

5-2016

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Undergraduate Honors Theses. Paper 320. <https://dc.etsu.edu/honors/320>

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Comparing the Utilization of the PEDS and PSC-17 Screeners in a Pediatric Primary Care Clinic

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Abstract

Behavioral problems exhibited in early childhood can predict continued behavioral difficulties into adolescence and adulthood and can result in poor social functioning and health outcomes. Early identification of these concerns is necessary in order to connect families with appropriate interventions that thwart a negative trajectory. In pediatric offices, developmental screeners and pediatric surveillance are efficient and reliable methods of assessing behavioral concerns, which can help to quickly connect families with services. This study examines two methods of screening for behavioral concerns and the impact on on-site behavioral health referrals for children 4 and 5 years of age at a local pediatric clinic. In 2014, children were screened using the PEDS Developmental Questionnaire (PEDS) and referred to the on-site Behavioral Health Consultant (BHC). In 2015, children were screened using the Pediatric Symptom Checklist-17 (PSC-17) and referred to either the BHC or another new, on-site evidenced-based intervention called the Family Check Up (FCU). This study evaluates and compares the reach, effectiveness, and adoption of the two methods across both years. The results suggest that both screeners had the same rate of identification of behavioral concerns; however, the PSC-17 appears to improve rates of referrals to the BHC and the FCU.

Introduction

Pediatric primary care is often the first line of defense when assessing and treating behavioral concerns in children and adolescents. The American Academy of Pediatrics (2009) has recognized this and recommended primary care providers recognize these issues and have a plan in place for prevention, treatment, and referral. Behavioral concerns are often mentioned in a primary care setting. Some studies show that psychosocial issues are being reported in 18-20% of visits to a pediatric primary care clinic through parent self-report (Polaha, Dalton, & Allen, 2011; Wasserman et al., 1999). These national numbers are consistent with the rates of behavioral health concerns in southern Appalachia, at around 21% (Dyer, Brooks, Polaha, & Schetzina, 2015; Polaha, Dalton, & Allen, 2011). This means that psychosocial or behavioral issues are present in about 1 in every 5 patients at a primary care clinic. With such a high rate of behavioral concerns being raised, primary care providers need to be well-equipped to properly identify and care for these concerns.

Integrated care models are quickly becoming one of the best choices in providing patients with the best possible care. Practices that choose an integrated model incorporate many different specialists in house to create a community of providers to work together to create the most effective and comprehensive care plan for a patient. One specific type of specialist is a behavioral health consultant, BHC. BHCs are capable of assessing and treating a multitude of behavior issues (e.g., tantrums, refusal to follow directions) within an integrated practice, when the primary care provider can effectively refer patients to them (Miller, Brown-Levey, Payne-Murphy, & Kwan, 2014). When integrated care is implemented appropriately and efficiently, patients can receive a more comprehensive and in-depth treatment for their behavioral concerns during their time spent at the office (Bridges et al., 2015). They are better able to identify issues

earlier on in a patient's life. They have also been found to provide patients better access to mental health care and create better patient outcomes (Bridges et al., 2015).

There are also specific benefits to integrated care models in rural health settings. Parents in rural areas can be more susceptible to perceived stigma than those in non-rural areas. (Hoyt, Rand, Conger, Gaffney Valde, & Weihs, 1997). This fear of stigma may prevent them from seeking treatment for a behavioral concern in their child (Polaha, Williams, Heflinger & Studts, 2015). With the integrated care model, a parent can seek treatment while in their primary care office. This eases the stress from perceived stigma. Second, rural parents may also be limited in their access to mental health care facilities even when parents independently seek behavioral health services. There simply may not be a facility available for the families, or the facilities may be difficult to reach (Wagenfeld, Goldsmith, Stiles, & Manderscheid, 1993). However, if a behavioral health consultant is placed in a primary care practice that is in an area or community that does not have any other outside mental health care practices, they present a new resource to parents. Further, many patients in rural areas struggle to take time away from their jobs to make multiple appointments at different locations, or they do not have the money or resources for transportation to other appointments. When mental health care is incorporated into a familiar location, such as a pediatric office, families can receive the comprehensive care they need without taking more time or money out of their days.

The success of an integrated care practice is contingent upon successful collaboration between all providers. One way to facilitate the collaboration between primary care providers and behavioral health consultants is to use evidence-based screeners to identify patients who need help. Some studies report that less than one third of all existing behavioral problems are detected by the primary care provider alone (Brothers, Glascoe, & Robertshaw, 2008). Screeners

are commonly used as instruments for the provider to quickly assess a patient for a behavioral, psychosocial, or other concern. They can deliver the provider a score that they can quickly assess within the limited appointment time. Results of the chosen screening instrument provide clear patient data and can inform treatment, which could include a referral to the integrated BHC.

Because psychosocial concerns are common in primary care, a variety of screeners have been developed to identify children with ongoing developmental, behavioral, or emotional concerns. One common screener is the PEDS screener. The screener is designed for the parent or guardian to be able to complete in about five minutes. It is traditionally given to parents of children from birth to age 8 at well-child visits. It consists of questionnaire items that cover all aspects of a child's development, including fine motor, gross motor, social-emotional, self-help, expressive language, and receptive language. Parents respond to various questions with a "yes" or "no" response, and are able to leave further comments regarding their answer ("Do you have any concerns about how your child behaves?" *yes, no, or a little*). It has been shown to be one of the most cost effective and fastest screeners to administer in a practice when compared to analogous screeners (Brothers, Glascoe, & Robertshaw, 2008). It is able to identify concerns better than checklist forms that some primary care practices rely upon, and the reliability of the PEDS screener in identifying behavioral or developmental concerns increases as it is administered to the patient over a number of visits (Brothers, Glascoe, & Robertshaw, 2008). The PEDS also helps to provide longitudinal data across a child's early stages of development.

Another evidence-based screener called the Pediatric Symptom Checklist – 17 (PSC-17), can be used to assess psychosocial concerns in children. It can be given to parents of children from ages 4 to 16. The screener consists of 17 items on a Likert-type scale ("Distracted Easily", *never (0), sometimes (1), often (2)*). The scores are then added up to create a significant, \geq

15~24, or non-significant score that can alert the provider to address the possible presence of a psychosocial concern (Jellinek, Murphy, & Robinson, 1988; Wagner, Guilfoyle, Rausch, & Modi, 2015). These concerns are measured using three different subscales: internalizing, externalizing, and, and attention problems. When compared to the PEDS screener, it takes about the same amount of time to complete, as it is designed to be a faster version of its predecessor, the PSC. (Jellinek et al., 1988; Stopplebein, Greening, Moll, Jordan, & Suozzi, 2012). The PSC-17 is preferable for identifying behavioral concerns, because it has more detailed questions regarding the child's behavior. Because of this more detailed screening, the PSC-17 is expected to be more effective at identifying behavioral concerns than the PEDS.

With the implementation of screeners come some inherent difficulties. There are a series of steps that the practice must take, and sometimes this process is time consuming. First, the screener must be introduced to the providers at the practice. In most cases, it will be necessary to involve the entire office and make sure that they are also familiar with the screener. Someone must be available to give the patient the screener, and once the patient completes the screener, someone trained in the scoring process must score it. Once the screener is scored, there is also the responsibility of recording the score and any other pertinent information into the child's electronic health record. Another consideration is that all of the aforementioned steps must be done as efficiently as possible. The screener must be given to the patient in a timely manner to be completed, reviewed, scored, and recorded all within the typical 15-20 minute visit.

Implementing a new screener into an existing clinic could also have implications on clinic function and operation. For example, it makes someone responsible for distributing the screener, someone else must take on the role of scoring the screener, and then the primary care provider must change the way they coordinate their typical appointment to incorporate a possible

discussion of the patient's score on the screener, as well as referral. Additionally, a newly implemented screener may also affect the way in which the patient's electronic health record is organized. First, the electronic health record must be changed to incorporate the new screener, and then there may be a change in the way the time of the appointment is utilized to record the screener score. All of these difficulties must be considered when a clinic is implementing a new screener.

To combat these concerns, there are a few criteria that a screener should meet. They need to be as time efficient as possible (Glover, & Albers, 2007). Studies have shown that both the PEDS and PSC-17 takes around five minutes to complete, making them a very suitable choice in an effort to save time. The brevity of the measure makes it timely to score and record. Overall, a suitable screener must help the provider in treating the patient, not hinder them. They need to be able to aid the provider in identifying behavior concerns, so the provider can spend the time saved by using the screener on confronting the concern.

There have been many studies dedicated to testing the reliability of these screeners, but few investigate the function of the screeners in a clinical setting; few studies have shown that screeners impact referral practices for a practice that has an in-house BHC. This study aims to research this area of interest.

This study took place in a rural Appalachian pediatric primary care clinic that utilized the PEDS as a behavioral health screening tool in 2014, then implemented the PSC-17 as the behavioral health screening tool in 2015. The PSC-17 was implemented as a screener for a new program for treating children with behavioral concerns called the Family Check Up. The Family Check Up, FCU, is an intervention strategy that utilizes a small number of sessions in which the family is assessed and then asked to use their strengths to make positive changes to improve the

child's behavior. The Family Check Up was originally developed for use in schools and community settings, but this clinic is the first to implement it in a primary care setting (Gill, Hyde, Shaw, Dishion, & Wilson, 2008). Because of the novelty of using the Family Check Up in a clinic, research must be done to study how the PCS-17 is performing as an effective screener for the program, the effectiveness of the treatment in the primary care setting, and its adoption rate.

Present Study

This study aims to compare the efficacy of the PEDS to the efficacy of the PSC-17 in identifying behavioral concerns in 4- to 5-year-old patients during well-child visits in a rural setting. The research questions were organized into the "RE-AIM" framework. The RE-AIM is a model used to evaluate the quality and impact of public health and community-based interventions. It does this through 5 different dimensions: Reach, Effectiveness, Adoption, Implementation, and Maintenance (Glasgow, Vogt, & Boles, 1999). The present study will be only be evaluating the first three domains: Reach, Effectiveness, and Adoption.

Reach: How well did the screeners reach the patient population? In other words, how many screeners were completed? This was done by finding the proportion of the patients in each year that had a screener recorded in their chart. Effectiveness: How well does the screener identify behavioral health concerns? This was done by finding the proportion of patients that were identified with behavioral concerns out of those that had a screener recorded. This number is compared to the proportion of patients identified through provider surveillance. Adoption: How did the screener effect referrals? This was done by finding the proportion of patients referred to the BHC (or the FCU in 2015). Further, it was again analyzed between patients identified through provider surveillance and patients identified through screener.

Methods

Participants

The medical charts of 816 pediatric patients aged 4 and 5 years seen by a provider in 2014 and 2015 for their well-child visit were reviewed. There were no exclusion criteria. A list of patient names, birth dates, and dates of visit was generated by office administration. The patient list was stored in a secure location. Institutional Review Board approval for this study was granted on August 8, 2014. All procedures were in accordance with the ethical practice of the American Psychological Association (APA, 2010) and ETSU Physician and Associates.

Procedure

Two research assistants collected data. Each research assistant completed training required for those who come into contact with protected health information Health Insurance Portability Accountability Act (HIPAA). Participants identified by office administration were searched using the “Search” tool in AllScripts, the electronic health record database of the clinic. Patient identities were confirmed by matching names, birthdates, and date of visit. To further ensure confidentiality, each patient was assigned a random ID number for the database. Reliability was conducted for the 2014 data by having one reviewer write all of the required information, then review the information for each patient a second time when inputting the data into the program. The same procedure for reliability was repeated in the 2015 data set.

Variables

The information collected on each participant varied slightly from 2014 to 2015. For 2014, the following variables were collected and recorded in a separate file: 1) Patient gender, 2) Whether or not the PEDS screener was recorded (i.e., “yes,” or “no”), 3) The PEDS predictive score, and 4) The PEDS non-predictive score, 5) If a behavioral concern was raised in the chart,

6) Additional parental concerns were recorded as well (e.g., temper tantrums, sleeping issues, hitting, talking back). Finally, 7) The referral actions were recorded (i.e., “no referral,” “in house referral to BHC,” “outside referral”), 8) If an in-house referral was used the type of referral was noted (e.g., warm hand off, or scheduled appointment), 9) The patient’s attendance to the BHC scheduled appointment was recorded (attended, did not attend) and, 9) The time latency between referral and attended visit was recorded in days.

The 2015 data set was organized in a similar format. The following variables were collected in a separate SPSS file: 1) Did the patient have a recorded PSC-17, 2) The PSC-17 score, 3) Whether or not the PSC-17 score was considered at risk, 4) If a behavioral concern was raised in the chart, 5) Additional parental concerns were recorded as well (e.g., temper tantrums, sleeping issues, hitting, talking back). 6) Referral to the BHC was recorded, 7) Along with if the visit was a warm hand off, or not, 8) Time latency in days between referral and return was recorded and finally, 9) Referral to the FCU was noted.

Table 1	
<i>Variables Collected</i>	
2014	2015
Gender	
Was the PEDs score available?	Was the PSC-17 given?
Predictive Score	Screeener Score
Non-Predictive Score	Did the patient score “at risk”?
Was a behavioral concern raised?	Was a behavioral concern raised?
What was the concern?	What was the concern?
Was there a referral?	Was the patient referred to the FCU?
To whom was the patient referred?	Was the patient referred to the BHC?
If the referral was made to the BHC, were they seen on the same day?	Was the patient seen on the same day?
If the patient made a scheduled follow-up, did they attend the appointment?	
Time latency (in days) between well visit and follow-up	Date of follow-up visit (to calculate time latency)

Statistical Analysis

An Excel spreadsheet was built to collect 2014 data and was subsequently exported to an IBM Statistical Package for Social Sciences 24 (SPSS) file. The 2015 data were input directly into SPSS. Both data sets were input into separate SPSS files in order to run analyses examining three RE-AIM domains (i.e., Reach, Effectiveness, and Adoption) to compare the utilization of the PEDS and the PSC-17. All data were analyzed using frequency statistics.

Reach

Reach investigated how well PEDS and PSC-17 scores were recorded for every patient. To identify the Reach of the PEDS and PSC-17, the number of screeners in the electronic health records of all 4- and 5-year-old well visits for 2014 and 2015 was recorded. This number was divided by the total number of 4- and 5-year-old well visits to obtain the percentage of patients that the screeners reached. Comparing the reach rate of 2014 to the rate of 2015 gives an idea of which screener is best at reaching the most patients.

Effectiveness

The Effectiveness of the screeners is found by comparing the ability of the screener to identify behavioral concerns to the ability of the provider. The number of patients identified using the screener and the number identified using the primary care provider's surveillance was found. The total number of 4- and 5-year-olds was divided by each of these numbers, giving the percentage of the patients that were identified by provider, and the percentage identified by screener. These percentages were calculated for both years then used to look at which year identified a higher rate of behavioral concerns, and which screener yielded a higher rate of identifying problematic behaviors exhibited by children.

Adoption

The rates of referral to the behavioral health consultant (BHC) in 2014 and the Family Check-up, or a BHC, in 2015 show the ability of the clinic to properly adopt the screener. The number of patients referred to the BHC identified by the screener was divided by the number of patients identified by the screener, giving the percent of patients that received referral due to screener identification. The number of patients referred to the BHC identified by the provider was divided by the number of patients identified by the provider, giving the number of percentage patients that received referral due to provider surveillance. The percentage of referrals due to the screener identification was compared to the percentage of referrals due to provider to determine which method was more likely to lead to a referral. This process was done for both years, to compare the most effective method for 2014 and 2015. Lastly, it was repeated again with referrals to the FCU in 2015, to find the referral abilities of the PSC-17 for the FCU.

Results

The results were obtained from 419 children in 2014 and 318 children in 2015. Data was collected from male and female 4- and 5-year-olds for each year. Gender information was collected in 2014, but not in 2015. No other demographic information was recorded. Three patients were eliminated from the 2014 database before statistics were run due to their EHR not being found in the AllScripts database of the clinic.

Reach

Four hundred and nineteen 4- and 5-year-olds were seen by the clinic in 2014; 318 patients were given the PEDS screener (75.9%). In 2015, out of 397 patients, 318 were given the PSC-17 screener (80.1%).

Effectiveness

The ability of the screeners to identify the behavioral concerns was compared to the providers' ability to detect behavioral concerns. In 2014, 20.5% (n=86) of 4-5 year olds were identified to have a behavior concern in their well visit. This was measured from provider discretion, as the chart did not provide information about the child's score on the behavioral item of the PEDS. In 2015, 19.6% (n=78) of all 4 and 5 year olds were identified to have a behavior concern in their well visit. This can be broken down even further. The PSC-17 identified 7.3% (n=29) of patients with an elevated score. The providers identified 12.5% (n=49) of patients.

Adoption

The referral rates to behavioral health consultants or the Family Check-Up were measured as an indicator of proper adoption of the screeners. In 2014, 61.6% of those identified were referred to the BHC, with 58.5% of those occurring the same day. In 2015, 96.6% (n=28) of all patients that were identified by the screener as having problematic behavior were referred to the BHC, and 75.5% (n=37) of patients that were identified by the provider were referred to the BHC. In total, 83.3% of all patients that were identified as being at risk by either method were referred to the BHC, with 40.0% of those occurring on the same day. Eighty-six percent (n=25) of patients that were at risk on the screener were also referred to the FCU, and 22.5% (n=11) that were identified by the provider were referred to the FCU. In total 46.2% of all patients that were identified by either method were referred to the FCU.

Discussion

Overall, this research shows mixed results in regards to proving that the PSC-17 was a better choice of behavioral screener than the PEDS. The clinic had a slightly higher rate of screeners recorded in 2015. But, it was found that both years performed equally with

identification. So, even though the clinic was using a more behavior-specific screener, identification stayed the same.

The research does seem to coincide with literature suggesting the overall efficacy in using screeners in integrated care practices. This study found that children identified by a screener were much more likely to be referred to a BHC or the FCU compared to children that were identified by the provider alone.

The clinic recorded a higher percentage of PSC-17 screeners in 2015 than PEDS screeners in 2014. This may mean that the PSC-17 screener was faster or easier to administer, score, and record. If this were the case, it may be more beneficial for clinics that are relying on a behavioral screener to rely on the PSC-17 rather than the PEDS, to most effectively use their time while still screening a higher percentage of patients.

About the same percentage of patients were identified as having a behavioral health concern; these results coincide with the ~20% demographic of previous research. That being said, having the PSC-17 screener did not necessarily improve the rate of identification as the screener only identified about a third of total number of patients with behavioral concerns. The rest of the patients were identified by provider surveillance. This is an especially interesting discovery considering past research found only a third of patients with behavioral concerns were identified by provider surveillance. The providers at this clinic were much more effective at identifying behavioral concerns.

Results show that there was an increase in BHC referrals from 2014 to 2015. This may be due to the change from the PEDS screener to the PSC-17 screener. But, the rates of patients being seen on the same day were significantly better in 2014, than in 2015. This is most likely because the clinic had a new focus of intervention, the FCU, in 2015. This may have caused

confusion with referrals to the BHC and the FCU, and the provider setting up the child for the FCU on the same day, rather than the child receiving treatment from the BHC on the same day.

When the results of the 2015 data are broken down, it is found that, out of all of the patients referred to the BHC, a greater percentage were identified by the screener. The same is true with all of the patients referred to the FCU.

So, while it can be said that using screeners did result in much higher rate of referral to behavioral intervention, there cannot be a concrete conclusion made about the PSC-17 being a better screener in regards to *reach* and *effectiveness*.

There was a major flaw in score recording for the PEDS in 2014. The only scores reported in the electronic health record of the clinic being studied were “predictive scores” and “non-predictive scores”. There are multiple domains that fall into each score. Global /cognitive, expressive language and articulation, receptive language, and gross motor are all “predictive concerns” for 4-5 year olds. Behavior, social-emotional, and self-help are all “non-predictive concerns” for 4-5 year olds. The way in which this clinic documents their patients PEDS score is to record a total predictive score and a total non-predictive score. There is no way to tell if the patient had specific concerns when referring back to their electronic health record. In this way it was impossible to know if the patients scored at risk on the PEDS screener in 2014 using retrospective data collection from the electronic health record. This led this study to more effectively compare provider surveillance for behavioral health concerns in 2014 to provider surveillance and screener identification of behavioral health concerns in 2015.

This did provide an unexpected problem in data analysis, but the results that were obtained still led to implications of the way in which these screeners performed their task in a pediatric primary care clinic compared to provider surveillance. Future work should aim to

remedy this problem either by changing the documentation of the PEDS, or by doing a more in-depth search of the ERH, through scanned records to investigate if the clinic records the original form filled out by the parent.

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