1.45)	61.2	Secondary school students	South Africa

Table 2. Summary of questionnaires used to measure mental health in school-based studies.

Instrument	Domain(s)	Items	Time frame	Administration	Reliability (α) reported*	Practical note (school use)	Cultural adaptability (in included studies)
DASS-21 (Robinson et al., 2017; Su et al., 2024; Gouveia et al., 2024; Vinh, Hanh, et al., 2024; Vinh, Thanh, et al., 2024; Tejada-Gallardo et al., 2021; Wuthrich et al., 2021)	Depression / Anxiety / Stress	21	Past week / 2 weeks	Self-report	Dep: .76–.92; Anx: .74–.88; Stress: .75–.94	Covers 3 domains simultaneously; widely used	Portuguese & Vietnamese versions reported
PHQ-9 (Sekhar et al., 2021; Osokina et al., 2023; Wong et al., 2014; Fonseca-Pedrero et al., 2023; Li et al., 2024; Marlow et al., 2023)	Depression	9	Last 2 weeks	Self-report; 5–10 min (Sekhar et al., 2021)	up to .93 (Li et al., 2024)	Brief and feasible for school screening	Used across multiple contexts
GAD-7 (O’Dea et al., 2021; Osokina et al., 2023; Wong et al., 2014; Fonseca-Pedrero et al., 2023; Li et al., 2024; Marlow et al., 2023; Ward-Smith et al., 2024; Mkhize et al., 2024)	Anxiety	7	Last 2 weeks	Self-report	.80–.93	Very brief; suitable for large surveys	Chinese version reported (Li et al., 2024)
CES-DC (O’Dea et al., 2021; Hinze et al., 2021; Yang et al., 2018)	Depression	20	Past week	Self-report; 5–10 min (Hinze et al., 2021)	.79–.93	Moderate length; common adolescent tool	Used in multiple contexts
DQ5 (O’Dea et al., 2021; Busby Grant et al., 2023)	Psychological distress	5	30 days	Self-report	.93 (O’Dea et al., 2021)	Fastest screening option	Used in >1 study
K6 (Wong et al., 2014)	Psychological distress	6	-	Self-report	.89	Ultra-brief distress screener	Evidence from included study
SCARED-R-51 (Mousset et al., 2024)	Anxiety disorders	51	Last 3 months	Self-report	.71–.84	Comprehensive but longer burden	Evidence from included study
CDI (Khoza and Mokgatle, 2021)	Depression	-	-	Self-report	.75	Useful for depressive symptoms	Evidence from included study
SMFQ (López-López et al., 2021)	Depression	13	Past 2 weeks	Self-report	not reported	Brief depression screener	Evidence from included study
SCAS (Wuthrich et al., 2021)	Anxiety	21	-	Self-report	.93–.94	Strong reliability	Evidence from included study
B-FTA (Wuthrich et al., 2021)	Test anxiety	12	-	Self-report	.80–.92	Specific for test anxiety	Evidence from included study

3.1.4 Depression Symptom References

Assessing depressive symptoms in adolescents typically involves several instruments, reflecting various measurement approaches used in different settings. Common questionnaires include the DASS-21 ($n = 9$, 34.6%), PHQ-9 ($n = 8$, 30.7%), and CES-DC ($n = 3$, 11.5%). These tools are widely adapted to evaluate emotional, behavioural, and physical aspects of depression in adolescents, often using a Likert scale for detailed symptom severity assessment, usually from “never” to “very often.” Score cut-offs help determine depression severity, though these thresholds may vary by instrument and population. The questionnaires cover core depressive symptoms such as sadness, loss of interest, sleep disturbances, and physical fatigue. They are mostly self-reported by adolescents, with assessments focused on recent time frames like the past week or two to reflect current emotional states. The high internal consistency, with Cronbach’s alpha or Omega values typically above .75, indicates reliable measurement across various contexts.

3.1.5 Anxiety Symptom References

Assessing anxiety symptoms in adolescents often involves using standardized questionnaires, primarily the GAD-7 ($n = 8$, 30.7%) and DASS-21 ($n = 6$, 23%), which are chosen for their structured Likert scales. The time frames for assessment differ across studies, commonly covering the past two weeks or up to three months. This variation helps researchers capture both short-term changes and longer-term anxiety patterns. Data collection is mainly self-reported, with adolescents completing the questionnaires on their own, which facilitates use in school environments. Most instruments demonstrated high internal consistency, with Cronbach's alpha or Omega coefficients above .74, indicating reliable measurement of anxiety symptoms in various adolescent groups.

3.1.6 Stress Symptom References

Stress symptom assessment in adolescents primarily employs validated questionnaires, notably the DASS-21 ($n = 5$, 19.2%) and the DQ5 ($n = 7$, 69%). These tools typically utilize a 5-point Likert scale to measure symptom intensity over periods from one week to 30 days, providing insights into both short-term and longer-term stress patterns. Most data are self-reported, offering a direct view from adolescents. Importantly, these instruments demonstrate strong reliability, with Cronbach's alpha values consistently above .75, confirming their effectiveness in accurately evaluating stress across various adolescent groups.

3.2. Discussion

Accurately measuring adolescent mental health is vital. Adolescence, starting around age 10, is a key developmental period marked by substantial physical, emotional, and social changes (Sawyer et al., 2018). The study populations in this review were quite diverse, spanning from small samples to large-scale studies with over 20,000 adolescents, mostly aged 12-18. This age range is vital for mental health research because evidence shows that more than half of mental disorders begin during adolescence, with mental health problems impacting 1 in 7 individuals worldwide aged 10-19. These conditions, often appearing before age 14, significantly add to the global disease burden (Santre, 2022). Accurate measurement facilitates early identification of mental health issues, enabling timely interventions that promote well-being and mitigate potential long-term impacts (Orth & Van Wyk, 2020). However, research on adolescent mental health frequently faces substantial methodological challenges, such as limited statistical power, suboptimal measurement quality, and inconsistencies in data analysis (Rutter & Pickles, 2016). Since adolescents spend most of their time in school, school plays a significant role in adolescents' mental health (Lukoševičiūtė-Barauskienė et al., 2023). Schools serve as an optimal environment for recognizing, addressing, and maintaining mental health progress among adolescents. Evidence indicates that embedding mental health services within schools is an effective strategy, offering benefits such as early identification of issues and mitigating the effects of mental health conditions (Hoover & Bostic, 2021). The primary goal of this study was to examine the tools used for measuring mental health in school-based research, along with the methods for data collection and analysis.

This scoping review includes various study designs, primarily cross-sectional designs. Although effective for evaluating adolescent mental health at a single point in time, this design is less ideal for observing long-term changes (Wang & Cheng, 2020). Although rarely employed, longitudinal studies present a greater potential for observing shifts in mental health (Tang et al., 2021). Overall, evidence indicates that school-based mental health measurement practices feature a wide variety

of instruments but inconsistent psychometric reporting, potentially hindering the comparability and practical application of findings. This reflects larger methodological issues in adolescent mental health research, such as subpar measurement quality and inconsistent analytical methods (Rutter & Pickles, 2016). Importantly, the review shows that in school settings, instrument choice often prioritizes feasibility, such as being brief and suitable for self-report, over a thorough evaluation of psychometric strength. Consequently, different tools may be used to measure the same mental health constructs, each with different time frames, scoring methods, and reporting standards. This variability can lead to inconsistent prevalence estimates and undermine the reliability of school-level decision-making.

A key insight is that the most commonly used instruments in school-based research tend to be short, easy to administer, and suitable for large-scale screening, aligning with the practical realities of schools. Nonetheless, the usefulness of these brief tools depends heavily on having solid psychometric evidence and transparent reporting. From a measurement standpoint, the results suggest that school-based research should focus on tools that combine high internal consistency with clear symptom time frames and straightforward scoring, as these features enable accurate interpretation and easy implementation. Conversely, longer instruments may provide more detailed symptom coverage but are less practical for routine use in schools, especially with large student populations.

The review also points out a consistent limitation in the evidence: most studies included used cross-sectional designs. These are helpful for identifying symptom patterns at a specific moment but offer little understanding of developmental paths and how interventions affect outcomes (Wang & Cheng, 2020). In school mental health practice, measurement is frequently used for monitoring and evaluation, but cross-sectional methods limit the ability to identify significant changes over time. Although longitudinal designs are less common, they are more suited to the school setting, where repeated assessments can track progress across semesters or school years and improve understanding of program results (Tang et al., 2021).

Finally, the diversity of included studies from both Asian and Western countries highlights that measurement validity does not automatically transfer across different cultural contexts. Even commonly used instruments can be influenced by cultural variations in how symptoms are expressed, language subtleties, and school norms, which can impact how items are interpreted and answered. This underscores the importance of culturally appropriate adaptation and validation when using mental health tools in different settings. Since mental health disorders often appear before age 14 and significantly contribute to the global disease burden, ensuring accurate measurement across cultures is crucial (Santre, 2022). Culturally valid school-based measurement is not only a technical concern but a prerequisite for equitable mental health support.

In summary, this scoping review highlights the need for better alignment between psychometric quality, feasibility, and interpretation practices in school-based adolescent mental health measurement. Going forward, researchers and school practitioners should focus on using instruments with strong reliability evidence and clear reporting, while also increasing longitudinal and cross-cultural validation to promote sustainable and scalable school mental health programs.

Depression

Instruments such as the DASS-21, PHQ-9, and CES-DC are widely used to measure depression in adolescents. The DASS-21 is a self-report instrument, simple to administer, quick to score, and freely accessible, making it a popular screening tool (Chin et al., 2019). It measures the dimensions of depression, anxiety, and stress, along a severity spectrum but cannot independently diagnose these conditions (Park et al., 2020). The DASS-21 identifies depression such as dysphoria and hopelessness (Peritogiannis et al., 2024). The result of this scoping review reveals that DASS-21 is the most used instrument to evaluate adolescent mental health in high school and junior high school. Similar insight was revealed by Dwight et al. (2024), which emphasize on the effectiveness and convenience of using DASS-21 on adolescent. Answer choice provided by DASS-21 is also considered as clear and does not cause confusion (Ifdil et al., 2022). (Milfayetty et al., 2020) also pointed out that Indonesian version of DASS-21 is valid and reliable, and recommended the use of DASS-21 for preliminary measurement.

Psychometric evaluation in school settings should go beyond just assessing internal consistency. It is important to gather stronger evidence of validity, especially in adolescent school samples, including whether the DASS-21 consistently shows a stable factor structure and construct validity across different environments and groups. Additionally, its effectiveness as a screening tool should be examined through external measures like sensitivity and specificity. Variations in recall periods across different instruments and studies, such as one week versus two weeks, can affect

symptom reporting, reliability, and prevalence rates. Consequently, comparisons between studies should be made with caution unless measurement periods and cut-offs are standardized. Therefore, choosing among DASS-21, PHQ-9, and CES-DC should be based on feasibility, the specific goal (such as broad mental health screening versus focused depression detection), psychometric support, and how suitable the recall period is for school settings.

The Patient Health Questionnaire-9 (PHQ-9) is a validated self-administered (Wickramasinghe et al., 2023), for assessing depressive symptoms according to DSM-5 criteria, including psychological signs like loss of interest, low self-esteem, and concentration problems, as well as physiological symptoms such as appetite fluctuations, sleep disturbances, fatigue, and slowed movements. (Rahman et al., 2022). The PHQ-9's brief format helps keep focus, especially in restless adolescents, and its straightforward language makes it easy to understand. These qualities make it a useful tool for evaluating adolescent depression in school environments (Gao & Liu, 2024). The CES-DC is a widely used and validated instrument for evaluating depression in children and adolescents, applicable in primary care, community settings, and across diverse cultural groups (Zhao et al., 2024). CES-DC demonstrates good psychometric properties as a screening tool for depression in children (Betancourt et al., 2012). The CES-DC comprises four dimensions: depressive affect, positive affect, somatic complaints, and interpersonal difficulties, reflecting various emotional, physical, and social aspects of depression (Blodgett et al., 2021). Designed for school-aged children, its simple language and format enable independent self-administration in research and clinical settings (Visier-Alfonso et al., 2024). The internal consistency of research instruments is considered acceptable within a range of .70 to .95 (Gravesande et al., 2019). In this review, the internal consistency for commonly used instruments includes the DASS-21 (.75–.92), PHQ-9 (.93), and CES-DC (.73–.93). These findings are consistent with previous studies, with the DASS-21 reported at .72–.93 (Dwight et al., 2024b), PHQ-9 at .93 (Shaff et al., 2023), CES-DC ranging at .84 to .87 (Ravens-Sieberer et al., 2023). It should be noted that only one study reported the internal consistency of the PHQ-9, while two studies provided this information for the CES-DC; all showed good reliability. Details on the internal consistency of other instruments are available in Table 2.

Anxiety

Anxiety assessment tools like the DASS-21 and GAD-7 are commonly used in research, mainly differing in the measurement period. The GAD-7, a brief self-report questionnaire, is specifically created to evaluate generalized anxiety disorder (Sun et al., 2021). The GAD-7 assesses symptoms like nervousness, excessive anxiety, difficulty controlling worries, trouble relaxing, restlessness, irritability, and ongoing fear of disaster, focusing on experiences from the past two weeks (Niwénahisemo et al., 2024). The GAD-7 provides several key benefits: it is easy to administer, psychometrically strong, and made up of just seven items, making it practical and reliable for anxiety assessment (Johnson et al., 2019). The internal consistency of the GAD-7 in this review ranged from .80 to .93, indicating acceptable reliability for measuring adolescent anxiety in school settings. (Tiirikainen et al., 2019) in their study examining the psychometric properties of the GAD-7 in a school-based adolescent sample, found it to be a reliable and valid instrument, with a good internal consistency (Cronbach's $\alpha = .91$). A study by Idaiani (2021) validates that GAD-7 is reliable for various population.

Another tool employed to measure anxiety in adolescents within school environments was the DASS-21, focusing on its anxiety subscale. This subscale assesses autonomic arousal, musculoskeletal symptoms, situational anxiety, and personal experiences of anxious arousal (Dwight et al., 2024a), with internal consistency ranged from .74 to .88. These findings align with (Naumova, 2022) who reported an internal consistency of .85 for the DASS-21 anxiety subscale among adolescent populations.

Stress

Stress assessment in adolescents mainly depends on tools like the DASS-21 and DQ5. The DQ5 is a brief, five-item questionnaire aimed at detecting overall psychological distress (Batterham et al., 2016). It assesses how often different distressing experiences, thoughts, and emotions occurred over the past 30 days (Gulliver et al., 2023). This review shows that the DQ-5 has a high internal consistency, with a Cronbach's α of .93, confirming its reliability for assessing psychological distress among adolescents in a school setting. Batterham et al. (2024) confirmed the psychometric robustness of the DQ-5 in their study, concluding that the tool is brief, reliable, and valid for assessing psychological distress in adolescents. The findings further highlight the DQ-5's potential as a screening tool for school-based settings. Another commonly used instrument for assessing stress in adolescents in school settings is the DASS-21. The stress subscale of the DASS-21 evaluates challenges in relaxation, heightened tension, agitation, irritability, and negative

emotional states (Dwight et al., 2024a). The internal consistency of the DASS-21 stress subscale in this review ranges from .75 to .81. The findings are consistent with the study by (Naumova, 2022), which reported an internal consistency of .84 for the subscale, and concluded that the results endorse the DASS-21 as a concise and psychometrically reliable tool for measuring general emotional distress in both research and community settings. To enhance school-based measurement practices, this review's implications can be organized into a set of prioritized recommendations. First, for Tier 1 (routine school screening), simple tools with minimal administrative workload should be used to support scalable monitoring; the DQ-5 is a useful choice for quick detection of general distress, while DASS-21 may be suitable when schools need a single instrument covering multiple domains such as depression, anxiety, and stress. Second, at Tier 2 (targeted follow-up assessment), students flagged as at-risk should be evaluated with domain-specific measures when necessary, especially for stress symptoms that warrant more detailed analysis beyond general distress scores. Third, for Tier 3 (evaluation and research), schools that run mental health programs should select instruments that have clear scoring guidelines and time frames to facilitate repeated assessments and monitor outcomes.

The review across different levels suggests only a few psychometric criteria are needed before introducing instruments in schools: (1) sufficient internal consistency in school samples, (2) evidence supporting construct validity, and (3) clear reporting of the time frame and cut-off interpretation to minimize misclassification. Additionally, a future research agenda is necessary to fill critical gaps in the literature: validating instruments over time in school populations, testing invariance across multiple groups to ensure comparability, calibrating cut-off scores for local settings, and conducting implementation studies to assess feasibility, engagement, fidelity, and outcomes relevant to schools. Overall, this review provides a consolidation of existing evidence on adolescent mental health measurement tools used in schools and their reporting standards, while also highlighting priorities in validation and implementation that are essential to improve the reliability and effectiveness of school-based screening.

4. Conclusion

Assessing adolescent mental health accurately is essential due to the significant developmental changes during this period. Tools like DASS-21, PHQ-9, CES-DC, GAD-7, and DQ5 have been shown to be reliable and valid for evaluating depression, anxiety, and stress. The DASS-21 is the most recommended instrument for measuring these three mental health domains simultaneously in school students. It is especially useful for initial screening, mass assessments, or research focused on understanding students' psychological states in relation to academic pressure and the school environment. There are three main reasons to choose DASS-21. First, it measures multiple constructs. The DASS-21 is designed to differentiate and assess depression, anxiety, and stress as separate but related latent variables. Unlike many other tools that focus on only one domain.

A tool similar to the DASS-21 is the K6, which assesses psychological distress through six questions about feelings over the past 30 days. Unlike the DASS-21, it does not provide scores for specific domains. Additionally, when conducting mental health screenings in schools, efficiency and accuracy are crucial, as students have limited attention spans and busy schedules. Many brief assessments, like the K6 (six questions), GAD-7 (seven questions), or PHQ-9 (nine questions), focus on just one domain. In contrast, the DASS-21, with 21 questions, covers depression, anxiety, and stress—7 questions each—and takes only about 5–10 minutes to complete, reducing test fatigue. Moreover, its psychometric validity has been confirmed in student populations, despite being initially developed for adults.

The consistent application of DASS-21 in research on depression, anxiety, and stress suggests it could serve as a standardized tool for comparing studies. Other instruments may be appropriate depending on specific study goals and their ability to measure particular constructs within different timeframes. This scoping review emphasizes the benefits of incorporating mental health services into school settings, which can facilitate early detection and mitigate the impact of mental health issues. Most included studies were cross-sectional, limiting insights into long-term changes; longitudinal studies could better monitor such shifts. The review notes that these instruments are generally reliable and easy to use in schools, but the reliance on cross-sectional data and the scarcity of longitudinal research underline the need for further studies to examine long-term effects and how contextual factors affect measurement outcomes.

Author Contributions

Conceptualization, method, investigation, writing—original draft preparation, review and editing, visualization: First Author, Second Author. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare that they have no conflicts of interest.

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