



## Outcomes of Depression Screening Among Adolescents Accessing School-based Pediatric Primary Care Clinic Services



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### ARTICLE INFO

#### Article history:

Received 27 August 2017

Revised 28 September 2017

Accepted 1 October 2017

Available online xxxx

#### Keywords:

Adolescent  
Depression  
Primary care  
Screening

### ABSTRACT

**Purpose:** Implementation of routine Patient Health Questionnaires (PHQ-9) screening among adolescents aged 12–18 year, accessing school-based pediatric primary care clinic services for identification of adolescents at potential risk for Major Depressive disorder (MDD).

**Design and Methods:** Retrospective chart review (N = 256 cases) documented PHQ-9 depression screening outcomes among adolescents accessing school-based pediatric primary care clinic services for episodic illness and wellness visits. Data analyses included descriptive statistical methods.

**Results:** Chart review included 137 (53.5%) females and 119 (46.5%) males. PHQ-9 depression screening was identified for 56.3% (n = 144) of charts with scores  $\geq 10$  for 12.5% (n = 18) among those screened. Mental health referrals were made for 83.3% (n = 15) with PHQ-9 scores  $\geq 10$ . Dysthymia related concerns were reported among 20.1% (n = 29) of which 55.2% (n = 16) received mental health referrals. Female adolescents reported more sleep problems ( $\chi^2 = 9.174$ , p = 0.002) and tiredness ( $\chi^2 = 6.165$ , p = 0.013) than males. The 15–18 year age group ( $\chi^2 = 5.443$ , p = 0.020) was more likely to experience sleep problem and low self-esteem than 12–14 year age group ( $\chi^2 = 5.143$ , p = 0.023).

**Conclusion:** Implementation of PHQ-9 depression screening protocol identified MDD among adolescent accessing pediatric school-based primary care clinic services facilitating referrals to mental health providers, potentially improving morbidity and mortality among adolescents.

**Practice Implications:** MDD is common among adolescents and associated with functional impairments and increased morbidity and mortality. Due to its high prevalence, it is imperative to improve screening and treatment access in this population via school-based clinics.

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### Background

Major Depressive Disorder (MDD) is common in children and adolescents and linked to functional impairment and suicide. Prevalence of major depressive episode among adolescents in the United States was 12.5% in 2015 (National Institute of Mental Health [NIMH], 2015). MDD is higher among adolescent (12–17 years) females (36.1%) than males (13.6%) (Breslau et al., 2017). Suicide is the second leading cause of death among adolescents (Center for Disease Control and Prevention [CDC], 2014).

Depression increases significantly in the presence of chronic diseases. One of five adolescents in the United States has a chronic disease requiring continuous treatment and management (Corathers et al., 2013). Unrecognized and untreated MDD increases risk for obesity, suicidal thoughts, attempts, and completion. It also affects academic performance and relationships with parents, siblings, and peers (Thapar, Collishaw, Pine, & Thapar, 2012). Adolescents with MDD are likely to have somatic symptoms such as headaches, abdominal pain, and musculoskeletal pain (Forman-Hoffman et al., 2016). They are also more likely to use health care services, particularly those with other chronic illnesses (Wright et al., 2016).

Depression in adolescents is under-recognized and undetected (Fallucco, Seago, Cuffe, Kraemer, & Wysocki, 2015). The USPSTF recommends screening for MDD in adolescents 12–18 years old. These recommendations include screening to ensure accurate diagnosis, treatment, and follow-up of MDD if adequate systems are in place (USPSTF,

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2016). Screening for MDD promotes early initiation of treatment and referral. Early detection of depressive symptoms makes the referral for formal evaluation possible. Hence, early intervention for mental disorders during adolescence can have an important impact on adult mental health outcomes.

Despite these guidelines, limited screening by primary care providers suggests the opportunity to identify depression is missed (Taliaferro et al., 2013). Primary care providers report they lack sufficient training in depression assessment and management (Fallucco et al., 2015). These findings indicate the need for utilization of quality improvement processes for implementation of screening within primary care settings. The purpose of this project was to implement routine mental health screening among adolescent ages 12–18 years who were accessing school-based pediatric primary care clinic services for identification of those at risk for depression.

## Literature Review

Depressive disorder is experienced by 15–20% of adolescents by 18 years of age (Meredith et al., 2009). Adolescents with depressive symptoms are at risk for development of depression in later life (Tsai et al., 2014). Thapar et al. (2012) found 60–90% of depressive episodes in adolescents remit within a year, however approximately 50–70% of those who remit experience recurrence of depressive symptoms within 5 years.

The prevalence of depression among adolescents in primary care settings ranges from 9%–20%; however, 70% of depressed youth reportedly have not discussed their mood with their providers (Taliaferro et al., 2013). Primary care providers can play a significant role in identifying depression among adolescents. These providers, the first point of contact, have the opportunity to establish trusting relationships with adolescents. Primary care providers frequently rely on presenting symptoms or parental concerns to identify depressed mood among adolescents. Many adolescents may manifest their depressive symptoms as somatic problems rather than presenting with the concern of mood problems (Taliaferro et al., 2013). They frequently present with irritability rather than depressed mood, which can contribute to lack of identification of MDD among adolescent patients (Thapar et al., 2012). These findings suggest routine, systematic depression screening by primary care providers can improve identification of MDD in adolescents and address unmet mental health needs (Taliaferro et al., 2013; Williams, O'Connor, Eder, & Whitlock, 2009).

Primary care providers report acceptability of screening processes with minimal resistance from parents and adolescents concerning depression screening (Zuckerbrot et al., 2007). Primary care providers may not perform depression screening or address mental health issues due to lack of (a) time, (b) training and/or confidence in treating mental health problems, and (3) availability of referral resources (Taliaferro et al., 2013). Gaps in the literature still exist regarding best practices for depression screening, barriers to implementation, and management practices. The USPSTF (2016) continues, however, to recommend routine screening of all adolescents between the ages of 12–18 years when adequate systems are in place for appropriate referral and management.

Taliaferro et al. (2013) found nurse practitioners were less likely to feel responsible to manage depression in adolescents (26%), compared with physicians (46%). Nurse practitioners felt less sure that they could effectively manage depression in adolescents in their practice setting. Pediatric clinicians were more likely than family providers to report familiarity with USPSTF recommendations (54% vs 43%) but were still less likely to routinely administer a standardized depression screening instruments (44% vs 53%). Primary care providers more frequently utilized their clinical observation and overall impression to identify adolescents experiencing depression rather than using a standardized instrument. These findings indicate the need for utilization of quality improvement processes for implementation of depression screening

for adolescents within primary care settings. This study utilized the Patient Health Questionnaire-9 Adolescent Version (PHQ-9) screen for implementation of depression screening in a pediatric school-based primary care-based clinic.

## Conceptual Framework

The Donabedian model provided the framework for development of the screening intervention and assessment of mental health screening outcomes following implementation of the PHQ-9. The model assesses outcomes via three factors: structure, process, and outcome. Structure includes resources in the organization such as finances, staff, equipment; process describes implementation of a structure such as mental health screening; outcome refers to the results of the process such as timely identification and management of mental health problems (Kunkel, Rosenqvist, & Westerling, 2007).

The Donabedian model integrates the Plan-Do-Study-Act (PDSA) cycle to tests changes on small scale (U.S. Department of Health and Human Services, Health Resources and Services Administration [U.S. DHHS, HRSA], 2011). This model focuses on three questions to set the improvement aim, establish measures, and select changes. The following questions were answered in order to guide depression screening protocol implementation: 1) What are we trying to accomplish? 2) How will we know that a change is an improvement? 3) What changes can we make that will result in improvement? A comprehensive literature review supported the problem identification, intervention and assessment of outcomes.

## Methods

### Planning the Intervention

Institutional Review Board approval was obtained for conduct of this quality improvement project. Implementation of the project occurred at a pediatric school-based primary care clinic located in the southwestern US. This clinic provides primary care services to adolescents within the local independent school district. The school district services an area including a population of approximately 17,000. Ethnic composition is majority Hispanic (66%), non-Hispanic White (19%), Black (10%) and other (5%). School district enrollment is 11,300 students including predominantly Hispanic (82%) ethnicity (Black 10%, non-Hispanic White, other 2%). Health care is provided by five nurse practitioners (three full-time, two part-time), two registered nurses and two medical assistants with two administrative support staff members. Approximately 25 clients access care via the clinic on a daily basis.

A retrospective chart review was conducted in December 2016, prior to implementation of screening, to assess baseline clinic population demographics, payer source, type of visits, previous mental health screening methods, mental health diagnoses, and previous mental health referrals. The retrospective review (02/01/2016–05/31/2016) included 258 charts (adolescents aged 12–18 years) to represent the period one year prior to projected screening implementation (02/01/2017–05/31/2017). Review of these charts identified approximately equal distribution of females ( $n = 128$ , 49.6%) and males ( $n = 130$ , 50.4%). Adolescents aged 12–14 years ( $n = 133$ , 51.6%) and 15–18 years ( $n = 125$ , 48.4%) were primarily of Hispanic ( $n = 227$ , 88%) ethnicity.

A standardized depression screening protocol was not available at the clinic prior to implementation of this project (i.e., screening adolescents for depression with PHQ-9). The baseline chart review found adolescent mental health addressed by clinic personnel (nurse or medical assistant) during well visits. Medical assistant or nursing personnel questioned parents or adolescents about psychosocial or behavioral health concerns during intake. The nurse practitioner would then reassess intake findings and document overall psychosocial well-being. Documentation of mental health concerns included situations prompted by patients, parents or providers. Baseline chart review

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