

11-7-2025

## **Executive Summary: Quality Improvement Initiative Enhancing Early Identification of Adolescent Depression and Anxiety**

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# Walden University

College of Nursing

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and that any and all revisions required by  
the review committee have been made.

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Walden University  
2025

Executive Summary: Quality Improvement Initiative  
Enhancing Early Identification of Adolescent Depression and Anxiety

by  
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Executive Summary Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Nursing Practice

Walden University

November 2025

## Summary

Universal staff training to increase the validity and reliability of adolescent mental health screening was applied in this quality improvement (QI) initiative. Depression and anxiety typically develop between the ages of 12 and 17, but healthcare providers do not routinely apply evidence-based measures like the Patient Health Questionnaire (PHQ)-9, PHQ-9M, and Generalized Anxiety Disorder (GAD)-7 due to a lack of knowledge, workflows issues, and varied cultures. These barriers result in late detection opportunities and put adolescents at higher risk for school functioning problems, drug abuse, and suicide. The study evaluated whether implementation of evidence-based staff training on PHQ-9 and GAD-7 administration enhanced early identification and depression and anxiety diagnosis compared with routine practice. Training interventions included workshops, web modules, case simulation, practice under supervision, and electronic health record (EHR) reminders. Each step of the project was guided by the Johns Hopkins nursing evidence-based practice (JHNEBP) model. Training was attended by 12 clinical staff, five of whom were nurses, three were nurse practitioners, two were physicians, and two were behavior health specialists. After intervention, screening rates rose from 35% to 78%, and provider confidence scores were boosted by about 40%. This project demonstrated that structured staff education can substantially improve the consistency and accuracy of adolescent mental health screening. The pre/post design yielded measurable gains in early detection, provider confidence, referral rates, and patient satisfaction. Overall, the project strengthened screening practices and care coordination, ensuring adolescents received timely and appropriate support.

## **Background**

Adolescence is a critical period of rapid change, increasing vulnerability to mental health issues. Depression and anxiety are the most common psychiatric disorders in this age group, often starting between 12 and 17. Globally, depressive and anxiety disorders are leading causes of youth disability (Holcomb et al., 2022). Untreated mental illness in adolescence can cause academic decline, strained relationships, substance misuse, and suicide. Clinical guidelines call for early detection and intervention. Reliable screening tools like PHQ-9 and GAD-7 efficiently identify depression and anxiety in adolescents (Casares et al., 2024; Hughes et al., 2021). However, inconsistencies and inaccuracies exist in practice regarding the use of PHQ-9 and GAD-7 tools.

In current literature, evidence indicates missed opportunities due to inconsistent use of GAD-7 and PHQ-9 with adolescents suspected to have anxiety and depression. Among the justifications that providers are failing to administer GAD-7 and PHQ-9 measures to adolescents are lack of training, limited resources, time, and low confidence in results (Kenny et al., 2021). Evidence also indicates that stigmas cause delays in diagnosis and treatment of disorders like depression and anxiety, which increase the risk of poor outcome among adolescents (Zhao et al., 2023). Further, specific cultural determinants for specific population groups affect accuracy of psychiatric screening instruments, which can yield lower accuracy or greater false positive results. To enhance provider training on effective and empathetic use of such tools among adolescents and enhance accuracy and precision of such tools among adolescents, provider training is necessary (Luitel et al., 2024; Wang et al., 2025). Nevertheless, strategic reform to

remove provider barriers toward using GAD-7 and PHQ-9 screening tools among adolescents involves systematic provider training.

### **Literature Review**

The available literature suggests that application of screening tools like GAD-7 and PHQ-9 among adolescents is extensively researched. There is sufficient literature on the effectiveness of screening tools like GAD-7 and PHQ-9 to screen for depression and anxiety early on but appropriate and standardized implementation is still lacking due to insufficient provider training.

### **Psychometric Support for PHQ-9/PHQ-9M and GAD-7**

Several psychometric tests support the reliability of instruments with adolescents. Hughes et al. (2021) demonstrated GAD-7 to be valid and reliable in primary care pediatrics, establishing its clinical utility to screen for anxiety. Similarly, Casares et al. (2024) established normative data for PHQ-9 and GAD-7 among adolescents who spoke Spanish, such norms being relevant to interpreting scores among adolescents. These findings confirm that both instruments can discern clinically significant symptoms if utilized appropriately.

PHQ-9M, a version specific to adolescents, expanded the PHQ-9 to include additional measures of functional impairment and suicidality. Tsui et al. (2024) demonstrated for a large cohort study of more than 130,000 adolescents that the PHQ-9M enhanced prediction of suicide attempts compared to the standard PHQ-9. Holcomb et al. (2022) also confirmed that PHQ-9M, administered together with the Pediatric Symptom Checklist (PSC-17P), improved identification of adolescents who were at risk for

depression/suicidal behaviours. These latter examinations offer Level II and Level III support, respectively, for the psychometric strength of these instruments.

Notwithstanding their worth, the diagnostic accuracy of these screening tools varies. Wang et al. (2025) found that PHQ-9 and GAD-7 had low accuracy in their evaluation among Chinese adolescents. Luitel et al. (2024) found that while both PHQ-9 and GAD-7 were effective for screening depression in Nepali youth, GAD-7 overestimated anxiety by two to four times. Providers had to be trained for culturally sensitive interpretation of results by integrating research evidence with Nepalese and Chinese teens. In co-designing the educational content with diverse families, it ensured that linguistic and cultural nuances were thoroughly understood and addressed.

### **Quality Improvement and Implementation Studies**

Beyond psychometrics, QI studies provide evidence that staff training significantly enhances screening uptake and adherence to best practices. Bose et al. (2021) implemented universal adolescent depression screening using a modified PHQ-9 in a pediatric emergency department. Following structured staff education and integration of the tool into electronic health records, documented screening improved dramatically from 0% to 74.5% within 3 months. This Level V QI study illustrates the practical impact of provider training on screening outcomes. By comparing this with the baseline, which was characterized by inconsistent or ad hoc use of these tools, the success seen in the Bose et al. study set a practical benchmark for this project. The Bose et al. study demonstrated the feasibility of achieving similar improvements through structured education, thereby bolstering confidence in the projected goal for this project.

Kenny et al. (2021) found analogous results in a mixed-methods trial that introduced team-based screening for depression in child primary care. Educational preparation of staff, redesigning workflow, and engaging teams facilitated higher screening rates as well as follow-up care coordination. Providers who participated in training initiatives also reported greater confidence when using the PHQ-9. According to Bose et al. (2021), the confidence mattered because it reduced uncertainty in interpreting results and addressed barriers that were not only structural but also individual.

### **Cross-Cultural Validation and Variability**

Studies conducted in different countries show that while these tools are reliable, they cannot simply be applied uniformly across populations. Casares et al. (2024), for example, confirmed the internal consistency of the GAD-7 in Spanish adolescents and established cut-offs suitable for that group. Studies by Luitel et al. (2024) and Wang et al. (2025) confirmed the need to customize PHQ-9 and GAD-7 screening tools to unique cultural and individual needs. While findings by Wang et al. (2025) supported the need to critically apply screening tools to Chinese adolescents to achieve accurate testing, Luitel et al. (2024) emphasized that validation of PHQ-9 and GAD-7 screening tools in countries like Nepal require cultural adaptation. The current literature supports education of healthcare providers, especially on how to administer the tool and interpret results in a culturally sensitive manner.

### **Gaps and Barriers in Practice**

While there is sufficient credible evidence demonstrating effective use of PHQ-9 and GAD-7 as diagnostic screening tools for anxiety and depression in adolescents,

significant barriers exist. Clinicians rationalize low usage with limited time availability and a lack of confidence and readiness interpreting borderline or culturally sensitive information (Kenny et al., 2021). False positives, especially when screening for anxiety, might also generate clinician wariness or reluctance to utilize these tools beyond additional education (Wang et al., 2025). According to Bose et al. (2021), staff turnover and competing organizational pressures also discourage sustainable implementation.

### **Evidence Synthesis and Rationale for Project**

The evidence establishes that PHQ-9, PHQ-9M, and GAD-7 are validated instruments with established application among adolescents. There is stronger evidence to support screening for depression, but screening for anxiety should be interpreted with caution because of cultural and contextual differences. Quality improvement projects repeatedly document that standardized staff education is associated with an increase in screening uptake, a boost to provider confidence, and an improvement in early identification of mental health issues. There is varying strength to the evidence to support such a practice change from Level II cohort studies (Tsui et al., 2024) to Level V QI projects (Bose et al., 2021), but enough justification to support instituting staff education as a quality improvement activity.

### **Project Purpose**

This quality improvement project implemented standardized staff education regarding the usage of the PHQ-9 and GAD-7 among teenagers aged 12 to 17 years in clinical practice. It was implemented to increase the effectiveness and reliability of screening for mental health by enhancing the competence and confidence among health

providers to administer and interpret these tools. It was also implemented to increase early detection and diagnosis of depression and anxiety disorders, reduce missed cases, and strengthen referral links to ensure timely treatment.

### **PICOT Question**

“In adolescents aged 12 to 17 in clinical settings, how does staff education on the implementation and proper use of the PHQ-9 and GAD-7, compared to standard practice without structured training, affect the early identification and diagnosis of depression and anxiety within a three-month period?”

### **Objectives of the Project**

#### ***Primary Objective***

Increased the rate of early identification and diagnosis of adolescent depression and anxiety

#### ***Secondary Objectives***

- Enhanced staff knowledge and confidence in using the screening tool
- Increased referral and follow-up rates for adolescents with positive screens
- Enhanced satisfaction among patients and providers

### **Conceptual Framework**

The JHNEBP model was utilized to frame this project. The JHNEBP model comprised three phases—practice, evidence, and translation—used during the project implementation process to identify practice gaps, appraise evidence, and translate it into practice. As explained by Dang and Dearholt (2018), it ensured that the project was driven by evidence with an emphasis on durable practice change.

## **Clinical Practice Guideline Development**

### **Expert Panel Composition and Selection Criteria**

A multidisciplinary expert panel of 15 members was convened to review and endorse this quality improvement initiative. Members included a pediatric psychiatrist, one adolescent psychologist, two therapist, four nurse practitioners with experience in adolescent care, four registered nurses, one clinical nurse educators, a behavioural health care coordinator, an IT/EHR specialist, an administrator (quality or operations), and an adolescent or family representative to ensure patient-centeredness. Selection criteria emphasized clinical expertise in adolescent mental health, prior guideline or QI experience, familiarity with screening tools (PHQ-9/PHQ-9M, GAD-7), and commitment to implementation and evaluation (Bose et al., 2021; Kenny et al., 2021).

### **AGREE II Review Process**

The panel used the AGREE II framework to appraise the draft guideline. Steps included: orientation to AGREE II; independent scoring of the 23 items across six domains using the 7-point Likert scale; calculation of standardized domain scores; collated feedback and moderated discussion of discrepant items; and a final overall assessment with a recommendation to adopt, adapt, or reject. Reviewers provided written comments tied to specific domains: rigor, clarity, applicability, and stakeholder involvement.

### **Integration of Evidence from Appendix G**

Evidence synthesized in Appendix G, including psychometric, cohort, validation, and QI studies, was mapped to each recommendation: diagnostic thresholds,

administration frequency, suicide-risk procedures, and referral criteria (Bose, 2021; Luitel, 2024; Tsui, 2024). The strength of each recommendation was labelled using the Johns Hopkins evidence levels (I–V), so that AGREE II domain ratings reflected both quality and applicability. A multidisciplinary review and an AGREE II appraisal ensured transparency, methodological rigor, and stakeholder buy-in, which were critical for the successful adoption and sustainability of practice change (Kenny et al., 2021).

## **Methods/Project Design**

### ***Design***

This project employed a quality improvement (QI) design with a pre/post implementation design for a 3-month duration. Stepped-wedge roll-out was to be used if more than a single clinic was to be involved in order to provide staggered but systematic exposure to the intervention. Plan-Do Study-Act (PDSA) was used for rapid-cycle testing spanning a duration of one month. It was a repetitive model of testing where reminders in the EHR were incrementally tuned using small-scale testing in order to facilitate rapid adjustment before a final roll-out. As Bose et al. (2021) prescribed, QI pre/post design was the correct design for the measurement of practice changes and outcomes that did not entail randomization process, increasing practicability to real-world applications.

### **Setting and Participants**

Implementation focused on a patient population of 12–17 years old patients seen in outpatient primary care and behaviour health clinics. Participants were those providers with frequent contact with adolescents, including nurses, nurse practitioners, therapist and behavioural health professionals. twelve of the clinical staff participated in the formal

training, including four nurses, four nurse practitioners, two therapist, and two behavioural health professionals. During the three-month implementation period, 86 adolescents aged 12–17 were screened using the PHQ-9M and GAD-7 instruments. Adolescents who visited the clinics during the study duration represented the population of patients who benefited indirectly from the intervention.

### **Intervention**

The intervention entailed standardized staff education regarding the distribution and interpretation of PHQ-9/PHQ-9M and GAD-7. The literature review covered coursework including evidence from prior studies verifying psychometric validity as well as results from implementation (Hughes et al., 2021; Tsui et al., 2024). Delivery included live workshops, asynchronous e-learning modules, flashcards, and case-based simulations (Elendu et al., 2024). Supervised practice sessions and EHR prompts reinforced learning and embedded the tools in clinical workflows.

### **Comparison**

The baseline (comparison) condition was characterized by the usual practice of inconsistent or ad hoc use of PHQ-9 and GAD-7, without standardized training or workflow integration (Kenny et al., 2021).

### **Data Sources**

Data were drawn from EHRs to capture screening rates, positive screens, and new diagnoses of depression and anxiety. Staff knowledge and confidence were measured through pre- and post-surveys adapted from validated implementation studies (Bose et al., 2021). This pragmatic design ensured measurable changes in practice while aligning

with organizational capacity and QI priorities. Pre- and post-comparisons enabled the evaluation of both provider-level and patient-level outcomes within the three-month implementation window.

### **Implementation Plan & Timeline**

The project was implemented in four sequential phases, spanning a period of three months.

#### ***Planning (Weeks 1–2)***

The project team engaged stakeholders, including clinical leaders, frontline staff, IT personnel, and patient/family representatives. Activities included identifying clinical champions, securing administrative approval, and developing training materials such as PowerPoint modules, flashcards, and case-based exercises. Workflow mapping ensured integration of PHQ-9 and GAD-7 into the EHR and alignment with existing visit protocols (Kenny et al., 2021).

#### ***Training Delivery (Weeks 3–8)***

All clinical staff completed structured education through live workshops and e-learning modules. Training emphasized tool administration, cultural considerations, and interpretation of results. Simulation-based sessions allowed practice in realistic scenarios, drawing on evidence that experiential learning strengthens retention (Elendu et al., 2024).

#### ***Supervised Practice and Rollout (Months 1–2)***

Staff began administering PHQ-9/PHQ-9M and GAD-7 during adolescent visits under the supervision of clinical champions. EHR prompts and feedback loops reinforced consistent application. Project leads monitored fidelity through periodic chart audits and

feedback sessions.

### ***Evaluation and Feedback (Month 3)***

Outcomes, including screening rates, diagnostic yield, and staff knowledge, were assessed. Patient and provider feedback was collected to inform revisions.

### ***Sustainability***

Long-term strategies included integrating PHQ-9 and GAD-7 into clinical guidelines, developing refresher modules, designating local champions, and embedding tool use into EHR templates.

## **Evaluation Plan, Measures, and Data Analysis**

### ***Primary Outcome***

The primary outcome was the rate of early identification and diagnosis of adolescent depression and anxiety within three months. This was measured as the percentage change in adolescents screened positive on the PHQ-9/PHQ-9M and GAD-7, along with the number of new diagnoses documented in the EHR.

### ***Secondary Outcomes***

Secondary measures included: screening uptake, defined as the proportion of eligible adolescents (ages 12–17) who were screened during clinic visits; (2) referral and follow-up rates for those with positive screens; (3) provider knowledge and confidence, assessed via pre/post surveys adapted from validated implementation instruments (Bose et al., 2021); and (4) patient satisfaction and acceptability of the screening process, measured through brief post-visit questionnaires.

### ***Data Collection Methods***

EHR queries provided data on screening rates, positive results, and new diagnoses. Staff surveys were administered before and after training to assess changes in knowledge, confidence, and perceived barriers. Spot checks, such as periodic chart audits, were conducted to validate fidelity to the screening protocol.

### ***Data Analysis***

Descriptive statistics summarized demographic data, screening rates, and survey responses. Paired t-tests or nonparametric equivalents evaluated pre-/post-changes in staff knowledge and confidence. Differences in screening uptake and diagnostic yield were assessed using simple pre- and post-comparisons with 95% confidence intervals. Run charts and statistical process control methods tracked trends in screening and diagnosis rates over time, consistent with quality improvement methodologies (Kenny et al., 2021). Following the structured staff training, screening rates increased from 35% to 78% across participating clinics, and provider confidence scores improved by approximately 40%. Early identification of depression and anxiety improved markedly, with 86 adolescents screened during the implementation period, resulting in 24 new diagnoses and timely referrals for behavioural health services. This evaluation plan struck a balance between rigor and feasibility, enabling the meaningful assessment of provider- and patient-level outcomes within a short implementation window.

### **Results Summary**

A group of 12 clinical staff, including four nurses, four nurse practitioners, two therapists and two behavioural health professionals, participated in the structured training program. During the 3-month implementation, a total of 86 adolescents between ages 12

and 17 were assessed through the PHQ-9M and GAD-7 testing tools. The intervention resulted in a significant improvement of screening efficiency and provider outcomes. Screening rates increased significantly from baseline of 35% to post-intervention of 78%, whereas provider confidence ratings also saw about a 40% rise, as rated by pre- and post-training surveys indicated in Table 1. Table 1 further indicates that the effort resulted in 24 new depression and anxiety diagnoses, hence ensuring timely behavioural health follow-up referrals. Such outcomes are a confirmation of the fact that staff's structured training significantly improved early identification, provider skill, and coordination of care regarding adolescent mental health.

**Table 1**

*Summary of Project Outcomes (Pre- and Post-Implementation)*

Outcome Measure	Baseline (Pre-Implementation)	Post-Implementation	Change / Improvement
Number of Staff Trained	—	12 staff (multidisciplinary)	—
Number of Adolescents Screened	—	86 adolescents (ages 12–17)	—
Screening Rate	35%	78%	+43 percentage points
Provider Confidence (self-rated)	Baseline mean = 3.2/5	Post mean = 4.5/5	+40% improvement
New Diagnoses of Depression/Anxiety	—	24 new cases identified	—
Behavioral Health Referrals	Limited and inconsistent	Consistent and timely	Improved care coordination

*Note.* Data reflect outcomes from a 3-month implementation of staff training on PHQ-9M and GAD-7 screening for adolescents.

### **Organizational Impact**

The project produced measurable improvements in adolescent mental health screening and diagnosis. Screening uptake increased, resulting in a higher proportion of

eligible adolescents completing PHQ-9, PHQ-9M, and GAD-7 assessments during clinic visits. Early identification and diagnosis rates for depression and anxiety rose, enabling more timely referrals to behavioural health services. The PHQ-9M, with its established predictive value for suicide attempts (Tsui et al., 2024), was instrumental in identifying adolescents at elevated risk, thereby helping to implement suicide-prevention strategies more effectively. Linking Brent's findings on its predictive capability emphasized the critical nature of early detection as a suicide-prevention measure. Organizational outcomes included enhanced care coordination between primary care and mental health providers, improved compliance with accreditation and quality standards, and greater alignment with best practices in adolescent care. Embedding structured staff education into routine workflows reduced variability in screening practices and promoted sustainable, system-wide improvements in mental health outcomes.

### **Barriers, Facilitators, and Sustainability Strategies**

Some of the barriers to implementation included competing demands and a lack of time for staff lowered attendance at training, and elevated staff turnover lowered continuity of screening practice. Stigma against mental illness influenced provider attendance and also acceptance by teenagers. Technical issues, like incomplete implementation of EHR or low IT capacity, also hindered easy use of screening tools (Kenny et al., 2021). Strong facilitator support involved leadership endorsement that guaranteed resource allocation and project prioritization. Having clinician champions advocated for peers and guaranteed best practices. The organization's current workflows, quality improvement culture, and good reputation for mental health services also

guaranteed a favourable climate for implementation (Bose et al., 2021).

It also encouraged sustainability by having regular training modules for new and current employees, integrating PHQ-9/PHQ-9M and GAD-7 into EHR templates, and creating key performance indicator (KPI) dashboards to monitor screening and referral trends over time. Frontline teams also benefited from having a better understanding of progress and outcomes with the real-time dashboards giving out weekly screening rates. Strong leadership support and engaged clinical champions fostered collaboration and accountability. Real-time dashboards showing weekly screening progress motivated staff and cultivated ownership. As Rapport et al. (2022) noted, such feedback mechanisms transform sustainability from an abstract concept into a living process, allowing teams to adapt and continuously improve.

### **Limitations and Ethical Considerations**

Several limitations must be acknowledged. Because the intervention was carried out within a single organization, generalizability is limited. Although the PHQ-9 and GAD-7 are validated instruments, they may yield false positives or fail to capture subtle cultural expressions of distress (Wang et al., 2025). The 3-month follow-up period restricted evaluation of long-term outcomes. Ethical safeguards were strictly observed, including adolescents assented, parents consented, and positive screens triggered established suicide-risk management and referral protocols. Additionally, the use of self-report questionnaires and chart abstraction may generate measurement or recall bias. Ethical protections were necessary.

Consent was obtained from adolescents, and informed consent was obtained from

parents or guardians prior to screening. Results were treated confidentially, and disclosure of mental illness problems was treated confidentially. Successful screens triggered suicide risk protocols and referral processes to maintain immediate safety and obtain proper treatment. Positive screens initiated routine suicide risk evaluation procedures and referral procedures to provide immediate protection and support (Holcomb et al., 2022). These protections reduced ethical risk in beneficence and respect for persons.

This QI project created an opening to inform future learning. Beyond a three-month timeframe, the team travelled to see how routine screening practices and ongoing trainings influenced long-term adolescent mental health trajectories in diverse cultural environments. Traveling beyond 3 months taught a lesson about increased insight on the effects of the project in the long term.

### **Conclusions**

This QI project confirmed structured staff training enhances PHQ-9/PHQ-9M and GAD-7 validity and reliability for depression and anxiety identification among adolescents. Education improved provider competence, confidence, and timeliness of intervention. For maintaining such advantages, scaling structured training across departments, standardizing work processes by implementing integration of EHR, and institutionalizing organizational-wide policy for screening of adolescents were recommended approaches for incorporating these interventions as routine practice. Work flows of suggested interventions were normalized by implementing integration of GAD-7 and PHQ-9 into EHR systems with built-in prompts for automation. Instituting

formalization of screening for adolescent mental health at organizational levels by enactment of policy was a recommended strategy for incorporating these interventions as routine practice.

The QI project had great impacts for nursing practice. Nurses played a central role in this transformation. Through structured education and frequent screening, they became agents for the early identification and ongoing management of care. Through systematic education on administration of GAD-7 and PHQ-9 tools and interpretation of their results, nurses played a central role in the early identification of anxiety and depression in adolescents. The organized educational interventions and frequent use of these screening tools allowed nurses to become agents of change, thereby facilitating the early identification and diagnosis of anxiety and depression across the adolescent population.

The prompt identification of issues enabled prompt interventions, thereby enhancing the quality of life for adolescents through the prevention of symptom worsening. The early identification of conditions not only enhanced the promptness of treatment but also played a significant role in fostering the long-term well-being and resilience of adolescents. By bolstering mental health in young people, these initiatives facilitated positive social transformations as they encouraged equity and sustained well-being among at-risk youth demographics. In conclusion, this initiative underscored that the implementation of evidence-based education for staff represents a viable, systemic approach that improves adolescent mental health outcomes and nurtures a preventive culture within healthcare institutions.

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