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Evaluating the Feasibility of Practice Change: The Use of the PHQ-2 in the Urgent Care Setting

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Evaluating the Feasibility of Practice Change: The Use of the PHQ-2 in the Urgent Care Setting

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Seattle University College of Nursing

2020

Submitted in partial fulfillment of the requirements for the Doctor of Nursing Practice degree

Chair: Dr. Alise Owens, DNP, ARNP, FNP

A handwritten signature in black ink that reads "Alise Owens DNP, FNP". The signature is written over a horizontal line. To the left of the signature, there is a small "x" mark.

Reader: Dr. Janiece DeSocio, PhD, RN, PMHNP-BC, FAAN

A handwritten signature in blue ink that reads "Janiece DeSocio".

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Abstract

Adolescents in the United States may go unscreened for mental health disorders, such as depression, despite current recommendations. This population has an increased use of urgent care clinics (UCC) for their acute and primary care needs, where they might not be screened for depression at regular intervals. This project looked at determining the feasibility of implementing a two-question depression screener in the urgent care setting – the PHQ-2. Additional aims were to increase screening rates and to determine barriers to screening. Healthcare providers at a pediatric urgent care setting used the PHQ-2 to screen all adolescent patients over a two-week period. Data from a retrospective chart review showed an increase in overall screening rates and identification rates of depression in this population. Barriers to screening included wait time, confusion, patient saturation, and decreased care for acute complaint. Data from the post intervention questionnaire showed that further research will be needed in order to determine the feasibility of implementing the PHQ-2 in the UCC setting.

Key Terms: Adolescent, depress, urgent care clinic, feasibility, PHQ-2

Introduction and Background

In the United States, it is estimated that about 20 percent of adolescents aged 13-18 years have a mental health disorder, compared to 18.5 percent of adults (Merikangas et al., 2010; National Institute of Mental Health, 2013). Depression, in particular, is prevalent in the adolescent population, with an estimated 12% of this population diagnosed (NIMH, 2018). Depression is identified as a change in usual behavior, that can cause emotional and physical distress, and is marked by feelings of hopelessness, irritability, sadness, feelings of worthlessness, and low self-esteem amongst other symptoms. Risk factors for depression in adolescents may include family history of depression or suicide, stressful life events, substance abuse, identifying as gay, lesbian, bisexual or transgender, having concurrent diagnoses such as anxiety, chronic illness, a learning disability, being a victim or witness of violence, or being bullied (Mayo Clinic, 2017). Both the American Academy of Pediatrics (AAP) and the United States Preventive Services Task Force (USPSTF) recommend adolescents aged 12 and up be screened for depression by their primary care providers (Siu, 2016). Despite these recommendations, there is frequently an eight to ten-year delay between first symptoms of mental health disorders, and health care intervention (Sheldrick, Merchant & Perrin, 2011).

Screening this population is imperative, however, only 1 in 4 children with mental health concerns is diagnosed by their primary care provider (Gould, Greenberg, Velting & Shaffer, 2003). Additionally, of the three million adolescents diagnosed with depression in 2015, a little less than 40% were receiving treatment (U.S. Department of Health and Human Services, 2016). Other studies have found that though 75% of lifetime cases of mental health disorders begin by the age of 24, first symptoms are often not recognized, which can lead to interventions being delayed 8 to 10 years after their first symptoms surface (Merikangas et al., 2010). When

specifically looking at depression treatment, Merikangas, et al. (2011), found that 60% of adolescents who had experienced a major depressive episode received no treatment at all.

Delay in interventions can lead to devastating consequences. One such example is suicide, the second leading cause of death for youth aged 10-24, with over 5,000 deaths in 2016, only exceeded by accidental deaths (NIMH, 2018a). Mental health disorders like depression are known risk factors for suicide (Ryan et al., 1987). For example, Nepon, Belik, Bolton, and Sareen (2010), found that of the young adults who attempt suicide, 70% had a diagnosed anxiety disorder. Additionally, up to 80% of adolescents have contact with outpatient or emergency medical care within a year of their suicide attempt (Rhodes et al., 2013). Other consequences associated with mental illness in adolescence include higher rates of school failure, bullying, self-harm, and emergency room utilization (Guzman et al., 2011; Hawk, Mullen, & Hertz, 2011; Jolliffe & Farrington, 2011; Landstedt, & Gillander Gadin, 2011; McKenna, Hacker, Arsenault, Williams, & Digirolamo, 2011).

Mental health is not only an issue nationally, but in Pierce County, Washington as well. An estimated 11.4% of youth aged 12 to 17 in Pierce County experienced a major depressive episode in the past year, slightly higher than the national estimate of 10.4%, and 38.3% of Pierce County 10th graders reported feeling so sad or hopeless for two weeks or more that they stopped doing their usual activities; this compares with 29.8% in the U.S (Human Services Research Institute, 2016). This report also stated that the rate of suicide in Pierce County - at 18.5 per 100,000 residents—is higher than that of Washington state (15.4 per 100,000) (Human Services Research Institute, 2016).

When looking at the landscape of healthcare, and how the structure and context may affect how adolescents are screened, there are various factors at play. Access to care however, is not one of the main factors, as only 3.4% of adolescents report they have no usual source of healthcare – a statistic that covers both primary care and emergent care settings (CDC, 2016). Despite this, Nordin, Solberg, and Parker (2010), found that one third of adolescents had no preventative care visits from the age of 13 to 17 within primary care offices, and of those who did obtain preventative care visits, 40% only had one visit within this time frame. While this encompasses all adolescents, when looking specifically at care access for children diagnosed with mental health disorders, anywhere from 75-87% may not have seen any provider for mental health services within the last 12 months (Jensen, et al., 2011; Kataoka, Zhang, & Wells, 2002). Due to the sporadic nature of adolescent's access to healthcare, utilizing all patient encounters for preventative care is recommended in order to effectively carry out effective preventative care (Nordin, Solberg, & Parker; Patel et al., 2017; 2010; Rand & Goldstein, 2018). As adolescents have an increased use of urgent care clinics (UCC's) for their healthcare needs, this is an area where screening focus should be (Rand & Goldstein, 2018). Screening adolescents for depression during acute and preventative care visits at UCC's can help increase rates of identification, as Patel et al. (2017), found that administering a like survey for suicide risk increased rates of identification and referrals, at no additional burden to the clinic. Additionally, a study done by Slabaugh, Harris, & Wilcock (2018) also found that implementing screenings for depression such as the PHQ-2 do not present excessive burden to staff or health care cost, though this study was done in a college health clinic.

Purpose

Given the need for mental health screening among adolescents, is it possible that administering depression screenings in UCC's would help increase rates of identification of depression in adolescents? Therefore, the purpose of this project was: 1) to determine the feasibility of implementing depression screenings for all adolescent visits within the urgent care setting; 2) to increase the screening and diagnosis rates of depression in the adolescent population; and 3) to determine additional barriers to screening and referring this population.

Theoretical Framework

The Donabedian Framework for Quality Improvement was utilized as the theoretical framework for this project. Donabedian identifies three factors: Structure, Processes, and Outcomes as important considerations in implementing quality improvement projects (Donabedian, 1988). The Donabedian Framework creates a systematic way to organize the findings in the literature, as well as frame the context of the project as a whole. Looking at the factors, the structure is the UCC setting, and how care is provided there. Processes are what makes health care – what is being done and what can be done. Outcomes are what will be measured when a change in the process is made – health outcomes and feasibility outcomes. Utilizing the Donabedian Framework will help to determine if the quality improvement project is successful in changing health care.

Literature Review

CINAHL, Google Scholar, and PubMed were searched, with the following limitations: English only, and years 2010-2020. The following key words were used: Adolescents, teenagers, screening, mental health screening, provider, mental health, anxiety,

depression, mental illness, mental disorder, UCC's, episodic care, and emergent care. After selecting articles relevant to the proposed interventions and research, 18 articles were included in the literature review.

Delay in Screening: Adolescents

Adolescents with probable mental health problems may not be seeking treatment, and if so, they may not continue that care regularly. This is a population that accesses episodic care more frequently than preventative care, has a higher usage of urgent care settings, and often does not have a primary care provider (Rand & Goldstein, 2018; Wong, et al., 2017). Additionally, rates of mental health care initiation are even lower for adolescents who identify as female, Black, or Hispanic. (Saloner, Carson, & Cook, 2014). Adolescents who have experienced suicidal ideation are also less likely to seek help than other at-risk adolescents (Husky, McGuire, Flynn, Chrostowski, & Olfson, 2009).

Delay in Screening: Providers

Factors that contribute to why providers may not be screening adolescents vary. One study found that most providers depend on parents to identify their child's mental health concerns rather than using an assessment or tool to look for cases (Zuckerbrot, Cheung, Jensen, Stein & Laraque, 2007). Additionally, a study with nurse practitioners found that while over 90% of the population sampled recognized screening depression in adolescents to be a part of their job, screenings were completed in a little less than half of the visits the nurse practitioners were in contact with their adolescent patients, and in well-child checkups primarily; not physicals, which comprised of most of their visits with adolescents (Lieser, 2012). Providers have also indicated barriers to screening adolescents included waiting times to see mental health

specialists, lack of reimbursement, and lack of time in the visit (Pidano, Kimmelblatt, & Neace, 2011). The providers who are most likely to screen adolescents are those who identify as being female, work in an urban setting, or have had a previous patient attempt suicide (Diamond, O'Malley & Wintersteen, 2011).

Implementation of Screenings

When screenings are implemented, studies have shown adolescents found it to be helpful for there to be discussions of their mental health with their primary care providers, and implementation of the screenings improved adolescent outcomes (Webb, Kauer, Ozer, Haller, & Sancu, 2014). Validated screening tools are invaluable, as they can pick up on internalized symptoms that providers may miss. Brown and Wissow (2010) found that validated screenings found twice the amount of mental health disorders compared with general surveillance. Additionally, validated screening tools allow providers to track symptoms for improvement, which may be beneficial in treatment.

There are different factors which might make a screening tool more attractive to providers. In a study done by Arora, Stephen, Becker and Wissow (2016), it was found that providers were partial to screenings that were short to administer and were simple to understand and learn. Using screenings that were limited to one page also reduced interference with workflow and minimized patient forms, while still gaining vital patient information (Honigfeld, Macary, & Grasso, 2017). With further training on screenings for depression and anxiety in adolescents, it was found that health care providers were more likely to continue screening (Fallucco, Beharano, Kozikowski, Talwar, & Wysoki, 2015).

Validated Screening Tools

Use of validated screening tools for mental health disorders in the primary care office is recommended (Pattishall, Cruz, & Spector, 2011). Common examples of screenings utilized to diagnose depression in adolescents are the Patient Health Questionnaire-2 (PHQ-2) and Patient Health Questionnaire-9 (PHQ-9). Often used before the PHQ-9, the PHQ-2 with a score of three or more has a sensitivity of 74%, and a specificity of 75% for detecting youth at risk for depression, “and a sensitivity of 96% and specificity of 82% for detecting youth who met criteria for probable major depression on the Patient Health Questionnaire nine-item depression screen” (Richardson et al., 2010). With a positive screen utilizing the PHQ-2, providers are able to use the PHQ-9, which has a reported sensitivity of 89.5% and a specificity of 77.5% in adolescents for detecting depression (The DC Collaborative for Mental Health in Pediatric Primary Care, 2017). The PHQ-9 can be completed by individuals aged 12-18 years of age and is a nine-item checklist to assess current symptoms, level of impairment, and number of suicide attempts. The form is available in English and Spanish. Scoring can be completed in less than two minutes. The tool is complete with an interpretation of the total raw score and indicates the level of severity in symptoms. The tool may be used to track changes in severity over time (Kumar, 2001). To fully care for individuals who screen positively on both screeners, a suicide screen should also be completed, such as the Columbia Suicide Severity Rating Scale (C-SSRS).

Pierce County

Pierce County was of interest for where to hold this intervention, as the rate of suicide is higher than the state’s average, at 18.5 per 100,000, compared to 15.4 per 100,000 statewide. Additionally, the rate of adolescents who reported a major depressive episode in Pierce County is higher than the national average with 38% of 10th graders in Pierce County reporting these

symptoms, and 29% reporting these symptoms nationally (Human Services Research Institute, 2016).

Methodology

Project Type & Design

This was a quality improvement project that resulted in a practice recommendation. This project used a mixed methods design for evaluation. Quantitative data was collected using Likert-type survey and chart reviews. Qualitative data was collected from open-ended survey items that invited participant response.

Intervention Setting

This project was implemented in two pediatric UCC's serving one of the most populated counties in a Northwest state. This county includes sparsely populated rural communities as well as one of the state's largest metropolitan areas, with a total population of 891,299 (Data Access and Dissemination Systems, 2018).

Subject Recruitment

All providers currently working at the UCC's were invited to join the intervention by the medical director and the principal investigator (PI) through email and in-person meetings. The health care providers included medical doctors, advanced practice nurses, and physician assistants. Participation was opt-in and was not mandatory. Participants could choose to opt out of the intervention at any time during the intervention period. Exclusion criteria for participants included primary care providers who do not work with adolescent patients. Informed consent

was acquired prior to data collection. Ten out of 16 possible participants agreed to participate. Participants included medical doctors, advanced practice nurses, and physician assistants.

Intervention Description

The intervention involved depression screening for all adolescent patients aged 13 – 18 years who sought care in either of two pediatric UCCs over a two-week period in November 2020. Those who were identified to need further screening and evaluation for depression were referred within standard protocols of the health care system. The aims of the intervention were to increase screening rates of adolescents, determine the feasibility of administering depression screenings within the urgent care setting, and to determine additional barriers to screening and referring this population.

Data Collection

Quantitative and qualitative data were used to evaluate the project aims. Quantitative data was gathered via a retrospective chart review examining rates of screenings prior to the intervention and during the intervention, and number of positive screenings prior to and during the intervention. Quantitative data was also gathered using a post-intervention questionnaire through Likert type questions. Qualitative evidence was obtained through a post intervention questionnaire with open ended questions, that was distributed to participant via email on the last day of the two-week intervention period.

Measurement

The questionnaire was made and distributed using Qualtrics. Donabedian's Framework for Quality Improvement was used to help create a combination of Likert scale and open-ended questions in order to help answer project aims. This framework examines structures of care,

processes of care, and outcomes of care. A total of 11 questions were asked, with five mandatory Likert scale questions, and six optional open-ended questions. The questionnaire did not gather any demographic data from the providers to help provide anonymity. Participants were given information on informed consent via the first page of the questionnaire and asked to continue if they agreed. For quantitative evidence, a chart review was performed to determine pre and post intervention rates of screenings. This was to help to determine if rates of screenings have increased over the two-week intervention period, answering the project aim of increasing screening rates for depression.

Data Analysis

Qualitative data analysis of the open-ended questions gathered in the post intervention questionnaire was analyzed using thematic analysis. This data was collected via Qualtrics, and the questionnaire was distributed by the PI via email on the last day of the two-week intervention. Participants were asked to complete this questionnaire within a two-week period. Two reminder emails were sent during this time period by the PI to the participants.

Quantitative analysis was done via a retrospective chart review. Data was gathered from patient visits two months prior to the intervention start date. Data points collected include: PHQ-2 screening, and screening result. All data was deidentified. Exclusions for the chart review were patients under the age of 12 and over the age of 18. The data for the retrospective chart review was collected after the two-week intervention period. Likert scale questions from the post intervention questionnaire were analyzed using descriptive statistics. This data was collected via the Qualtrics questionnaire sent out by the PI.

The data collected from the retrospective chart review was analyzed using descriptive statistics. Descriptive statistics were also used for analyzing the Likert scale questions from the post intervention questionnaire as data points are from a singular point in time.

Qualtrics, a web-based survey construction tool, was utilized to gather data from the post intervention questionnaire. This site also allowed for anonymous responses by not collecting IP address or location of responder.

All data collected was stored in a locked cabinet or in a password protected computer. Patient name, age, and birthdate were not associated with data sets for the quantitative data collected from the chart review. All data from the chart review was further deidentified by assigning the number 1 to data points prior to the intervention, and the number 2 to data points during the two-week intervention. No demographic data was gathered via this questionnaire, and any identifiable data revealed by the open-ended questions was omitted from the final result. Identifiable data will be destroyed by July 2020.

Data Dissemination

The author has disseminated findings to the medical director of the participating UCCs, and to providers at the UCCs via an email update. All data is confidential, and deidentified. Results from this study may be submitted for publication for increased dissemination to the larger fields of primary care and pediatrics.

Institutional Review Board

Human subjects' protections for this project were reviewed by the Institutional Review Boards (IRB) of Seattle University and MultiCare Health System. This project was determined to be a quality improvement project that was exempt from full IRB review by both entities.

Results

Quantitative Data

The results from the retrospective chart review show that the intervention increased rates of PHQ-2 administration. In the month of September, three PHQ-2s were completed, one was completed in October, and 21 were completed in November. The chart review also shows that there was a total of 28 positive PHQ-2's for the time period of September 2019 to November 2019. In the 3 months prior to the intervention, 9/16/19 to 11/11/19, there were a total of 6 positive PHQ-2s. During the two weeks of the intervention from November 11th- November 22nd, there were 21 positive PHQ-2s.

Five Likert type questions were asked on the post intervention questionnaire, with an average n of 7 respondents. The scale for the questionnaire ranged from numbers 1 through 5, with 1=strongly agree and 5=strongly disagree.

| Means and Standard Deviations for Participants | | | |
|---|---|------|------|
| Variable | N | M | SD |
| The urgent care setting is an appropriate and feasible place to screen for depression in adolescent patients | 7 | 3.14 | 1.12 |
| Screening adolescents in the urgent care setting significantly increased the duration of healthcare visits | 7 | 2.57 | 0.73 |
| By screening adolescent patients in the urgent care setting identification of depression in adolescents will improve | 7 | 1.86 | 0.64 |
| Screening adolescents in the urgent care setting significantly improved the quality of care I was able to give | 7 | 2.71 | 0.45 |
| Screening adolescent patients in the urgent care setting will help improve the overall health outcomes of adolescent patients | 7 | 2.57 | 0.49 |

Based on these results, participants noted that this intervention would improve overall rates of identification, improve overall health outcomes, and not significantly increase duration of time. However, participants neither agree nor disagree that the urgent care setting is an appropriate place to screen adolescents for depression.

Qualitative Data

Six open ended questions were included on the post intervention questionnaire to further explore the factors related to the use of the PHQ-2 in this practice setting.

“What factors make depression screening in the urgent care setting feasible, or not feasible?” (n=7).

Three key factors were identified: time, ease of use, and limitations of practice setting. Several respondents commented that the use of the PHQ-2 in visits increased visit time. The reasons ranged from the need for further questioning upon positive PHQ-2, explaining use of PHQ-2 in a non-related visit, and large patient volumes seen in the urgent care setting. Ease of use was also a factor that affected the feasibility of the intervention. While participants cited that the length of the PHQ-2 was good as it only had two questions, other participants noted they had a difficult time finding the screening within the EHR and found it difficult to remember to add into the visit. The factor of practice site limitations was expressed by providers through comments such as “the urgent care does not have the resources to adequately screen and address these types of health concerns.” (Subject # 4). Other practice site limitations listed were lack of continuity and lack of mental health resources. The resources that were lacking in this setting were not expanded on by respondents.

“What factors related to depression screening in the urgent care setting impact the duration of the healthcare visit?” (n=7)

There were two major factors that impacted the time spent providing care. These included the time it took to explain and administer the screening tool and the additional care needed to address a positive screen. Respondents noted that the explanation of the PHQ-2 in an unrelated visit added time and elicited further questions from patient and family. A positive PHQ-2 required further screenings, treatment plans, referrals, and recommendations, which impacted the length of visit per patient screened.

“In what ways did depression screening in the urgent care setting improve, or not improve the identification of depression in adolescent patients?” (n=7)

There were multiple factors that respondents identified that influenced how depression screening in the urgent care setting impacted the identification of depression in adolescent patients. One factor was administration of the screening questionnaire. A provider noted that , verbally asking the question in front of the adolescent patient and their parent or guardian may skew the results, and suggested alternative formats to administering the screener such as a tablet-based questionnaire given at intake. Other factors that were identified to not improve the identification of depression include whether the urgent care setting is set up for these consults versus a primary care office. Factors identified as improving identification in the urgent care setting include adolescents seeing urgent care providers more frequently than their PCPs, assuring adequate management of depression, improve identification, and increase discussion of mental health concerns. One respondent noted that a patient that had previously been scored as a 0 on the PHQ-2 was screened positive for their screening, and the patient needed further screenings and discussion.

“In what ways does depression screening in the urgent care setting improve quality of care? In what ways does it decrease quality of care?” (n=7)

Factors identified to improve quality of care include improving patient-provider relationships, increasing the identification of depression in the adolescent population, improving care outcomes for patients, and providing comprehensive care. Factors identified that decrease quality of care that were identified include increasing patient wait times, decreased time for management of chief complaint, and increased charting.

“In what ways does depression screening in the urgent care setting improve overall health outcomes? In what ways does it decrease health outcomes?” (n=7)

Factors that were identified by respondents for improving overall health outcomes include improving communication between families and health care, increasing identification of depression, and providing earlier resources and treatment. There were several factors respondents identified that decreased health outcomes, specific to the urgent care setting. These factors included detraction from acute complaint and increased wait times. Respondents also identified that mental health concerns are best handled within the primary care setting due to lack of follow up in the urgent care setting and decreased resources in behavioral health medicine and access.

“What barriers to patient care did you encounter when screening adolescent patient for depression?” (n=7)

Respondents identified several factors that lead to barriers in patient care. Factors identified included busy provider schedules, decreased familiarity with care for adolescent

depression, patients and families being caught off guard by personal questions, and decrease in comprehensive care for acute concerns.

Discussion

Through the data collected, the aims of this study were examined. Aims of this study include increasing screening rates of adolescents, determining the feasibility of administering depression screenings within the urgent care setting, and determining additional barriers to screening and referring this population.

In general, this intervention did increase overall screening rates as there was an increase in the total number of screenings completed for the adolescent population within the urgent care setting. The data showed that there were four screenings that were completed in the months prior to the intervention dates and 21 completed during the intervention date. This increase in screenings also correlated with an increase in positive findings. Data from the retrospective chart analysis showed that there was a total of six positive screenings in the months prior to the intervention dates, and 21 positive screenings during the intervention date. It is good to note that the total number of screenings completed, and number of positive screenings do not match. This does not mean that all screenings done were positive, and likely means that there may have been a few more screenings done in the pre intervention period that were not entered into the chart the correct way. This may also apply to the intervention period, where more than 21 screenings may have been completed but entered into the chart incorrectly in order to be tracked. So while this data does show that implementing the PHQ-2 in the urgent care setting does increase overall screening and identification rates, there is some question to how many screenings were entered incorrectly into the electronic health record (EHR), as the numbers of positive screenings do not correlate with the number of completed screenings during either time period. This increase of

screening rates and identification rates correlates with the findings of a similar study done by Patel et al. (2017) that focused on giving a two-question suicide screener to all adolescent patients in an urgent care setting.

Another aim of this study was to determine the feasibility of implementing this intervention in the urgent care setting. Questions were created for the post intervention questionnaire using Donabedian's Framework for Quality Improvement which focuses on the structures of care, the processes of care delivery, and how these affect health outcomes. While data showed that it increased overall rates of screening and identification of potential depression, results from the post intervention questionnaire showed varied responses on the feasibility of implementing this intervention full time by participating providers. Overall participants neither agreed nor disagreed that the structure and processes of care, the urgent care setting, was a feasible setting for screening adolescents. While participants thought that the PHQ-2 was an easy tool to use, there were concerns on how screening ended up increasing patient visit times, and thus increasing patient wait times. While data was conflicting on whether screening did increase patient wait time, this may be confounded by differing practice styles and the follow-up practices providers followed. Participants also noted that the urgent care setting was not currently set up to handle mental health concerns, due to lack of provider experience and lack of resources. When looking at outcomes of care, participants did feel that identification of adolescents with depression will improve with increased screenings. However, participants were not sure that the quality of care improved with screening this population, or that screening in this setting would improve overall health outcomes. Participants noted that increasing screenings improved overall identification due to factors such as adolescents accessing urgent care settings more frequently than primary care settings, providers were able to assure adequate management of depression,

and screening itself increased the discussion around mental health concerns. Participants noting that adolescents accessed UCC settings more often than that of their primary care providers mirrored that of the study done by Rand & Goldstein (2018) that showed adolescents had an increased use of urgent cares for both preventative and episodic care. Additionally, being able to manage mental health care and increase the discussion helps achieve the goal of several studies to address mental health at all adolescent health visits due to their sporadic access of health (Nordin, Solberg, & Parker, 2010; Rand & Goldstein, 2018; Patel et al., 2017). However, several factors were identified that detailed how health outcomes were negatively impacted due to screenings, including increased wait times, decreased care for chief complaints, and no follow up care. From these results, we can conclude that further research needs to be done in order to fully determine feasibility of implementing screening in this setting. While participants generally agreed that this intervention was worthwhile due to increasing rates of depression in the adolescent population, concerns were generally raised over increased wait times and lack of knowledge on how to handle positive results. When compared to the Patel et al. (2017) which did not find additional burden with the addition of suicide screenings to regular practice, and the study by Slabaugh, Harris, & Wilcock (2018) which did not find increased burden with implementation of the PHQ-2 for all health visits, it would be prudent to suggest further research prior to suggesting or rejecting a practice change recommendation.

The other aim of the intervention was to see what barriers were encountered when screening adolescents for depression in the urgent care setting. Participants identified several factors, including influx of patients, decreased comprehensive care for chief complaints, increased wait times, and patient and family confusion. These barriers are important to help

determine how future interventions may seek to minimize these barriers in order to maximize the outcomes of the intervention.

Limitations

Several limitations were identified in the process of this intervention. This intervention included only 10 total participants and just seven responded to the questionnaire. A larger sample size of participants may yield greater understanding of feasibility of this intervention. Participants also noted that the time of year made it difficult to remember and implement this intervention. This intervention was done during two weeks of November. Perhaps implementing this study during a season with less influx of patients may have allowed providers to become more comfortable with the process and manage their patient visit times. Some providers were also unfamiliar with how to find the PHQ-2 within the EMR. Providing training on finding the screening or having the screening be administered on paper during patient intake may have improved outcomes. This also leads to the limitation of utilizing only one portion of the urgent care staff to implement the intervention. By also utilizing other members of the urgent care team such as medical assistants, nurses, and front office staff, this intervention could have been designed differently, and may yield different results. Another limitation that was identified in this intervention was participant understanding of follow up. While the PI only expected the participating providers to administer the PHQ-2 and then refer to the patient's primary care provider for further evaluation, it was revealed that many participants continued with patient evaluation and treatment, which may have led to different results.

Future Implications

Going forward, further studies will need to be conducted in order to determine the feasibility of implementing depression screenings for adolescents in the urgent care setting, as this study was able to determine that this intervention does increase overall screenings and identification of depression in the adolescent population. This study has helped to shed light on several barriers and concerns that may be addressed in further studies in order to fully determine feasibility. Suggestions for further studies would be to implement the PHQ-2 earlier in the intake process such as after check in, or during intake with the medical assistant or nurse. This may allow the provider to review the results, and discuss referral to the patients primary care provider for further evaluation and treatment. Additionally, participating clinics should have clear expectations on if initial evaluation and treatment of positive screenings should be done within the urgent care clinic, or if it should be referred out to primary care.

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