

Title Page

Emotional-Behavioral Screening by Primary Care Practitioners: Attitudes, Practices, and Barriers

Katherine E. Murray, MD (corresponding author)

Behavioral Pediatrics Program

Division of General Pediatrics and Adolescent Health

Department of Pediatrics

Suite 160 McNamara Alumni Center

200 Oak St SE

Minneapolis, MN 55455

Email: murra057@umn.edu

Phone: (612) 626-0126

Pager: (612) 899-7611

Andrew J. Barnes, MD

Behavioral Pediatrics Program

Division of General Pediatrics and Adolescent Health

Department of Pediatrics

Suite 160 McNamara Alumni Center

200 Oak St SE

Minneapolis, MN 55455

Marjorie Ireland, Ph.D.

Division of General Pediatrics and Adolescent Health

Department of Pediatrics

Suite 160 McNamara Alumni Center

200 Oak St SE

Minneapolis, MN 55455

Daniel P. Kohen, MD

Behavioral Pediatrics Program
Division of General Pediatrics and Adolescent Health
Department of Pediatrics
Suite 160 McNamara Alumni Center
200 Oak St SE
Minneapolis, MN 55455

Keywords: primary health care; mental health; pediatrics; cross-sectional studies; questionnaires; physician's practice patterns; attitude of health personnel; mass screening; diagnostic techniques and procedures; child behavior disorders; family practice; pediatricians

Funding for this project provided by: The Robert O. Fisch Fellowship and Faculty Development in Primary Care Grant # D55HP04186 Bureau of Health Professions, HRSA

Abstract

Objective

Little is known about how clinicians screen for emotional and behavioral problems in everyday practice, or what prevents them from doing so more often. In this study, we assess the specific techniques and instruments primary care pediatricians and family practitioners use to detect emotional and behavioral problems and describe their beliefs about the prevalence of these problems and barriers to universal screening.

Participants and Methods

We mailed a survey and cover letter to all family practitioners and pediatricians in the 13-county Minneapolis-St. Paul metro area (n=1567). We received a total of 590 responses (38% response rate). Of these, 268 (46%) met criteria to be included in our analysis.

Results

Emotional and behavioral problems are perceived as common in children and adolescents and important to their families. Attending to these problems is routine, with nearly 80 percent of our participants screening during all well child visits across age groups.

Traditional techniques are the most commonly used with over 90 percent of our respondents endorsing non-standardized interviewing, review of systems and/or clinical observation. Nearly one in three participants (30%) endorsed use of a standardized, validated tool for broad developmental screening. However, consistent, universal use of these tools was endorsed by only one in fifty (2.6%). Use of standardized tools targeting emotional and behavioral problems is less common with 11% using these tools at least some of the time and only one participant (0.37%) who reported using them universally and consistently.

Barriers most commonly endorsed by our respondents included lack of time (93%), lack of training in use of appropriate screening tools (88%), lack of mental health providers (79%), and lack of adequate personnel (77%). Both broad developmental screening and targeted emotional/behavioral screening with a standardized tool were more likely to occur during well child care.

Conclusions

Primary care physicians concur with existing data regarding the commonality of emotional and behavioral problems and this leads to screening with predominantly traditional techniques. Low detection rates for emotional/behavioral problems may be

improved by universal standardized screening. Removing or ameliorating barriers will be an important part of implementing any universal screening program.

Introduction

Primary care clinicians are increasingly called upon to diagnose emotional and behavioral disorders in children. From 1979 to 1996, the rate at which pediatricians, family practitioners, and nurse practitioners identified emotional and behavioral problems almost tripled; their identification rate doubled when diagnoses for problems of attention were excluded (1). Counseling, pharmacological management and referral rates also increased. Nevertheless, some authors estimate that only one in five children with mental health needs are currently identified, and less than 10% are receiving appropriate care (2, 3).

The American Academy of Pediatrics has reaffirmed a commitment to address psychosocial problems as the “new morbidity” (4). Although existing guidelines do not advocate a preferred screening method, they all call attention to caregivers as the most important sources of information about their children’s mental health needs (4-8). A wealth of evidence supports periodic screening that utilizes systematic solicitation of parental and patient concerns (9-22). A number of valid, reliable instruments are available that are sufficient to screen large populations for psychosocial problems (i.e. sensitivity and specificity of approximately 70% or greater), including the Parents’ Evaluations of Developmental Status (PEDS); Pediatric Symptom Checklist (PSC); Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)(23); the Brief Infant-Toddler Social and Emotional Assessment (BITSEA); and others (9-11).

Guidelines and evidence notwithstanding, there is a dearth of literature exploring how practitioners actually detect emotional and behavioral problems in everyday practice. The present research is one of the first to assess the specific beliefs, instruments, and associated practices that primary care pediatricians and family practitioners use to identify emotional and behavioral problems in infants, children, and adolescents. We hypothesized the results would show low rates of use of broad developmental screening tools and show even lower rates of use of targeted emotional/behavioral screening tools. We also expected low reimbursement, limited personnel, time constraints, comfort with available screening tools and lack of community mental health resources to be important barriers to universal, consistent screening.

Participants and Methods

Participants

We mailed our survey and cover letter to all family practitioners (n=1163) and pediatricians (n=404, including those identified as Internal Medicine/Pediatrics) living or practicing in or around Minneapolis-St. Paul, MN (Figure 1). This encompassed 13 counties serving urban, suburban, and rural patients, and was comprised of private-practice, academic, and community-based physicians. Demographic data and mailing addresses were extracted from databases maintained by the American Medical Association (AMA). The mailing included physicians identified as actively providing primary care and excluded subspecialty-boarded practitioners. Respondents were also pre-screened with a question on the cover letter asking whether they were currently

devoting greater than half of their time to providing primary care to patients aged birth to 18 years. Those answering yes were invited to complete the survey. Most family practice respondents did not meet inclusion criteria at the 50 percent pediatric primary care level. Therefore, we mailed a second round of surveys to these physicians lowering the qualifying criteria to include those with more than one-quarter of their time dedicated to the primary care of children and adolescents. Family practitioners who did not qualify for or respond to the first mailing were included in the second mailing (responses were counted only once in the data analysis). Pediatrician nonrespondents were sent a second mailing with the same prescreen criteria as the first mailing, as pediatric respondents qualified at the expected rate during the first mailing.

Instrument

The Emotional-Behavioral Screening Survey (EBSS) is a 4-page, 8-item instrument developed by the investigators in consultation with colleagues skilled and experienced in the development of standardized surveys. It was further refined after being piloted with a group of community pediatricians who participate in an early-career Collaborative Office Rounds group (24).

The EBSS consisted of 3 main sections (Appendix 1). The 1st served as an entrée to the survey and assessed beliefs and perception of the problem. This section presented practitioners with 18 clinical issues (e.g. anxiety, soiling, chronic headaches, family problems), asking them to rate their agreement on a 5-point Likert scale as to whether these issues are usually associated with emotional or behavioral problems in children. They also estimated the proportion of their patients having one or more of these

symptoms as a chief complaint on a typical clinic day. The 2nd section assessed screening practices. Participants noted their average clinical time allotted for both “well” and “ill” visits. They were then asked to assess which, if any, screening methods they used at these respective visits. For each type of visit, participants chose all of the screening methods they use from two lists – one with clinical techniques that are non-validated (e.g. observation, Denver-II) and one with validated, standardized tools (e.g. PEDS, PSC) – noting how often they employ, or do not employ, these specific screening methods according to age group (infant, toddler, preschool, school-age, teenage). To insure we had not omitted standardized tools being used in the community, we provided a free-text “other” section. Screening rates were assessed on a 5-point Likert scale from “never” to “almost always.” The 3rd section consisted of a 16-item list of potential factors that might prevent or discourage clinicians from screening for emotional and behavioral problems (e.g. “Lack of adequate time”, “These problems cannot be treated effectively”), rated on a 5-point Likert scale assessing the degree to which each represents a barrier to the participants. A final item allowed participants to request additional information about emotional-behavioral screening in primary care and/or a copy of the survey results.

Procedure

We obtained approval from the University of Minnesota Institutional Review Board to conduct this cross-sectional, anonymous survey. We assured respondents via an attached cover letter that only their general demographic information would be associated with their responses. The respondents’ consent was implied by their return of the completed EBSS, and their identifying information concealed from the investigators by a random tracking number on each survey. We distributed the EBSS to 1567 practitioners

by U.S. mail with a postage-paid return envelope, with repeat mailings as described above. Surveys were accepted over a 12-month period, and upon receipt data were aggregated by tracking number and analyzed.

Statistical methods

We used standard descriptive statistics to summarize the survey results. When comparing groups, we used Chi-square tests for proportions, or Fisher's Exact test where necessary due to small expected cell counts, for dichotomous variables, and Student's t-tests for comparing means of continuous variables. All analysis was done using the SAS Statistical Package, version 9.1 (SAS Institute, Cary , NC).

Results

Respondent Characteristics

A total of 590 surveys were returned from both mailings, for a 38% response rate (Figure 1). If family practitioners were pre-screened twice and returned both mailings, we counted each only once as respondents. Of our respondents, 268 (45%) met the prescreen criteria for participation and completed the survey. Respondents were more likely to be female, pediatricians, board-certified in their specialty, and graduates of US medical schools (Table 1). Respondents and non-respondents did not differ in mean age, mean years since medical school graduation, or practice location.

Attitudes towards emotional and behavioral problems

Nearly half (45%) of the surveyed physicians indicated at least one-quarter of their pediatric patients present complaints consistent with emotional or behavioral problems. Complaints most strongly associated with emotional and behavioral problems included substance abuse, eating disorders, mood disturbances, family problems, anxiety, hyperactivity and inattentiveness (Table 2).

Rates of screening & specific practices

Traditional techniques such as interview and clinical observation are the most commonly used screening modalities for determining the presence of an emotional or behavioral problem (Figure 2). Because of its questionable validity in the setting of screening for emotional-behavioral problems, we did not include the Denver II in our analysis of standardized screening tools, although it was the tool that participants most frequently endorsed on the EBSS. Participants who endorsed “other” listed non-standardized instruments (e.g, practice-developed questionnaires) and secondary diagnostic tools (e.g., the NICHQ Vanderbilt Assessment Scale), so these were also omitted from our analysis.

Overall, nearly a third (30%) of our participants used at least one of the standardized, validated screening tools (PEDS, ASQ, PSC, ASQ-SE or SDQ) during at least some of their visits. As illustrated in Figure 3, the use and popularity of these tools varied with patient age, as would be expected. In the preschool age group, broad developmental screening was favored, with PEDS being the most popular tool. In school-age and adolescent visits, targeted emotional-behavioral screening becomes

increasingly prominent; here the PSC is the most commonly used tool for screening.

Also reflected in these responses is use of the instruments outside the boundaries of their recommended ages. For example, some respondents endorse use of the PSC during the first six months of life and some endorse using the ASQ into adolescence.

To better evaluate screening practices, we applied a liberal definition of “screener”, meaning any participant who endorsed any standardized tool at any age, with any frequency. This group comprised about a third of our participants. We compared this group of “screeners” to “non-screeners” across available demographic variables. These groups were indistinguishable across all demographic variables including gender, age, specialty and practice location (Table 3).

Using the same list of standardized screening tools we further constrained the definition of “screener” in terms of universality (at least on tool endorsed in each age range) and consistency (endorsement of “almost always” across each age group). As reflected in Table 4, very few participants met this definition of consistent and universal emotional-behavioral screening during well visits. About 1 in 20 (6%) used these tools across all age groups and only half of these (2.6%) used them consistently.

We performed a similar analysis with the tools specifically targeting emotional-behavioral development (PSC, ASQ-SE and SDQ). One in ten (12%) of participants used a targeted emotional-behavioral screening tool during some of their well visits. Consistent, universal screening for emotional and behavioral problems was quite rare, with only 3 participants using these tools universally across age groups and only one of those using them consistently.

Finally, we compared screening practices during well and ill visits. Screening with standardized tools was significantly more likely to happen during well visits than ill visits (Tables 4 and 5). Universal screening was more likely to happen during well visits. However, universal and consistent screening was so rare, its use was indistinguishable between well and ill groups.

Barriers to screening

The key barriers to routinely conducting emotional-behavioral screening were lack of time, training, personnel and comfort managing these sorts of problems (Table 6). Of note, few participants perceived emotional and behavioral problems as “unimportant” or “uncommon.”

Follow-up

In response to the final survey item, nearly half of our participants responded that they were interested in receiving more information about screening for emotional-behavioral problems in primary care.

Discussion

Emotional and behavioral problems of childhood are increasingly recognized as a serious public health problem. These include anxiety, depression, disruptive behavior, phobias, habits, sleep disruption, elimination problems, learning challenges, and recurrent somatic complaints. The community prevalence of such problems among toddlers, children, and adolescents is high, with studies based on DSM criteria consistently showing rates of roughly 20% (10, 11, 25-30). This includes a prevalence of about 1%

for severe psychiatric disorders in school-age children (27). Unfortunately, only 55% of parents report consulting with a pediatrician regarding the mental health concerns they have about their children with these problems (25).

Even with ongoing under-recognition, children's mental health problems make up a large proportion health care spending in the United States. In a study conducted by Wasserman et al., pediatricians estimated that 18.7% of all visits for 4-15 year-olds were for psychosocial problems (31). Others put this figure closer to 50% (2). Regardless, these children incur health-care expenditures similar to those with chronic conditions such as asthma, diabetes, and epilepsy (32). Fortunately, there is increasing evidence that early intervention for emotional-behavioral disorders can improve functional outcomes. Depending on the disorder, the beneficial effects of specific interventions can include preventing violence, injury, and suicide; and improving academic functioning, mood symptoms, and social skills (33-39).

For these reasons, efforts are being made to improve the quality and delivery of developmentally appropriate mental health services to children. For the past two presidential administrations, the U.S. Department of Health and Human Services has issued reports calling for increased screening and treatment for emotional and behavioral problems (7, 8). Similarly, the Centers for Disease Control and Prevention launched a campaign in 2005 to raise awareness about developmental-behavioral screening, especially toward early recognition of autism spectrum disorders (6). The AAP recommends that routine screening for developmental-behavioral problems be systematically incorporated into healthcare maintenance under the "medical home" model of practice (5, 40). Other groups have issued similar guidelines (41, 42).

Some developmental screening tools are not designed for the detection of emotional or behavioral problems, have limited sensitivity and/or specificity when used for screening, or are impractical and time consuming as first-level screens. The Denver II has fallen out of favor as a screening tool for all three of these reasons (43). Similarly, instruments developed by individual practices are rarely rigorously tested, and may not be valid or reliable. Other means of surveillance for emotional-behavioral disorders, such as the practitioners' history, review of symptoms, and physical exam findings, may be insufficient when used without also formally screening with validated tools. For example, Costello et al. (1988) demonstrated that pediatricians have a very high false-negative rate for psychopathology (83%) when screening children without using parent-provided data (27). Lavigne et al. (1993) confirmed these findings in preschool-aged children, with practitioner assessment alone being only 20% sensitive and 93% specific for emotional and behavioral problems (44). A study of 75 children presenting to a family practice clinic found that 13% had significant behavior problems, yet half went unidentified – despite many of the study's parents disclosing concerns to their clinicians (13). Another study had similar results, finding that while physicians were 6 times more likely to identify children with serious behavioral problems based on abnormal scores on a parent-completed screening tool, they still failed to identify 43% of such children (45). Lynch et al. (1997) found that physicians were 3 times more likely to identify true problems when parents were encouraged to fill out a pre-visit psychosocial checklist and present it to their child's clinician, and 10 times more likely to offer intervention for these problems, compared with direct physician assessment alone (46). As discussed earlier,

standardized, validated screening tools based on parent report are an alternative to less sensitive methods of screening.

We know some about how infants and children are routinely screened for developmental delay. In terms of broadly-defined developmental screening practices, about half of pediatricians and family practitioners in one study reported using any instrument (including the Denver-II); only one-third of the respondents used validated parent-completed questionnaires (47). Similarly, only about one-third of AAP fellows surveyed in 2002 reported they used developmental screening instruments; those who did were indeed more likely to identify developmental problems (48). These children are in turn more likely to receive interventional services compared to those identified as having mental health problems (3).

Pediatricians feel more confident and interested in routinely assessing developmental status when compared to psychosocial screening, and they perceive a lack of training and reimbursement to be among barriers to the latter (49). None of the 47 pediatricians interviewed in one regional study routinely screened for behavioral disorders, and there was considerable variability in their diagnosis and treatment of mental health problems (50). In one recent study of primary care clinicians, standard screening instruments were used for only 20% of visits involving psychosocial problems; 50% never used such instruments at all (51).

New findings

One explanation for under-detection of a problem is a failure to recognize its prevalence and devote time to its detection. This explanation is not supported by our

findings. In fact, the vast majority of pediatricians and family physicians in this survey reported they are aware of emotional and behavioral problems in children and almost all of these physicians endorse screening for these disorders, primarily using the traditional diagnostic techniques. Another explanation for lack of standardized screening for emotional and behavioral problems could be a lack of awareness that these tools exist. This explanation is better supported by our findings, but not completely. One in three providers use a standardized developmental screening tool and almost half of these individuals have experience using a tool targeting emotional and behavioral problems. However, the most marked limitation of screening practice in our respondents is a lack of consistency and universality.

Our study also provides evidence that critical barriers appear to interfere with incorporation of screening into every pediatric visit. These barriers are consistent with previous research on standardized developmental screening and related to a perceived deficiency of resources, both locally (time, reimbursement) and community-wide (referral and intervention services). Barriers related to training might also play a large role, given the lack of comfort with available screening tools and uncertainty regarding the evaluation and management of emotional and behavioral problems.

Agreement and/or disagreement with prior findings

Our survey results support prior findings related to standardized screening for broad developmental delay. Frequencies of standardized screening and barriers endorsed coincide strongly with those revealed from previous research, although this study also examines practices and attitudes specific to emotional and behavioral screening.

Other specific or unexpected findings

Our results also imply a more subtle barrier: the persistence of a mind-body dichotomy between typical “mental health problems” and somatic complaints that often have a strong psychological component. In our survey physicians most often and most strongly identified those complaints that, by definition, represent significant psychopathology (e.g. mood disturbances). Several common clinical problems that were less strongly endorsed, such as recurrent abdominal pain and headaches, do in fact have well-documented psychological dimensions.(52, 53) Similarly, several other problems that are actually strongly associated with emotional and behavioral problems, including soiling(54, 55) and learning problems,(55) were weakly or infrequently endorsed as such by survey respondents. This dichotomy between the mind and the body may not only contribute to a clinical “blind spot” in detecting these problems but can also create concerns about treading outside the realm of one’s clinical “expertise.” Tics, enuresis and thumb-sucking were believed by most physicians not to be associated with emotional-behavioral problems, and indeed there is debate as to the strength of such an association for each of these complaints.(56-62)

Limitations of the present study

Our study is limited by its low response rate, consistent with that of similar surveys.(63-66) We also noted some demographic skewing of our respondents (towards female, board-certified, non-FMG pediatricians) introducing the possibility of response bias to our results; however, “screeners” and “non-screeners” did not differ on any demographic measures. Our design is cross-sectional and captures only one moment in time. Our data are all self-reported and not validated with other clinic staff, introducing

potential recall bias. Finally, we drew from a specific region and may not be able to generalize our findings to broader national practice.

Implications and directions for future research and policy

The problem of under-detection and under-treatment of emotional and behavioral problems in primary care appears to be systemic in origin. Any proposed solutions should thus be systemic. Steps should be taken to eliminate existing barriers. Reimbursement for screening and evaluation must be adequate to motivate changes in practice. Training on standardized screening techniques should be incorporated into existing residency programs, certification, and CME for pediatricians and family physicians. The sensitivity of traditional diagnostic practices in detecting these problems is 20 percent. Current standardized screening tools have sensitivities and specificities exceeding 70 percent. To increase detection rates, standardized screening instruments should be systematically incorporated into the flow of clinical care.

Given this possibility of substantially increased rates of detection of emotional and behavioral problems, steps to access community resources and make necessary referrals should be incorporated into any universal screening plan. However, screening cannot be postponed until all elements of the structure are in place. As with any quality improvement process, each step builds on the one before it, creating gradual and lasting improvement.

Future research to determine the longitudinal impact of early screening, detection and treatment in primary care would be valuable to encourage investment in universal early screening. Research to describe approaches for effectively integrating screening into clinic flow would also be useful in creating lasting change at the community level.

Conclusion

Targeted emotional-behavioral screens exist and are easy to use. These tools can be used in combination with broad developmental screens to detect these problems early before they become more refractory to intervention. However, this will remain an empty recommendation until key barriers to screening are removed.

Acknowledgements

Many thanks to Iris Borowsky and Joan Patterson for their guidance and support. Rebecca Fee, Shari Plowman, and the University of Minnesota COR-II group provided indispensable feedback on the survey tool. Michael Resnick, Sandy Pettingell and Carol Skay also were instrumental in assisting with survey tool. Olivia Awoudi and Fatuma Wako tirelessly stuffed envelopes. Finally, thanks to the American Medical Association and Rick Fleming for providing the mailing list and basic demographic information.

References

1. Kelleher K, McIreany T, Gardner W, Childs G, Wasserman R. Increasing identification of psychosocial problems: 1979-1996. *Pediatrics* 2000;105(6):1313-1321.
2. Cassidy L, Jellinek M. Approaches to recognition and management of childhood psychiatric disorders in pediatric primary care. *Pediatric Clinics of North America* 1998;45(5):1037-1052.
3. Horwitz SM, Gary LC, Briggs-Gowan MJ, Carter AS. Do needs drive services use in young children? *Pediatrics* 2003;112(6):1373-1378.
4. AAP Committee on Psychosocial Aspects of Child and Family Health. The new morbidity revisited: a renewed commitment to the psychosocial aspects of pediatric care. *Pediatrics* 2001;108(1227-1230).
5. AAP Committee on Children with Disabilities. Developmental surveillance and screening of infants and young children. *Pediatrics* 2001;108(1):192-195.
6. Centers for Disease Control and Prevention. "Learn the Signs. Act Early." <http://www.cdc.gov/actearly>. Accessed November 28 2006.
7. New Freedom Commission on Mental Health. Achieving the promise: transforming mental health care in America, Final Report. In: The President's New Freedom Commission on Mental Health, U.S. Department of Health and Human Services; 2003.
8. U.S. Department of Health and Human Services. Mental Health: A Report of the Surgeon General -- Executive Summary. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institutes of Mental Health; 1999. p. 124-194.
9. Glascoe FP, Shapiro HL. Developmental and Behavioral Screening. <http://www.dbpeds.org/articles/detail.cfm?TextID=5>. Accessed May 27, 2004
10. Stancin T, Perrin EC. Behavioral screening. In: Parker S, Zuckerman B, Augustyn M, editors. *Developmental and Behavioral Pediatrics: A Handbook for Primary Care*. 2nd ed. Philadelphia: Lippincott Williams and Wilkins; 2005. p. 37-40.
11. Briggs-Gowan MJ, Carter AS. Screening for social and emotional delays in early childhood. In: Parker S, Zuckerman B, Augustyn M, editors. *Developmental and Behavioral Pediatrics: A Handbook for Primary Care*. Philadelphia: Lippincott Williams and Wilkins; 2005. p. 51-54.
12. Ellingson KD, Briggs-Gowan MJ, Carter AS, Horwitz SM. Parent identification of early emerging child behavior problems. *Archives of Pediatric and Adolescent Medicine* 2004;158:766-773.
13. Wildman BG, Kizilbash AH, Smucker WD. Physicians' attention to parents' concerns about the psychosocial functioning of their children. *Archives of Family Medicine* 1999;8(5):440-444.
14. Borowsky IW, Mozayeny S, Ireland M. Brief psychosocial screening at health supervision and acute care visits. *Pediatrics* 2003;112(1 pt 1):129-133.
15. Wren F, Bridge J, Birmaher K. Screening for childhood anxiety symptoms in primary care: Integrating child and parent reports. *Journal of the American Academy of Child and Adolescent Psychiatry* 2004;43(11):1364-1371.

16. Murphy JM, Ichinose C, Hicks RC, Kingdon D, Crist-Whitzel J, Jordan P, et al. Utility of the pediatric symptom checklist as a psychosocial screen to meet the federal early and periodic screening, diagnosis, and treatment (EPSDT) standards: A pilot study. *Journal of Pediatrics* 1996;129(6):864-869.
17. Jellinek MS, Murphy JM, Little M, Pagano ME, Comer DM, Kelleher KJ. Use of the pediatric symptom checklist to screen for psychosocial problems in pediatric primary care: A national feasibility study. *Archives of Pediatric and Adolescent Medicine* 1999;153(3):254-260.
18. Navon M, Nelson D, Pagano M, Murphy M. Use of the Pediatric Symptom Checklist in strategies to improve preventive behavioral health care. *Psychiatric Services* 2001;52(6):800-804.
19. Metz JR, Allen CM, Barr G, Shinefield H. A pediatric screening examination for psychosocial problems. *Pediatrics* 1976;58(4):595-606.
20. Glascoe FP, Dworkin PH. The role of parents in the detection of developmental and behavioral problems. *Pediatrics* 1995;95(6):829-836.
21. Glascoe FP. Parents' concerns about children's development: Prescreening technique or screening test? *Pediatrics* 1997;99(4):522-528.
22. Applegate H, Kelley M, Applegate BW, Jayasinghe IK, Venters CL. Clinical case study: Pediatrics residents' discussions of and interventions for children's emotional and behavioral problems. *Journal of Pediatric Psychology* 2003;28(5):315-321.
23. Squires J, Bricker D, Twombly E. *Ages and Stages Questionnaires: Social-Emotional: A Parent-completed, Child-monitoring System for Social-Emotional Behaviors*. Baltimore, MD: Brookes Publishing Co Inc; 2002.
24. Maternal and Child Health Bureau: Programs in Collaborative Office Rounds. <http://mchb.hrsa.gov/training/programs.asp?program=3>. February 2005.
25. Briggs-Gowan MJ, Horwitz SM, Schwab-Stone ME, Leventhal JM, Leaf PJ. Mental health in pediatric settings: Distribution of disorders and factors related to service use. *Journal of the American Academy of Child and Adolescent Psychiatry* 2000;39(7):841-849.
26. Roberts RE, Attkisson CC, Rosenblatt A. Prevalence of psychopathology among children and adolescents. *American Journal of Psychiatry* 1998;155:715-772.
27. Costello EJ, Edelbrock C, Costello AJ, Dulcan MK, Burns BJ, Brent D. Psychopathology in pediatric primary care: the new hidden morbidity. *Pediatrics* 1988;82(3 pt 2):415-424.
28. Lavigne J, Gibbons R, Christoffel K, Arend R, Rosenbaum D, Binns H, et al. Prevalence and correlates of psychiatric disorders among preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry* 1996;35(2):204-214.
29. Costello E. Child psychiatric disorders and their correlates: A primary care pediatric sample. *Journal of the American Academy of Child and Adolescent Psychiatry* 1989;28(6):851-855.
30. Schaffer D, Fisher P, Dulcan M, Davies M, Piacentini J, Schwab-Stone M, et al. The NIMH Diagnostic Interview Schedule for Children version 2.3 (DISC-2.3): Description, acceptability, prevalence rates, and performance in the MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry* 1996;35:865-877.
31. Wasserman RC, Kelleher KJ, Bocian A, Baker A, Childs GE, Indacochea F, et al. Identification of attentional and hyperactivity problems in primary care: A report from

- pediatric research in office settings and ambulatory sentinel practice network. *Pediatrics* 1999;103(3):e38.
32. Guevara JP, Mandell DS, Rostain AL, Zhao H, Hadley TR. National estimates of health services expenditures for children with behavioral disorders: An analysis of the medical expenditure panel survey. *Pediatrics* 2003;112(6):440-446.
 33. Gall G, Pagano ME, Desmond MS, Perrin JM, Murphy JM. Utility of psychosocial screening at a school-based health center. *Journal of School Health* 2000;70(7):292-298.
 34. Borowsky IW, Mozayeny S, Stuenkel K, Ireland M. Effects of a primary care-based intervention on violent behavior and injury in children. *Pediatrics* 2004;114(4):e392-e329.
 35. March J, Silva S, Petryki S, Curry J, Wells K, Fairbank J, et al. Fluoxetine, cognitive-behavioral therapy, and their combination for adolescents with depression: Treatment for Adolescents with Depression Study (TADS) randomized controlled trial. *Journal of the American Medical Association* 2004;292(7):807-820.
 36. Namerow L, Thomas P, Bostic J, Prince J, Monuteaux M. Use of citalopram in pervasive developmental disorders. *Journal of Developmental and Behavioral Pediatrics* 2003;24(2):104-108.
 37. vanManen T, Prins P, Emmelkamp P. Reducing aggressive behavior in boys with a social cognitive group treatment: Results of a randomized, controlled trial. *Journal of the American Academy of Child and Adolescent Psychiatry* 2004;43(12):1478-1487.
 38. McCracken J, McGough J, Shah B, Cronin P, Hong D, Aman M, et al. Risperidone in children with autism and serious behavioral problems. *New England Journal of Medicine* 2002;347(5):314-321.
 39. Emslie G, Rush A, Weinberg W, Kowatch R, Hughes C, Carmody T, et al. A double-blind, randomized, placebo-controlled trial of fluoxetine in children and adolescents with depression. *Archives of General Psychiatry* 1997;54(11):1031-1037.
 40. Stein M, Wolraich M, editors. *Guidelines for Health Supervision III*. Elk Grove Village, IL: American Academy of Pediatrics; 1997.
 41. Elster A, Kuznets N. *AMA Guidelines for Adolescent Preventive Services (GAPS: Recommendations and Rationale)*. Baltimore, MD: Williams and Wilkins; 1994.
 42. Green M, editor. *Bright Futures: Guidelines for Health Supervision of Infants, Children and Adolescents*. Arlington, VA: National Center for Education in Maternal and Child Health; 1994.
 43. Glascoe FP, Byrne KE, Ashford LG, Johnson KL, Chang B, Strickland B. Accuracy of the Denver-II in developmental screening. *Pediatrics* 1992;89(6):1221-1225.
 44. Lavigne JV, Binns JH, Christoffel KK, Rosenbaum D, Arend R, Smith K, et al. Behavioral and emotional problems among preschool children in pediatric primary care: Prevalence and pediatricians' recognition. *Pediatrics* 1993;91:649-655.
 45. Brugman E, Reijneveld S, Verhulst F, Verloove-Vanhorick S. Identification and management of psychosocial problems by preventive child health care. *Archives of Pediatric and Adolescent Medicine* 2001;155(4):462-469.
 46. Lynch T, Wildman B, Smucker W. Parental disclosure of child psychosocial concerns: Relationship to physician identification and management. *Journal of Family Practice* 1997;44(3):273-280.

47. Sices L, Feudtner C, McLaughlin J, Drotar D, Williams M. How do primary care physicians identify young children with developmental delays? A national survey. *Journal of Developmental and Behavioral Pediatrics* 2003;24(6):409-417.
48. Sand N, Silverstein M, Glascoe FP, Tonniges T, Gupta B, O'Conner K. Pediatricians' reported practices regarding developmental screening: Are guidelines used? Do they help? *AAP Periodic Survey of Fellows Number 53*. 2003.
49. A comparison of barriers to the provision of developmental assessments and psychosocial screenings during pediatric health supervision. *AAP Periodic Survey of Fellows Number 46*. 2001.
50. Williams J, Klinepeter K, Palmes G, Pulley A, Meschan-Foy J. Diagnosis and treatment of behavioral health disorders in pediatric practice. *Pediatrics* 2004;114(3):601-606.
51. Gardner W, Kelleher K, Pajer K, Campo J. Primary care clinicians' use of standardized tools to assess child psychosocial problems. *Ambulatory Pediatrics* 2003;3(4):191-195.
52. Campo JV, Bridge J, Ehmann M, Altman S, Lucas A, Birmaher B, et al. Recurrent abdominal pain, anxiety, and depression in primary care. *Pediatrics* 2004;113(4):817-824.
53. Strine T, Okoro C, McGuire L, Balluz L. The associations among childhood headaches, emotional and behavioral difficulties, and health care use. *Pediatrics* 2006;117(5):1728-1735.
54. Joinson C, Heron J, Butler U, vonGontard A, ALSPAC. Psychological differences between children with and without soiling problems. *Pediatrics* 2006;117(5):1575-1583.
55. Handwerk M, Marshall R. Behavioral and emotional problems of students with learning disabilities, serious emotional disturbance, or both conditions. *Journal of Learning Disabilities* 1998;31(4):327-338.
56. Kurlan R, Como P, Miller B, Palumbo D, Deeley C, Andresen E, et al. The behavioral spectrum of tic disorders: A community-based study. *Neurology* 2002;59(3):414-420.
57. Snider LA, Seligman LD, Ketchen BR, Levitt SJ, Bates LR, Garvey MA, et al. Tics and problem behaviors in schoolchildren: Prevalence, characterization, and associations. *Pediatrics* 2002;110(2):331-336.
58. Friman P, Handwerk M, Swearer S, McGinnis J, Warzak W. Do children with primary nocturnal enuresis have clinically significant behavior problems? *Archives of Pediatrics and Adolescent Medicine* 1998;152(6):537-539.
59. VanHoecke E, Baeyen D, VandeWalle J, Hoebeke P, Roeyers H. Socioeconomic status as a common factor underlying the association between enuresis and psychopathology. *Journal of Developmental and Behavioral Pediatrics* 2003;24(2):109-114.
60. VanHoecke E, DeFruyt F, DeClercq B, Hoebeke P, VandeWelle J. Internalizing and externalizing problem behavior in children with nocturnal and diurnal enuresis: A five-factor model perspective. *Journal of Pediatric Psychology* 2005 31(5):460-468.
61. Friman P, Larzelere R, Finney J. Exploring the relationship between thumb-sucking and psychopathology. *Journal of Pediatric Psychology* 1994;19(4):431-441.

62. Castellanos F, Ritchie G, Marsh W, Rapoport J. DSM-IV stereotypic movement disorder: persistence of stereotypies of infancy in intellectually normal adolescents and adults. *Journal of Clinical Psychiatry* 1998;57(3):177-178.
63. Jepson C, Asch D, Hershey J, Ubel P. In a mailed survey, questionnaire length had a threshold effect on response rate. *Journal of Clinical Epidemiology* 2005;58:103-105.
64. Stille C, Primack W, Savageau J. Generalist-subspecialist communication for children with chronic conditions: a regional physician survey. *Pediatrics* 2003;112:1314-1320.
65. McMahon S, Iwamoto M, Massoudi M, Yusuf H, Stevenson J, David F, et al. Comparison of e-mail, fax, and postal surveys of pediatricians. *Pediatrics* 2003;111:e299-e303.
66. Kellerman S, Herold J. Physician response to surveys: a review of the literature. *American Journal of Preventive Medicine* 2001;20:61-67.