Screening for Both Child Behavior and Social Determinants of Health in Pediatric Primary Care

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ABSTRACT: *Objective:* To implement comprehensive screening for child behavior and social determinants of health in an urban pediatric practice and explore rates of referrals and follow-up for positive screens. *Method:* Quality improvement methodology was used to implement routine screening using an adapted version of the Survey of Well Being of Young Children, a child behavior and social screen, for all children aged 6 months to 10 years. Rates of screen administration and documentation were assessed for 18 months. Medical records of a convenience sample (N = 349) were reviewed to track referrals and follow-up for positive screens. A secondary analysis explored associations between reported parental concern for their child's behavior and both child behavior symptoms and social stressors. *Results:* Over 18 months, 2028 screens were administered. Screening rates reached 90% after introducing a tablet for screening. Provider documentation of screens averaged 62%. In the convenience sample, 28% scored positive for a behavioral problem, and 25% reported at least 1 social stressor. Of those with positive child behavior *or* social stressor screens, approximately 80% followed up with their primary medical doctor, and approximately 50% completed referrals to the clinic social worker. Further analysis indicated that referral and follow-up rates varied depending on whether the family identified child behavior or social issues. Logistic regression revealed that parental concern was independently associated with child behavior symptoms (*p* = 0.001) and social stressors (*p* = 0.002). *Conclusion:* Implementing a comprehensive psychosocial screen is feasible in pediatric primary care and may help target referrals to address psychosocial health needs.

(*J Dev Behav Pediatr* 40:415–424, 2019) **Index terms:** screening, child behavior concerns, social determinants of health.

Introduction

Up to 20% of children experience behavior problems at least once throughout their childhood,[1] and these are sometimes related to social stressors.[2] Neuroscience research indicates that social stressors including early childhood toxic stress (stress that affects brain architecture) and other social determinants of health (e.g., poverty, maternal depression, and domestic violence) affect the developing brain and children's mental and physical health trajectories.[3] The American Academy of Pediatrics endorses addressing behavioral health and social stressors in pediatric primary care and has made recommendations on when to screen and which tools to use.[4,5] However, such routine screening is not yet typical in pediatric primary care.[6] Barriers including lack of time, challenges with implementation in busy urban clinics, concern regarding lack of resources for positive screens, and lack of consensus on whether screening alters outcomes persist.[7,8]

Despite the known association between behavioral issues and social stressors, screening programs often include only mental health scales or specific social stressors rather than comprehensive behavioral *and* social screens (hereafter referred to as "psychosocial screens").[2,8] Screening for both may help uncover important factors within the child and their environmental context, which may help target referrals more specifically and ultimately assist with follow-up rates and management.

Studies also do not often track rates of referral based on psychosocial screen results[9] or completion of follow-up after referrals.[10] The studies that exist suggest that follow-up after screening remains a challenge.[11] For

example, 1 study that used the Pediatric Symptom Checklist found that although more than 50% of patients who scored positive were referred to behavioral resources, only 18% completed their follow-up visits.[12] Another review of behavioral visits after universal mental health screening in Massachusetts revealed a rate of 21.2% for any behavioral visit after screening.[13]

The goal of this study was to implement universal screening for both behavior and social stressors in a busy urban practice and to explore the effect of this screening on referrals and completion of follow-up appointments. A secondary aim was to explore possible associations between parental concern for their child's behavior (outcome variable) and predictors including child behavior symptoms as endorsed on the "symptoms checklists" of the screen and social stressors.

METHODS
Study Design

A universal comprehensive psychosocial screen was implemented at all well-child visits in a busy urban pediatric practice that is affiliated with a major academic medical center. Quality improvement (QI) methodology was used to implement the screening and establish workflows for documentation and management of positive screens. Data from screens that were collected during the first 18 months (October 2014 to April 2016) were included.

A convenience sample of patients screened during the first 4 months (N = 349) was chosen for a review of their medical record to collect data on rates of referrals made and completion of follow-up appointments. This was decided based on feasibility of our team to conduct medical record reviews and the fact that follow-up for positive screens was expected to occur within this time frame. This sample included 349 unique families. All duplicate screens (N = 10) were excluded.

This convenience sample was also used for the secondary aim described above (Fig. 1).

Setting and Population

The study was implemented at the Charles B. Rangel Community Health Center, a primary care site of the New York Presbyterian-Columbia University Medical Center.

Ambulatory Care Network (ACN): All ACN sites serve as primary care centers addressing pediatrics, internal medicine, and Obstetrics & Gynecology needs of the surrounding community members. They are staffed by physicians (attending physicians and resident trainees), medical and psychiatric nurse practitioners, nurses, care coordinators, community health workers, nutritionists, and social workers, among other staff. The
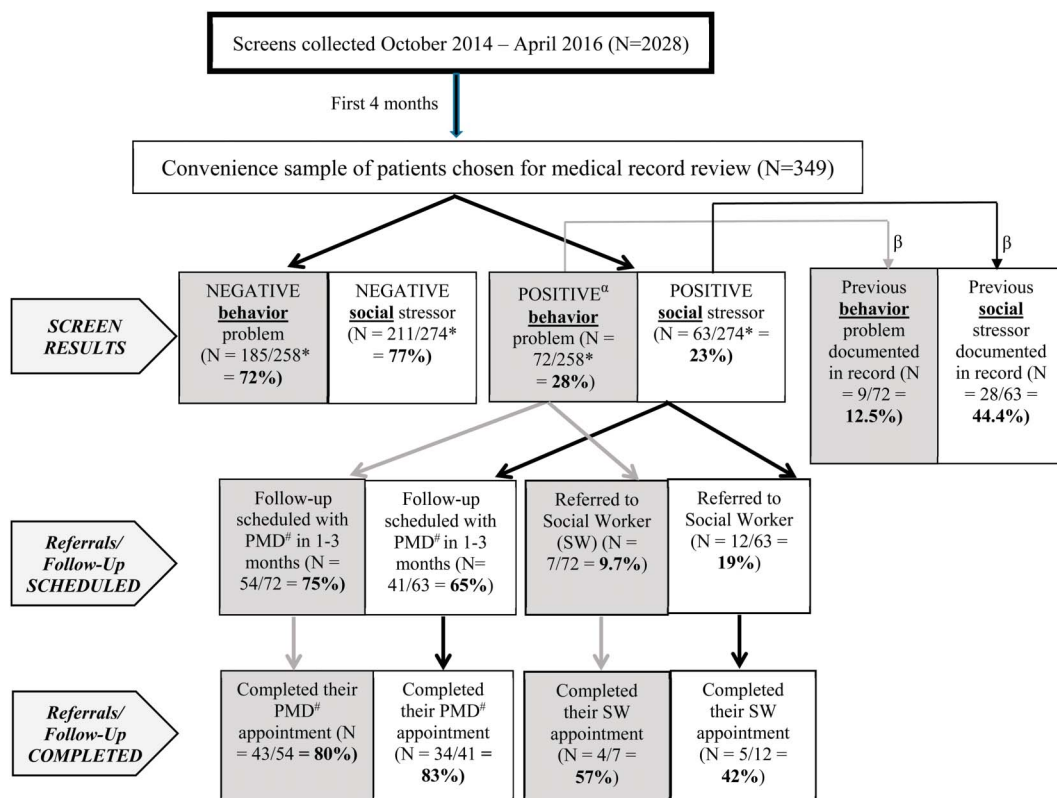
Figure 1. Study design flowchart including referrals and follow-up. *Denominators are less than all of those patients whose medical records were reviewed (N = 349) because of missing data, i.e., total scores could not be created because of missing items on the scales. αRepresents those who scored positive on the subscale shown (behavior = gray, social stressor = white). Families may have scored positive on only 1 of the subscales or both of the subscales. Referral and follow-up rates for those families who had overlap and scored positive on both subscales (N = 18%) are included but not shown separately here. βRepresent percentage of those with behavior (gray) or social (white) issues that were documented in the medical records before the screening. #PMD, primary medical doctor; SW, social worker.

Rangel clinic, located in Central Harlem, New York City, serves approximately 6000 pediatric patients per year. Over 90% of patients receive care reimbursement through Medicaid or Medicaid-managed care.

Participants

All children aged 6 months to 10 years presenting for well visits and their families were provided with the universal screen upon check-in for their visit. Infants younger than 6 months were not included because they are routinely provided with a separate screen addressing postpartum depression. Similarly, adolescents aged 11 and older are provided with an adolescent depression screen and thus were not included in this study to avoid screen burden. Patients who presented for sick/urgent visits were not included because the screen was intended to be part of routine well-child care. Families who spoke languages other than English or Spanish were also excluded.

Screening Tool

The Survey of Well Being of Young Children (SWYC) has been validated and endorsed by the American Academy of Pediatrics as an appropriate psychosocial screen to use in the pediatric primary care setting.[14] Three domains from the SWYC were included in our screening tool: parental concern, child behavior symptoms, and social stressors.

Parental concern is assessed using 2 items that ask about the parents' concern for their child's (1) learning/development and (2) behavior. Each of these items is scored on a 3-point scale: "not at all," "somewhat," or "very much" concerned. We considered parental concern for their child's behavior to be positive if they reported being "somewhat" or "very much" concerned on the second item.

Child behavior symptoms are assessed using age-based child behavior scales for children aged 0 to 17 months and 18 months to 5 years old that have been adapted and validated against the Pediatric Symptom Checklist.[15,16] For 6- to 10-year-old children, we used the Pediatric Symptoms Checklist 17 itself as the child behavior scale.

Validated items and scales that address family/social stressors including tobacco use, alcohol/drug use, hunger, domestic violence, and the Patient Health Questionnaire-2 (PHQ-2) for maternal/caregiver depression are included and were attached to the parental concern and behavior checklists for all ages.[17] We used standard scoring systems that have been previously described for all of the behavior and social stressor scales except for maternal depression. The PHQ-2 for maternal depression was assigned a cutoff of 2 instead of the more commonly used cutoff of 3 (out of a possible total of 6), given the literature that supports using a lower cutoff in underserved and, specifically, Hispanic communities.[18-20] An overall social stressor score was created by dichotomizing each individual stressor into "positive" or "negative" according to previously established cutoffs and adding these individual dichotomous scores, except

for tobacco, together. Tobacco was not included in this cumulative score as it was thought to carry a different (and unknown) weight compared with the other stressors. For the cumulative social stressor score, a total of 0 was considered negative, and a total of 1 or more stressors was considered positive. The psychometric properties for the tools included in the cumulative social stressor score have been described elsewhere.[15-17]

Implementation and Quality Improvement Methodology

All pediatric residents are trained in QI methodology as part of their residency curriculum. All residents conduct annual team projects at their outpatient clinic site. There are 12 residents at this clinical site, and each resident spends 1 month per year on their "ambulatory pediatrics rotation," during which they take a turn leading the project with the guidance of the first author and another trained QI faculty mentor. Throughout the 2014 to 2016 academic years, residents conducted several Plan-Do-Study-Act (PDSA) cycles with the aims of (1) prescreening at least 50% of all well children aged 6 months to 10 years using our adapted version of the SWYC and (2) documenting the screen result within the electronic medical record (EMR) 75% of the time. Examples of PDSA cycles included trainings on psychosocial screening; visual reminders/signage to incorporate the screens into well visits; creation of an acronym expander, which allowed providers to type a 1-word acronym into their note that automatically expanded into an explanation of how to interpret and address the screens; and feedback methods that gave individual providers "report cards" with their rates of documentation of the screens. See Table 1 for a complete list of PDSA cycles. The baseline rate of prescreening was 0 before the project, and the goals of 50% (screen administration) and 75% (screen documentation) were informed by previous studies conducted by the first author in the same setting.[21]

Based on an existing risk stratification model embedded within our EMR, patients are assigned a risk level (low, medium, or high) using the American Academy of Pediatrics' definition of children with special health care needs. We applied this model, and our work with the national "Moving Healthcare Upstream" initiative, to children with complex psychosocial and medical needs.[22] It was recommended that patients with positive screens follow up with their pediatric provider within 1 to 3 months, which is often sooner than their usual well-child care visit frequency. Patients with positive screens were to be seen at ~3 months if they were considered low risk and within 1 to 2 months if they were higher risk. In our program, risk levels are also used for calculating empanelment size of providers and for resource allocation for patients with the use of care managers and community health workers.

Pediatric residents were oriented to the risk stratification model and referral guidelines during 1 of their

Table 1. Key Improvement Areas and Specific PDSA Interventions

Improvement Area	Improvement Step (See Corresponding Number in Run Charts [Figs. 1 and 2])	PDSA Interventions
Administer SWYC screens with at least 50% of patients/families	1. Train front desk staff and medical assistants in screen administration	• Attended monthly staff meetings and instructed all front desk staff and medical assistants to do the following: • Front desk staff: • Hand the paper screen available in English and Spanish to all patients who presented for a scheduled well visit • If it was not clear whether a child was presenting for a well visit or follow-up visit, the screen was provided • Assure that the screens were self-administered • Refer families to consult their providers if they had specific questions about the screens • Medical assistants • Ensure screen was completed • Collect screens from patients for review by the provider during patient encounter • Shared patient stories to explain the importance of screening
	2. Provide feedback to front desk staff on administration rates	• Held monthly meetings with clinic leadership and representatives from front desk staff and medical assistants • Reviewed run chart data with staff and responded to barriers to screen administration raised by staff
	3. Reminded staff about screen administration	• Taped laminated and decorated postcard reminders directly onto monitors at all front desk staff and medical assistant work stations
	4. Provide verbal reminders at medical home meetings	• Attended weekly medical home meetings (which are attended by all clinic staff including front desk, medical assistant, providers, etc.) and briefly reported on status of project at every meeting
	5. Present data publicly	• Posted run charts on bulletin boards throughout the clinic
	6. Automated tablet administration	• Trained front desk staff on distributing tablet to patients who presented for well care instead of paper screens
Providers document the screen result in a patient's medical record at least 75% of the time	7. Trained and oriented providers to risk stratification model and created acronym expander for providers to document screen result in medical record	• Trained providers and presented risk stratification model at noon conference • Created and spread acronym expander (.bhv), which expanded in record to "Behavioral screen positive (score xx). Return to clinic for follow-up in 1-3 months. Psychosocial screen positive for substance use/depression/domestic violence. Patient referred to social worker".
	8. Post algorithm for interpreting screens in examination rooms	• Created a color-coded algorithm with scoring instructions, cutoffs for positive scores, and reminder to act on positive screens and posted in all examination rooms, provider offices, and conference room
	9. Post reminder signs on examination room computers reminding providers to document screen	• Taped laminated post card reminders that included run chart data directly onto monitors in all exam rooms, provider offices, and conference room
	10. Email report cards to providers on their individual documentation rates	• Sent individual data on provider documentation rates to individual providers through email. Included mean and target documentation rates
	11. Print tablet screen results for providers to see	• Began printing individual patient reports from tablet because providers were unable to access results from tablet within the electronic medical record. Enlisted help from volunteers to print and hand completed screens to providers in real time, i.e., during their patient encounters
	12. Decision support on how to handle positive screens	• Uploaded electronic resource list with automatic links to resources addressing the domains screened for to all clinic computers • Created acronym expanders for how to manage the most common behavior problems reported; infant sleep issues, tantrums and inattention in school-aged children.

PDSA, Plan-Do-Study-Act; SWYC, Survey of Well Being of Young Children.

weekly resident conferences. The risk stratification definition also appears each time a provider opens a note in the EMR, as well as in the acronym expander described above.

For referrals to community partners, the clinic social worker assisted with the creation of an electronic referral list that was saved on the desktops of all examination rooms and workstations throughout the clinic. The referral list allowed for direct links to multiple websites that provided information and referral sources to avoid incorrect or outdated referral contact information. Referral sources for all domains on the screens (i.e., child behavior problems, tobacco, substance use, food insecurity, maternal depression, and domestic violence) were included in the order that they appear on the screen.

Data Collection, Review, and Analysis

Screen administration and documentation rates were assessed for 1 random week per month for the entire duration of the project (October 2014 to April 2016). This was decided based on feasibility and agreement between the QI mentors that this sampling method was standard for QI methodology. Administration rates were calculated by counting all screens that were collected during the random weeks and dividing by the number of well visits for the corresponding period. Documentation rates were similarly obtained by reviewing records for all children screened during 1 random week per month and dividing the number of screens documented in the provider's notes by the number of screens collected.

Referral and follow-up rates were assessed for the convenience sample of patients screened during the first 4 months of the project (N = 349). Two research assistants completed the medical record reviews using a codebook and record abstraction form that was jointly created with the first author. Variables collected from the records included demographic data such as race/ethnicity and language, past child medical and developmental/behavioral diagnoses, social history documented in the chart prior to the screen, whether the patient/family was referred to return to their provider or social work, and whether they completed their referral and follow-up appointments. Referral and follow-up data were assessed for those with positive screens. Only screens with no missing data could have a total score calculated and were included in this assessment. If 1 or more items on the screens were left blank, the entire scale was considered missing. Providers were instructed to complete the screens, including missing items, with the families during their encounters whenever possible. How the existence of missing items might have affected family risk assessment and referrals/management was not specifically assessed in this study.

To evaluate an association between parental concern (dichotomous outcome variable) and predictors, logistic regression was used. Variables considered in the analysis were child behavior symptom score and social stressors (substance use, maternal depression, food insecurity, domestic violence) across ages 6 months to 10 years. In addition, we explored whether there was any statistically significant interaction effect between the predictors.

Columbia University Institutional Review Board approval was obtained for this study.

RESULTS
Demographics for Convenience Sample

Of the first 349 unique families screened whose medical records were also examined, the majority (45.8%) were in the 18 months to 5-year age range, and the rest were equally divided among the infant (6–17 months) and school age (6–10 years) groups. Gender was equally distributed. Nearly two-thirds of this cohort (62.6%) had established child medical comorbidities,

30.3% had a developmental delay documented, and 9.8% had a child behavioral/psychiatric comorbidity documented before the implementation of routine screening. Most of this sample had their screen completed by mothers (82.5%), and approximately half identified as Hispanic (52.4%) and indicated Spanish as their primary language (51.4%) in their medical record (Table 2).

Screen Administration and Documentation

Screen administration rates ranged from 5% to 90%, reaching the established goal of 50% for 8 of the 18 months tracked (Fig. 2). Rates reached a low of 5% during 1 summer month, during which clinic staff (including residents, volunteers, and the research assistant) were not available to carry the project forward, and reached a high of 90% after an electronic method of administering the screen was implemented using a tablet in the waiting room. Barriers related to screen administration reported by staff included running out of photocopies of the paper screen and not knowing which patients to give it to; for example, children with complex medical conditions were often thought to be ineligible for the screen. Several changes were instituted as a result of this feedback. For example, electronic copies of all screens were spread to all front desk staff, and education

Table 2. Demographic Data for Convenience Sample Included in Chart Review (N = 349)

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Mean Age of Child (SD)	4.05 yr (2.95)
Age group	
6–17 mo	26.6%
18 mo–5 yr	45.8%
6–10 yr	27.5%
Gender of child	
Female	47%
Child medical comorbidities	62.6%
Child psychiatric comorbidities	9.8%
Developmental delay in child	30.3%
Guardian present on day of screening	
Mother only	82.5%
Father only	3.0%
Mother and father	12.4%
Other	2.1%
Race/ethnicity from record	
Hispanic	52.4%
Black (non-Hispanic)	10.3%
White (non-Hispanic)	3.9%
Multiple or other	33.4%
Language preferred	
Spanish	51.4%
English	43.4%
Arabic	1.2%
Other	4%
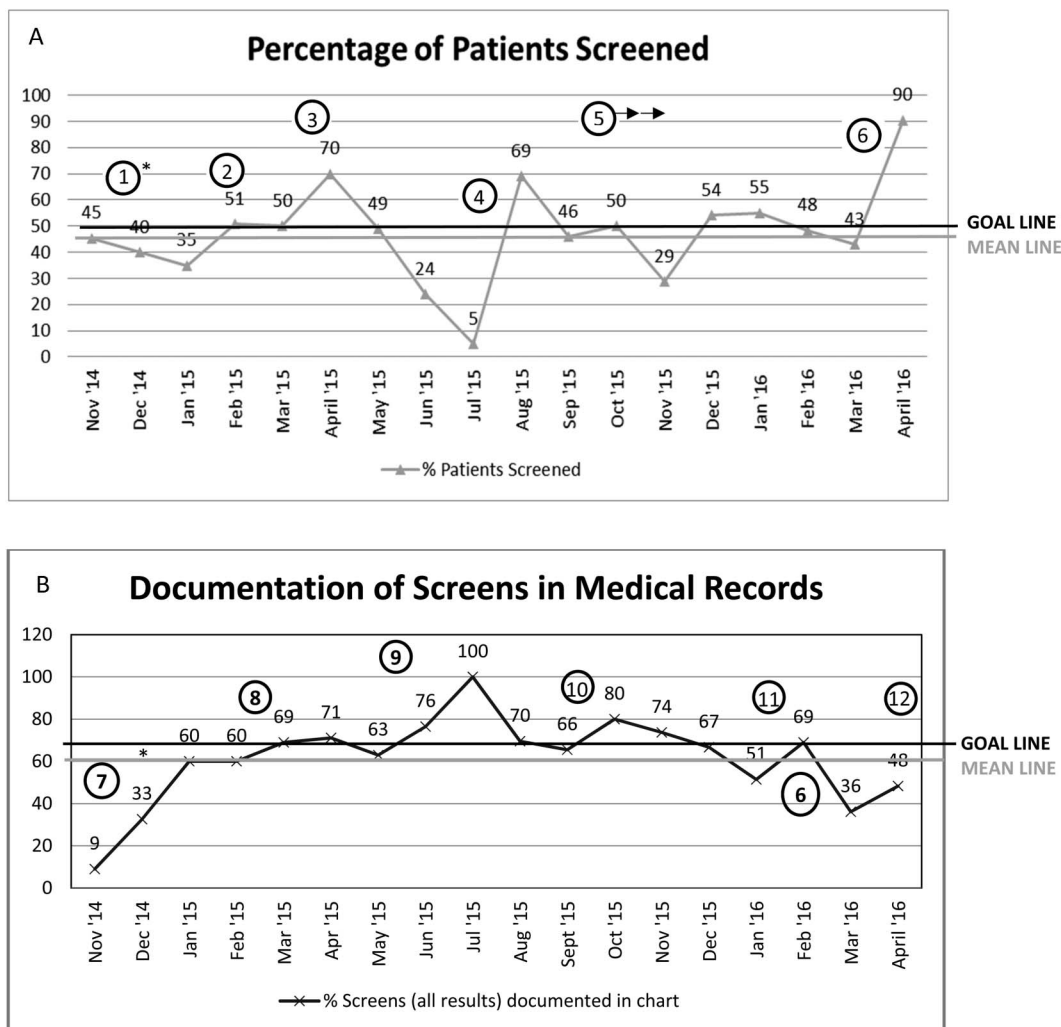
Figure 2. Data measured using 1 random week per month. Run chart (A) numerator equals number of screens collected, and denominator equals number of well visits over corresponding time period. Run chart (B) numerator equals number of screens documented in the electronic medical record, and denominator equals number of screens collected over corresponding time period. *Numbers correspond to various plan-do-study-act cycles conducted as part of quality improvement. See Table 1.

was provided regarding the definitions of universal screening and the fact that all patients presenting for well visits regardless of underlying medical conditions should receive the screen.

Rates of documentation of the screen in the electronic medical record (EMR) ranged from 9% to 100% and reached the goal of 75% for 3 of the 18 months studied (Fig. 2). Documentation rates were lowest at approximately the same time that screen administration rates reached a high, which is when the electronic/tablet method of administration was trialed. Screens that were entered into the tablet could not be integrated into the EMR automatically and instead had to be accessed via a separate hospital clinical application. Plan-Do-Study-Act cycles utilizing volunteers to access and print the screens for the providers did not change these documentation rates. Finally, other barriers related to documentation that were reported included losing the screens that were completed by families in the waiting room (e.g., families would lose or keep screens on their person and forget to

deliver it to their provider), remembering to use the acronym expander or remembering the acronym itself, and not having a standard place in the medical record in which to document. As a result of this feedback, the screens were edited to include instructions for families on "returning the paper screen to the provider" in large font on the bottom of the screen. In addition, EMR note templates were subsequently altered to include specific sections in which to document the results of the screens.

Referrals and Follow-Ups

In the convenience sample (N = 349), 28% scored positive for a behavioral problem, 25% reported at least 1 social stressor, and 18% scored positive on both behavioral problems and social stressors. The most common behavior problems reported were "*child has a hard time being with new people*" (47.7% of 6–17-month olds), "*child gets upset if things are not done a certain way*" (60% of 18-month to 5-year olds), and "*child is distracted easily*" (52.9% of 6–10-year olds). The most

common social stressor disclosed was maternal depression, with 9.7% of mothers scoring 2 or more on the patient health questionnaire-2.

Overall, 26% of the behavior scales and 21% of the social stressor scales had missing items. The most common missing items on the behavior scales were "*minds being held by others*" for 6 to 17-month olds, "*hard to know what child needs*" for 18-month to 5-year olds, and "*feels hopeless*" for 6- to 10-year olds. On the social stressor scale, domestic violence and maternal depression had missing items approximately 10% to 12% of the time, which was 10 times the rate of hunger and twice the rate of substance use. Figure 1 depicts referral and follow-up rates for positive behavior and social screens.

Behavior

Of all those in the convenience sample (N = 349) with a complete adapted Survey of Well Being of Young Children who screened positive for a behavior problem (28% across all ages), only 12.5% had a behavioral problem previously documented in their EMR. Of the 28% who reported a behavior problem, 75% were scheduled to follow up with their primary medical doctor within 3 months. Of those who were scheduled to follow up with their doctor within 3 months, 55.4% would have been due for a well visit based on recommendations by the American Academy of Pediatrics, and thus 44.6% were scheduled to follow up sooner than this well-child visit schedule. Slightly less than 10% of those who reported behavior problems were also referred to the clinic social worker. Of those who were referred, 80% completed their follow-up appointment with their primary medical doctor, and 57% completed their social work appointment.

Social Stressors

Of those families who reported at least 1 social stressor on the screen (23% of the convenience sample), less than half (44.4%) had a previous social stressor mentioned in their record. Of those who reported at least 1 social stressor, 65% were given a follow-up appointment with their primary medical doctor within 1 to 3 months, and 19% were referred to the clinic social worker. Completion rates for these appointments were 83% and 42%, respectively.

Subanalysis of the Association Between Parent Concern, Child Behavior, and Social Stressors

Binary logistic regression analysis revealed that after controlling for the social stressors' covariate (substance use, food insecurity, maternal depression, and domestic violence), parental concern for their child's behavior was significantly associated with child behavior symptoms ($p = 0.001$). Similarly, after adjusting for child behavior symptoms, parental concern was significantly associated with social stressors ($p = 0.002$). We explored whether the social stressors' covariate had any moderator effect on child behavior problems and found that no statistically significant interaction exists between the effects of these 2 variables on parental concern.

Other covariates including age, gender, or behavioral/medical comorbidities in the child were not included in the analysis for this study.

DISCUSSION

Results from this study support the relative feasibility of implementing a combined child behavior and psychosocial screen in low-income, resource-poor clinics. Quality improvement (QI) methodology was useful to integrate the screener into clinic flow without allocating additional human or financial resources. Adding volunteers during 1 of the Plan-Do-Study-Act cycles, for example, did not improve the workflow and thus was not maintained. The fact that the self-report screening tool itself is short, relatively easy to interpret, and readily accessible contributed to success in its use without additional personnel. This is consistent with other studies that had success in implementing psychosocial screens.[23–25]

Administration rates reached a high of 90% after an electronic/tablet method of administering the screens was introduced. This is consistent with data indicating that electronic screening is easy to use, maintains confidentiality, validates parental concerns, and aids in normalizing mental health issues in primary care.[24] Patients have also indicated preferences for electronic screening over paper and pencil or in-person screening.[25] Furthermore, a study comparing electronic versus in-person methods to collect surveys indicated that patients are more likely to disclose sensitive information when it is administered in an electronic format compared with interviews and paper screens.[24] Using a tablet also solves the problem of lost screens. The increase in screening rates that occurred with the electronic method was at the expense of provider documentation, however. Providers had difficulty accessing the screens that were administered through the tablet. It is also possible that the personal interaction that occurs between a provider and their patient in an encounter is somewhat lost when electronic systems (rather than interview or paper and pen) are used to collect information.

The fact that our mean documentation rates did not reach the goal of 75% is consistent with other studies that have demonstrated challenges integrating prescreens into documentation and referral practices within pediatric primary care.[26] Some of our QI approaches including signs to remind providers about the screening/scoring, emails to provide feedback on individual rates of documentation, and printouts of electronic screen results provided in real time increased provider documentation rates, but were difficult to sustain. It is not clear whether barriers including lack of time and perceived irrelevance or insufficient relevance to the visit also affected documentation rates. Despite these challenges, efforts to find automated methods to both collect and integrate screen results into the electronic medical record (EMR) may prove to be essential for increasing administration, patient disclosure, and documentation rates. Automated screening also holds promise in combatting common barriers to

addressing psychosocial issues, including time and stigma. As a result of lessons learned from this QI effort, we are currently implementing widespread automated screening with tablets in our waiting rooms. We are actively working on assuring that screen results are integrated into our EMR to overcome the barriers to provider documentation encountered in this project.

Referrals and Follow-Ups

It is notable that over 80% of families who screened positive for a behavioral problem and over 50% who screened positive for a social stressor on the adapted Survey of Well Being of Young Children (SWYC) did not have previous documentation of such in the child's record. This reinforces the need to routinely use behavioral and social health screening rather than relying on traditional surveillance methods that largely use ad hoc interview as a means to assess for concerns.[27]

A particular argument against universal screening is that the rates of positive screens would overwhelm the system through more follow-up appointments with providers or referrals to social work. Our data indicate that less than 10% of positive behavioral screens and only 19% of positive social stressor screens were referred to our colocated social worker. Patients and families who were not referred to social work could have been given advice or referrals to outside sources from their primary medical doctor, which may be appropriate, especially for low-risk situations. For example, primary medical doctors often give parenting advice and referrals to early childhood education to children who present with behavioral concerns but who did not meet criteria for developmental delays or mental health diagnoses. Our electronic resource list that was uploaded to all desktop computers may have facilitated this practice. Of those who were scheduled to return to their primary medical doctor within 3 months, it was noted that approximately 45% would not have been due for a well-child visit. It is not known whether they were scheduled for the behavior uncovered specifically or for another reason (e.g., follow-up for weight gain or another reason). It is also not known what the outcomes of these visits were. However, these visits did not appear to increase utilization beyond what could be absorbed in a busy urban practice.

Adherence to follow-up with the primary medical providers was high in this study (>80% whether the screen was positive for behavior or social stress). High no-show rates for both primary medical doctor and social work appointments are significant sources of waste within the health care system. Factors associated with high-no show rates in the literature include low socioeconomic status, being a racial minority, and lack of commercial insurance,[28] all characteristics associated with our patient population. Indeed, data from other low-resource urban clinics have reported no-show rates for medical providers and for behavioral resources, including social work, comparable or higher than our own.[28–30] Follow-up in this study was achieved without the addition of other adherence-promoting resources. Using a universal screening for behavioral and psychosocial issues might help organize and prioritize making referrals. For example, rather than making immediate referrals to mental health or social service agencies, providers and families may discuss and decide which of the issues found on the screens should be addressed first and how they should be addressed. This matching of referrals to specific needs may help incentivize follow-up for families. Although relatively low, no-shows for psychosocial problems in this study existed and may have been related to stigma, competing demands, or readiness and willingness to accept services. Further studies exploring these factors and interventions to overcome them are needed.

Association Between Child Behavior and Social Stressors

Associations between social stressors including maternal depression, for example, and child behavior have long been cited in the literature.[31] Our finding that parental concern for their child's behavior was independently associated with both child behavior symptoms and social stressors is confirmatory and interesting. Although we did not find a significant interaction between these 2 variables, it may be possible that social stressors often drive the parental concern that pediatricians are confronted with, and that even in the *absence* of diagnosable child behavior problems, parents perceive and report problems. Addressing this complex dynamic in primary care may help alleviate parental concerns in a way that will help them shift focus away from perceived problematic behavior in their child and more toward addressing their social determinants of health when appropriate. The associations between social stressors and the type of referrals offered by providers or completed by families was not assessed in this study and may help guide practices related to psychosocial issues encountered in primary care.

Limitations

Limitations to this study include the fact that it took place at 1 pediatric clinic and may not be generalizable to other settings. Rates of documentation of behavior problems and social stressors for those who were not screened with the adapted SWYC could not be collected. However, as mentioned for the convenience sample, documentation of issues before the screening was lacking in most cases. Similarly, referral and follow-up data were not collected for those who did not fully complete or successfully hand in an adapted SWYC screen, and thus it is unknown whether screening is causally related to the relatively high follow-up rates found. It is also unknown whether or how incomplete screens impacted providers' assessments and management of child behavior or social stressors. The fact that follow-up data were only collected for the first 4 months of the study, when there may have been unmeasured biases in the

administration of the screens (i.e., screens were initially not given to children with complex medical needs), adds an additional limitation in our ability to make inference about referral and follow-up rates. We presented initial results on the associations between parental concern for their child's behavior and both actual child behavior symptoms and social stressors. We posit that there may be additional associations and possible interactions between these complex variables. However, this analysis was beyond the scope of this study and will be the focus of future research.

CONCLUSIONS

This study provides insight into how a comprehensive psychosocial screen that assesses both behavior and social stressors can be implemented in a busy urban pediatric primary care setting. In this setting, administration rates reached a high of 90%, but documentation rates proved more challenging. For successful universal screening, efforts should focus on finding automated methods for entering results of self-report screens that are integrated with the electronic medical system. Follow-up rates were relatively high, which may suggest that comprehensive screening for child behavior and social stressors may help tailor referrals and engage patients. Associations between parental concern for their child's behavior and both child behavior symptoms and social stressors were found. Interventions to address these complex associations in primary care, using models such as risk stratification to match resources to needs, are needed.

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