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## Mental Health Screening for Low Income Adolescents: An Evidence-Based Project

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Mental Health Screening for Low Income Adolescents:  
An Evidence-Based Project

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## Abstract

### **TITLE: Mental Health Screening For Low-Income Adolescents**

**BACKGROUND:** Nearly 80% of adolescents in the United States will suffer from a mental illness and not receive evaluation or services. Children from low socio-economic backgrounds have an increased risk of mental health disorders which permeate into adulthood, leading to additional negative sequel and lower quality of life. Among adolescent mental health conditions, depression and anxiety are the most common. Literature has suggested provider intuition alone has low sensitivity and specificity for detecting mental illness and that screening tools are indicated.

**PURPOSE:** The aim of this project is to implement standardized routine mental health screening and mental health protocols for adolescents to increase access to mental health services.

**EVIDENCE BASED INTERVENTIONS:** A standardized mental health protocol was implemented utilizing evidence-based interventions to include standardized screening using the PHQ2 and GAD7. Positively screened individuals received a standardized patient-provider interview and timely referred to in-house psychology or psychiatry.

**EVALUATION/RESULTS:** During the duration of the evidence-based-intervention, 371 adolescents, 99.2%, were screened at both clinical sites. Of those screened, 27.4% were identified at risk for anxiety and 19.4% were identified at risk for depression. Among those who were identified, 84.2% were offered appropriate mental health services and referrals.

**IMPLICATIONS FOR PRACTICE:** The implementation of a standardized mental health protocol utilizing evidenced-based interventions, including screening and appropriate referral, is a valuable method to improve mental health outcomes.

**CONCLUSIONS:** Timely detection for adolescents suffering from mental health disorders increases access to intervention and care that otherwise would not be available.

### **Description of Clinical Problem**

Within the United States, the lifetime prevalence of any mental health disorders in adolescence accounts for nearly half of the population, at 49.5% (Merikangas et al., 2010). Unfortunately, 80% of adolescents who suffer from mental illness do not receive evaluation or services (Allen & McGuire, 2011). Among adolescent mental health conditions, depression and anxiety are the most predominant, with lifetime prevalence of depression at 13.3% and anxiety at 31.9% (National Institute of Mental Health [NIMH], 2019). Mental health disorders can not only be debilitating for the affected individual, but also have wide-reaching implications for society at large. According to the World Health Organization (WHO), depression is the leading cause of disability worldwide, and in adolescence in particular, can lead to poor academic performance and productivity, social difficulties, and even suicide (Tang & Pinsky, 2015). An insurgence of suicide rates has been detected within the United States, with an increase of over 30% since 1999 (Stone et al., 2018). Currently, suicide accounts for the second leading cause of death among adolescents age 15-19 (Heron, 2018). Risk factors for both anxiety and depression are multifactorial, ranging from biological tendencies to the psychosocial vulnerabilities (Tang & Pinsky, 2015). However, among the most compelling risk factors is low socio-economic status (SES) due to amplified exposure to stressors (Weitzman & Wegner, 2015). These early stressors are known as Adverse Childhood Events (ACEs) and lead to increased rates of health burdens permeating into adulthood. Among these are elevated rates of cardiovascular disease, obesity, substance abuse and poor quality of life (Weitzman & Wegner, 2015). Reliance solely on clinical judgment to detect anxiety and depression in primary care, without the use of standardized instruments, reveals staggeringly low sensitivity and specificity, 14% and 69% respectively (Weitzman & Wegner, 2015). These rates decline further in non-English speaking

families. The study sites are federally-funded community health centers serving low-income, multilingual, pediatric patients in the South West region of the U.S.. Within both clinics, the medical team would like to explore current rates of anxiety and depression amongst adolescents as they are concerned they may exceed national averages, likely due to the income inequality and additional social stressors. Upon Institutional Review Board (IRB) approval, data collection of current rates of anxiety and depression in adolescent clinic patients, utilizing chart audits highlighted the need for mental health intervention.

### **Description of EBP Project, Facilitators & Barriers<sup>1</sup>**

The aim of this evidence-based practice (EBP) project is to implement mental health screening tools for all adolescent appointments at the study clinic. Implementation of this practice change intends to increase detection of mental health disorders in adolescents and expand access to mental health resources for these individuals. At each adolescent well-visit, children age 12-18 will receive validated depression and anxiety screening tools, the Patient Health Questionnaire-2 (PHQ-2) and Generalized Anxiety Disorder-7 (GAD-7), to capture children at risk. Upon a positive screening result, adolescents escalate to the PHQ-9 screener, for increased specificity and sensitivity. All positive PHQ-9 and GAD-7 adolescents are identified and referred to the in-house Psychologist or Psychiatrist, depending on severity of symptoms.

There are a multitude of facilitating factors to aid in the implementation of a sustainable practice change at the study site. Additionally, several barriers and resisting factors need to be addressed to ensure success of this EBP project. Facilitating factors include a passionate Medical Director who will act as a champion for the project, as well as a compassionate medical team who provide excellent and empathetic care to patients. Additionally, the presence of

preexisting in-house psychiatric team, with strongly forged collaborative relationships, increases access to mental health services for adolescents and eases the referral process. Lack of time, change in workflows and scarcity of available mental health providers for referrals are frequently cited as barriers in implementing mental health screening in pediatric outpatient settings (Weitzman & Wegner, 2015). Additionally, inconsistent ICD-10 coding proved to be a barrier when collecting data and completing chart audits. To successfully implement and sustain mental health screening, alterations to the electronic medical record (EMR) are needed. This serves as a potential technical source of resistance. Working closely with both the office manager and IT team, as well as creating visuals and step-by-step directions of correct documentation, will ensure a smooth execution of EMR modifications and dampen this barrier. Additionally, the work flow of the Medical Assistants (MAs) and front office staff will increase, as they will administer the questionnaire and input the results in the medical record. To overcome this potential resistance factor, buy-in must be cultivated. Through educational meetings and by incorporating personal story telling, a culture of empowerment can be fostered, highlighting the crucial role these team members play in providing mental health services for at-risk youth. The last impending barrier to address is streamlining the referral process to psychiatry for those who screen positive. With an expected up-tick in identified at-risk youth, more referrals to mental health will be made. Enacting an efficient protocol for referrals and training MAs to initiate follow-up appointments at discharge will aid in overcoming this source of resistance. Furthermore, as the project progresses, clinic-wide staff meetings and chart audits may highlight the need for additional mental health staff to combat the increased access to services.

### **EBP Model**

The Iowa Model assists in completion of EBP projects by determining problem focused triggers, or opportunities to improve practices (Titler et al., 2001). Emphasis on formation of a PICO question and use of piloting projects, as well as Iowa's stepwise approach, encourages feed-back loops and constant appraisal of process change (Melnik & Fineout-Overholt, 2015, Cullen et al., 2018). With two clinical sites, the use of a pilot is beneficial, as it allows for small-scale implementation at the primary clinical site prior to deployment throughout all entire organization. Additionally, the use of a pilot allows for accommodations to be made when determining barriers and aids in redesigning the work flow on a smaller scale.

### **Proposed Evidenced-based Solutions**

To identify the benefits of mental health screening for adolescents in pediatric primary care, a review of the literature was conducted. Electronic databases including CINAHL, PubMed, and online catalogs were utilized. Key terms included: adolescents, anxiety, depression, mental health disorders, primary care, and screening. To narrow results, Medical Subject Headings (MeSH) terms were applied for mental health, adolescents, and screening. Initial literature search yielded 1,390 results published within the last ten years, of those, 17 were chosen. These final articles were selected as they were all full-text, English language, only adolescent populations, and relevant to screening anxiety and depression.

The American Academy of Pediatrics (AAP) and United States Preventative Services Task Force recommend screening for depression in adolescents (Siu, 2016, Weitzman & Wegner, 2015). Ample literature is available to support the use of the PHQ-2 and PHQ-9 to detect depression symptoms in adolescents. Among the literature reviewed a systematic review examined the use of PHQ-2 in both adolescent and adult populations. It concluded that lowering the PHQ-2 positive threshold, from three to a score of two, increased sensitivity to 91 % (Manea

et.al., 2016). Although the author concedes this will increase false-positives, it will ensure that fewer depressed individuals go undetected.

In a non-experimental study, 2,184 adolescents in primary care clinics received both the PHQ-2 and GAD-2 at all well-visits. The PHQ-2 revealed a sensitivity of 79 % and specificity of 86 %, while the GAD-2 demonstrated a sensitivity of 86 % and specificity of 83 % (Dumont & Olson, 2012). The authors explored common somatic symptoms that present in anxious and depressed adolescents and emphasized that these symptoms may appear before emotional complaints—further underscoring the need for frequent screening.

Use of both the PHQ-2 and PHQ-9 screening tools were compared in a non-randomized study. In this study, 322 adolescents received both screening tools. The results showed that the PHQ-9, with a cut-off score of eight, yielded sensitivity of 90 % and specificity of 86.5 %, while the PHQ-2, with cut-off scores of two, had a sensitivity of 85 % and specificity of 79 % (Allgaier, Pietsch, Frühe, Sigl-Glöckner, & Schulte-Körne, 2012).

In two separate non-experimental studies conducted by Richardson et.al., use of the PHQ-9 and PHQ-2 were explored, in comparison to the gold-standard Diagnostic Interview Schedule for Children (DISC-IV), conducted by phone. In the first study, 442 children ages 13 to 17, completed a PHQ-9 as well as an independent DISC-IV interview (Richardson et.al., 2010a). Adolescents flagged positive when screening scores were eleven or higher. With this cut-point, sensitivity was 89.5 % and specificity 77.5 %. Alternatively, the second study enrolled 499 youth who received the PHQ-2 and DISC-IV interview. Positive screening was determined by a score of three or greater and revealed a sensitivity of 74 % and specificity of 75 % (Richardson et.al., 2010b).



Despite consensus that screening for mental health disorders in adolescents is paramount, few validated tools exist to screen for anxiety (Honigfeld, Macary, & Grasso, 2017, Mossman et al., 2017). A recent study examined the use of GAD-7 in adolescents as a measure of anxiety detection, as it had only previously been validated for adults. This non-randomized study, GAD-7 scores were compared to the validated, but lengthy, Pediatric Anxiety Rating Scale (PARS) scores in 40 adolescents with known anxiety. The study noted that the GAD-7 had similar reliability in comparison with the PARS in detecting both presence of anxiety and severity of symptoms, with GAD-7 cut-off scores of eleven producing 97 % sensitivity and 100 % specificity (Mossman et al., 2018). Overall, the literature supports use of the PHQ-2, PHQ-9 and GAD-7 as valid screening tools to detect depression and anxiety in adolescents, thus these screenings were adopted as the validated tools utilized in this evidence-based practice change.

### **Project Development and Implementation Timelines**

To ensure successful adoption of PHQ-2 and GAD-7 screening and subsequent mental health referrals, numerous activities must be implemented in a strategic and organized manner. Foremost, support from the clinical site Medical Director and other key stakeholders was established during a project proposal meeting. Stakeholder buy-in and Institutional Review Board (IRB) approval was obtained before implementation of the project. Following IRB approval, templates were created within the EMR to input patient scores and records were audited to determine current prevalence of anxiety and depression within the clinics. By compiling all of the ICD-10 codes related to anxiety and depression a pre and post incidence rate could be determined. The mental health referral process was then evaluated and streamlined to ensure continuity among patients and providers prior to implementation of the screenings. Following the establishment of protocols and referral processes, staff training sessions at clinical

sites commenced. Screenings were launched first at the main clinical site, followed by the organization as a whole a month later. After a three-month period, data were analyzed and presented to clinical staff and stakeholders. A timeline is found in Table 1 for further detail.

### **Project Outcomes**

Within one-month of project inception, EMR templates as well as establishing a systemized mental health referral process were generated. Once structural components were established, all medical staff, including providers and MAs, were trained to the appropriate use of the screening tool, patient follow-up interviews, appropriate documentation and referral. During a three-month period, 371 adolescents, 99.2 percent of all children age 12-18 seen during this time frame were screened. Among the adolescents screened at both clinic sites, the vast majority identified as Hispanic or Latino, at 74%, followed by 11% Asian, 9% African American or Black, 4% identified as White or Caucasian and 1% were not identified or declined. Of those screened, 58% were male and 42% female. Among the three patients who were not screened, two had significant developmental delay or cognitive impairment, and one did not speak English or Spanish. Of the adolescents who were screened, 27.4% were deemed at risk for anxiety with GAD-7 scores greater or equal to five. Of the children at risk for anxiety, 57% were female and 43% male (figure 1). Depression screenings utilizing the PHQ-2 revealed 19.4% of children screened were at risk of depression. Among those at risk, 65% were female and 35% male (figure 2). Lastly, of the adolescents who were screened over half, 54%, were found to have co-current anxiety and depression (figure 3).

Within the two clinical sites, referral rates of at risk youth and loss-to-follow-up were examined. Clinical site A, where the project was first implemented, had a depression referral rate of 68.9%, while 26.7% of the positive adolescents were not appropriately referred and 4.4%

declined all mental health services (figure 4). Depression referrals at site B were slightly less, at 57.7% of at risk youth. Interestingly, site B had 7.7% of screeners flagged as false positives, 11.5 % were not referred and 7.7% declined services (figure 5). Anxiety referral rates at site A demonstrated that 75.9% of at risk youth were referred, 15.5% were not referred and 8.6% declined mental health services (figure 6). Site B had 47.7% of at-risk youth were referred appropriately, 18.2% were not referred, 6.8% were deemed false positives and 27.3% declined referral (figure 7). Overall, both anxiety and depression referral rates were slightly higher at site A, the original pilot location (figure 8). Referral rates were further broken down by provider to determine those in need of further training and to highlight possible work-flow challenges that needed improvement. While some providers had appropriate referral rates in the 90% range, the average was about 50%, while one provider had 0% appropriate referrals for at risk patients (figure 9).

Despite increased referrals to mental health, clinic staff were concerned with loss-to-follow-up and no-show rates. The clinical site has significantly higher no-show rates than other clinics in the area that are not federally qualified health centers, and among those no-show rates, appointments to psychology and psychiatry are more adversely impacted. Although site A had slightly better referral rates for both anxiety and depression, their rate of missed mental health appointments was 30.6% (figure 10) in comparison with site B who only had 11.5% (figure 10) missed appointments. Although both sites utilize telephone call reminders, many staff have voiced challenges reaching patients, as cell phone numbers change or become disconnected frequently in these clinic sites. Lastly, rates of anxiety and depression were examined before and after the intervention, utilizing ICD-10 codes (figure 11). By extracting all anxiety and depression codes, both rates and accurate documentation for billing purposes could be analyzed.

Rates of documented anxiety rose 1.92% and 4.7% at sites A and B, respectively. While incidence rates of documented depression increased by 21.7% at site A, and 17.79% at site B.

Additional future long-term outcomes, such as improved patient access to mental health resources, decrease mortality by suicide, decreased mental health hospitalizations and reduction in patient-perceived stigma associated with seeking out mental health care require further investigation.

### **Project Impact**

Mental health screening for adolescents is an essential component of primary care. Both anxiety and depression cause significant impairment in adolescents, and if left untreated, disorders may persist into adulthood, leading to decreased quality of life (Weitzman & Wegner, 2015). Moreover, research suggests that a 2 to 4-year window exists between symptom onset and emergence of true disorder, indicating opportunity for early interception with regular screening (Weitzman & Wegner, 2015). Creation of a EBP project for mental health screening increased access to mental health resources for low-income adolescents at the clinical sites, as well as heightened awareness of available mental health resources for children. Implementation of standard screening tool improved access to services for children at risk who may have otherwise have been undetected.

### **Conclusions & Summary**

Low-income adolescents served at this clinical site are at elevated risk for developing anxiety and depression, underscoring the need to implement standardized screenings and mental health referrals. As mental health issues often persist into adulthood increasing the possibility of chronic health conditions and premature mortality, early detection and treatment in this population is paramount (Bitsko, et al., 2018). Introduction of PHQ-2 and GAD-7 screenings for

all adolescent well-visits has the potential to increase detection of youth at risk for anxiety and depression and provide appropriate treatment—prohibiting these disabling illnesses from permeating into adulthood. Implementation of these validated screening tools improved detection and access to mental health services at these community clinic sites and has the ability to lessen the burden of mental illness within our healthcare system.

## References

- Allen, P. L. J., & McGuire, L. (2011). Incorporating mental health checkups into adolescent primary care visits. *Pediatric nursing*, 37(3), 137-141.
- Allgaier, A. K., Pietsch, K., Frühe, B., Sigl-Glöckner, J., & Schulte-Körne, G. (2012). Screening for depression in adolescents: validity of the patient health questionnaire in pediatric care. *Depression and anxiety*, 29(10), 906-913.
- American Academy of Pediatrics. (2010). Addressing mental health concerns in primary care: A clinician's toolkit. *Elk Grove Village, IL: American Academy of Pediatrics*.
- Bitsko, R. H., Holbrook, J. R., Ghandour, R. M., Blumberg, S. J., Visser, S. N., Perou, R., & Walkup, J. T. (2018). Epidemiology and impact of health care provider-diagnosed anxiety and depression among US children. *Journal of Developmental & Behavioral Pediatrics*, 39(5), 395-403.
- Cullen, L., Hanrahan, K., Farrington, M., DeBerg, J., Tucker, S., & Kleiber, C. (2018). *Evidence-based practice in action: Comprehensive strategies, tools, and tips from the University of Iowa Hospitals and Clinics*. Indianapolis, IN: Sigma Theta Tau International.
- Dang, D., & Dearholt, S. L. (2017). *Johns Hopkins nursing evidence-based practice: Model and guidelines*. Sigma Theta Tau.
- Heron, M. (2018) Deaths: Leading causes for 2016. *National Vital Statistics Reports*; vol 67 no 6. Hyattsville, MD: National Center for Health Statistics.
- Honigfeld, L., Macary, S. J., & Grasso, D. J. (2017). A clinical care algorithmic toolkit for promoting screening and next-level assessment of pediatric depression and anxiety in primary care. *Journal of Pediatric Health Care*, 31(3), e15-e23.

Melnyk, B.M. & Fineout-Overholt, E. (2015). Evidence-based practice in nursing and healthcare: a guide to best practice. (3rd ed). Philadelphia: Wolters Kluwer & Lippincott, Williams & Wilkins.

Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J. Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication--Adolescent Supplement (NCS-A). *J Am Acad Child Adolesc Psychiatry*. 2010 Oct;49(10):980-9.

Mossman, S. A., Luft, M. J., Schroeder, H. K., Varney, S. T., Fleck, D. E., Barzman, D. H., Gilman, R., DelBello M. P., Strawn, J. R. (2017). The Generalized Anxiety Disorder 7-item scale in adolescents with generalized anxiety disorder: Signal detection and validation. *Annals of clinical psychiatry: official journal of the American Academy of Clinical Psychiatrists*, 29(4), 227-234A.

National Institute of Mental Health (2019). Mental Health Information: Statistics.

Retrieved from <https://www.nimh.nih.gov/health/statistics/index.shtml>

Siu, A. L. (2016). Screening for depression in children and adolescents: US Preventive Services Task Force recommendation statement. *Annals of internal medicine*, 164(5), 360-366.

Stone D. M., Simon T. R., Fowler K. A., Kegler S .R., Yuan K., Holland K. H., Ivey-Stephenson A. Z., Crosby A. E., (2018) *Vital Signs: Trends in State Suicide Rates — United States, 1999–2016 and Circumstances Contributing to Suicide — 27 States, 2015*. *MMWR Morb Mortal Wkly Rep* 2018;67:617–624. DOI: <http://dx.doi.org/10.15585/mmwr.mm6722a1>

Titler, M. G., Kleiber, C., Steelman, V. J., Rakel, B. A., Budreau, G., Everett, L. Q., ... & Goode, C. J. (2001). The Iowa model of evidence-based practice to promote quality care. *Critical Care Nursing Clinics*, 13(4), 497-509.

Richardson, L. P., Rockhill, C., Russo, J. E., Grossman, D. C., Richards, J., McCarty, C., ... & Katon, W. (2010). Evaluation of the PHQ-2 as a brief screen for detecting major

depression among adolescents. *Pediatrics*, 125(5), e1097-e1103.

Weitzman, C., & Wegner, L. (2015). Promoting optimal development: Screening for behavioral and emotional problems. *Pediatrics*, 135(2), 384-395.



## Tables

Table 1

*Mental Health Screening EBP Timeline*

Task	Involved Parties	Intended Date of Completion
Project Proposal Meeting	Key Stake-Holders	September 2019
Letter of Endorsement	Project Chair	July 2019
IRB Approval	The Investigator	July 2019
Chart Audits for baseline statistics	The Investigator & IT	August- November 2019
Creation of EMR Templates	The Investigator & IT	Early November 2019
Refining Referral Process	Stake-Holders & Psychiatry	Early November 2019
All Staff Meeting	All Site A. office Staff	Mid November 2019
MA training sessions, Site A	Site A MAs and office staff	Mid November 2019
Site A Project Roll-out	All Site A office staff	Late November 2019
Weekly Chart Audits	The Investigator & IT	December -March 2020
Address barriers/process changes	All key stakeholders	Late January 2020
MA training session, Site B	Site B MAs and office staff	Early December 2019
Site B Project Roll-out	All Site B office Staff	Mid December 2019
Stakeholder Presentations	All Staff at Site A & B	March 3, 2020

Figures

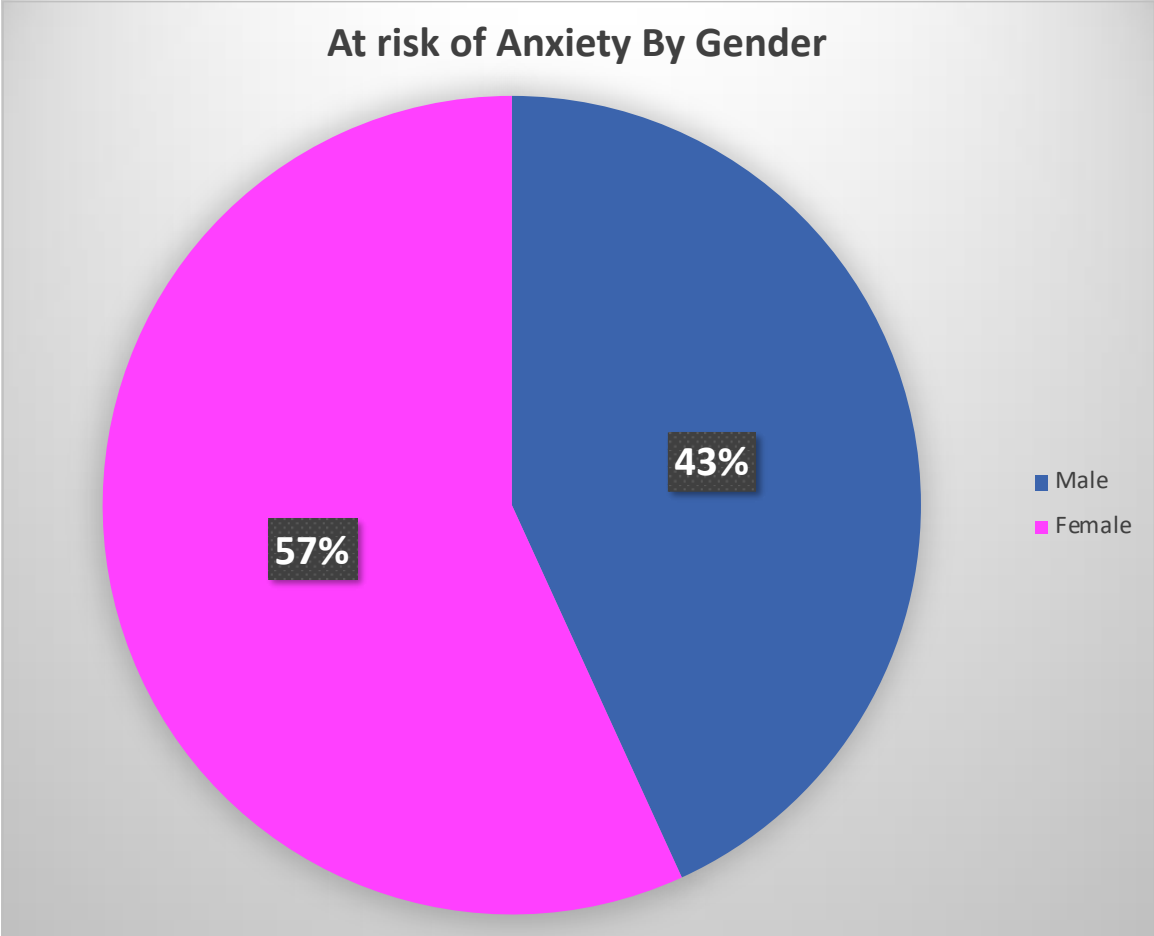


Figure 1. Rate of Anxiety by Gender

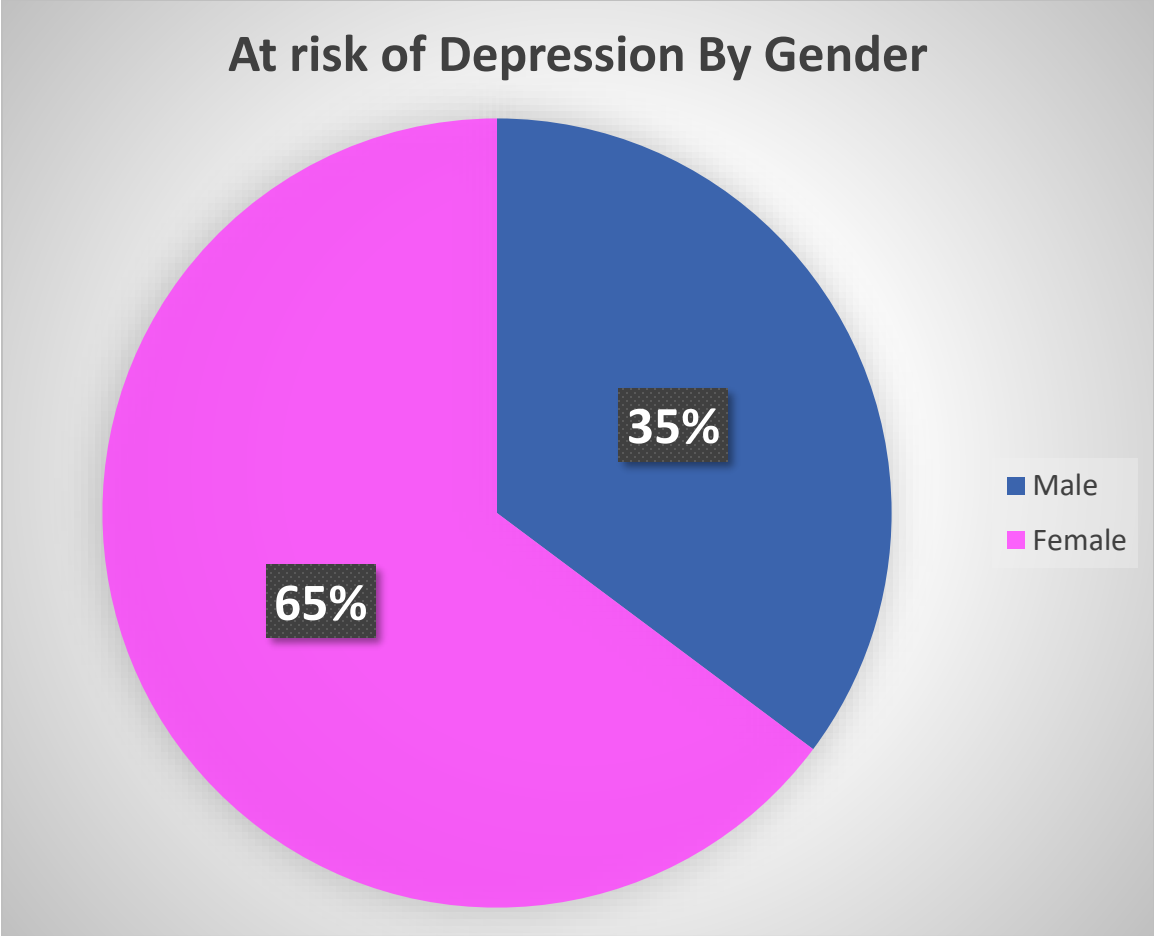


Figure 2. Rate of Depression by Gender

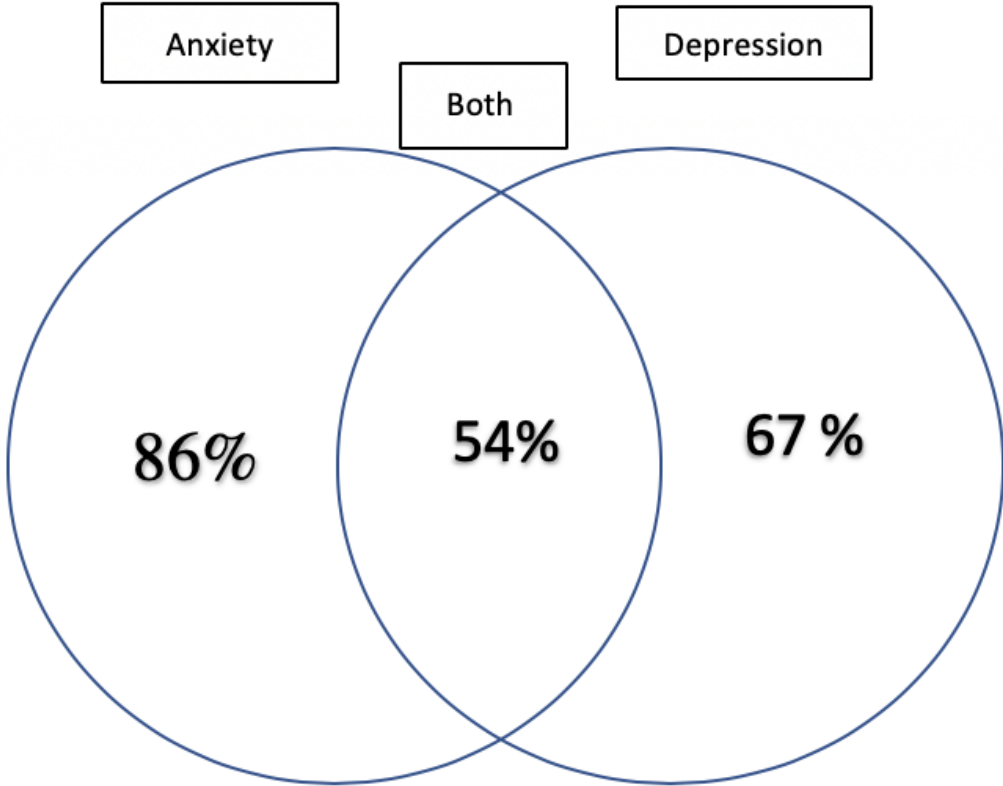


Figure 3. Rates of Concurrent Anxiety and Depression

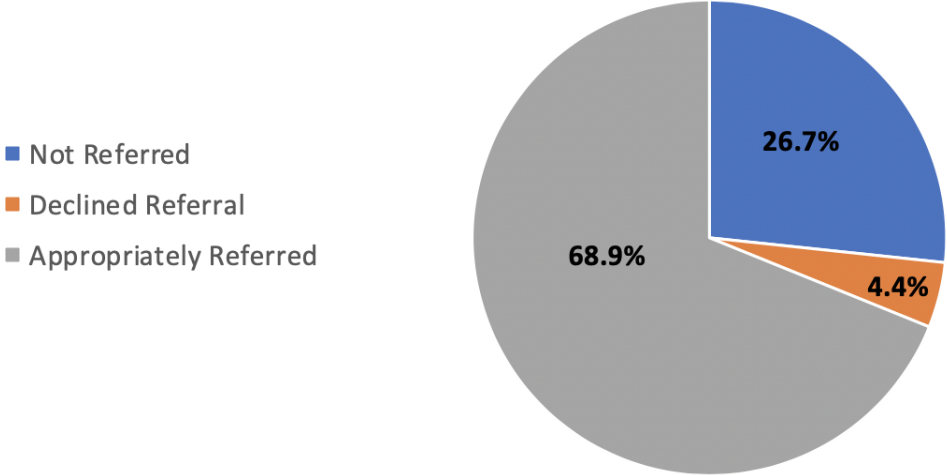


Figure 4. Rates of Referral for positively screened youth at risk for depression Site A

