

Behavioral Health Screening Measures

1st Stage

MEASURE	AGE RANGE	TIME TO COMPLETE	AVAILABLE LANGUAGES	SOURCE
Ages and Stages: Social-Emotional (ASQ:SE)	6-60 Months	10-15 Minutes	English, Spanish	www.brookespublishing.com (sample form on website)
Brief Infant-Toddler Social and Emotional Assessment (BITSEA)	12-36 Months	7-10 Minutes	English, Spanish	http://harcourtassessment.com
Parent Evaluation of Developmental Status (PEDS)	0-8 Years	10 Minutes	English, Spanish, Vietnamese	www.pedstest.com online test at: www.Forepath.org
Pediatric Symptom Checklist (PSC)	4-16 Years	5-10 Minutes	English, Spanish, Japanese	http://psc.partners.org
Parenting Stress Index—Short Form (PSI-SF)	1 month-12 years	10 Minutes	English	http://www.parinc.com

2nd Stage: Multi-Dimensional

MEASURE	AGE RANGE	TIME TO COMPLETE	AVAILABLE LANGUAGES	SOURCE
Achenbach System of Empirically Based Assessment (ASEBA)	18 months to Adult	20 Minutes	74 Languages	http://ASEBA.uvm.edu
Infant-Toddler Social and Emotional Assessment (ITSEA)	12-36 Months	30 Minutes	English, Spanish	http://harcourtassessment.com

2nd Stage: Single Dimension

MEASURE	DOMAIN	AGE RANGE	TIME TO COMPLETE	SOURCE
Vanderbilt ADHD Diagnostic Scales	ADHD	6-12 Years	10 Minutes	www.brightfutures.org www.vanderbiltchildrens.com
Revised Children's Manifest Anxiety Scale (RC-MAS)	Anxiety	6-19 Years	10 Minutes	www.proedinc.com
Modified Checklist for Autism in Toddlers (M-CHAT)	Autism	16-48 Months	5 Minutes	www.firstsigns.org/downloads/mchat_scoring.pdf www.mchatscreen.com
Children's Depression Inventory (CDI)	Depression	7-17 Years	10 Minutes	www.pearsonassessments.com/tests/cdi.htm
Patient Health Questionnaire (PHQ-9): Modified for Teens	Adolescent Depression	12-18 Years	< 5 Minutes	www.phqscreeners.com
Suicidal Ideation Questionnaire (SIQ)	Suicide	13-18 Years	10 Minutes	www.parinc.com
CRAFFT Test	Substance Abuse	13-20 Years	5 Minutes	www.ceasar-boston.org/clinicians/crafft.php

Improvement Checklist



STEPS TO USING SCREENING AND SURVEILLANCE IN YOUR OFFICE

Careful preparation will increase the likelihood you will successfully implement and sustain new systems for using screening and surveillance in your practice.

Elicit explicit support from practice leaders to use new structured screening tools

- Practice leader support is important when introducing new tools and strategies. Discuss with practice leaders the evidence that supports the use of developmental screening tools. Obtaining staff support for implementing new procedures will help persuade them to participate. Encourage leaders to discuss at staff meetings how soliciting parental concerns will improve patient care.

Assign responsibility for coordinating the use of developmental screening tools

- Identify a staff member to lead and coordinate efforts to incorporate screening into your practice. Consider creating a team of people to undertake this responsibility. It may be helpful to involve representatives of the physician, nursing, and administrative staff because they may all need to participate in implementation.

Communicate with staff about new procedures for screening

- Seeking ideas and input from staff will help you develop the right system for incorporating screening into your practice.
 - Inform staff of the available tools and resources.
 - Share information about how using these tools will improve patient care.
 - Describe how materials will be organized so that staff can easily access materials and information as needed.
 - Train everyone in the practice to provide consistent information to parents about the purpose of the screening and assessment, and how the information benefits their child's care.

Select screening instruments

- Several instruments are available for use in clinic settings.
Consider:
 - Who will ensure that copies of the screening are available? Some tools are protected by copyright and must be ordered from the publisher. Other tools are in the public domain and can be reproduced. Assign someone to monitor the inventory and replenish supplies as needed.
 - Determine the interval for patients to receive the screening.
 - After you have determined the intervals for screening, be sure to think carefully about how you will identify the patients who are supposed to be screened (e.g., flagging charts, incorporating a reminder system into patient appointments).

Determine when the parent will receive the screening

- There are several options for distributing screening tools to parents.
 - Mail or email the screening to families prior to the appointment. Doing so allows the parent more time to complete the information. This option also allows input from daycare providers or others close to the child. Be certain to establish a procedure to follow if parents forget to bring the completed screening to the visit.
 - Give the tool to the parent during the office visit. Some parents may not read well. In this situation, it can be helpful to use a simple form and to offer parents the opportunity to get assistance when completing the tool. Ask parents, "Would you like to complete this on your own or have someone go through it with you?"
 - Determine how you will introduce the screening to parents. Consider explaining to parents that the screening is very important because it helps the physician understand their child's needs

better. Let parents know who they can ask for help if they need assistance. Remind them that all the information is confidential.

Who will distribute and score the screening?

- Office staff can play a key role in performing different screening tasks. Distribute the work across several staff. For instance, a receptionist can be in charge of making sure parents complete the screening while a nursing assistant, nurse, or developmental specialist can score the screening and highlight areas for the clinician to follow-up.

Test out ideas before implementing changes throughout the practice

- Before attempting practice-wide implementation of a new structured screening tool, try it out with five families and review what you learned from those encounters. Ask yourself: "Did this tool uncover important parental concerns I might have missed in the past?; How did the parents react to providing this information?; Do I need more information or training to make this a better interaction?; and How could we improve the flow of getting the parent the tool?" You may find it helpful to repeat such tests several times before you decide which new materials or strategies should be implemented practice-wide. It is important that the team testing new strategies keep track of its efforts to help determine which approaches are successful.

Prepare for the human side of change

- Changes—even those that a practice agrees to make—can be difficult. People react differently to changes. Some staff may resist changes because they are unfamiliar. Some changes may create additional work until everyone is more accustomed to the new routines (e.g., asking added questions during a visit, using a new tool). To already busy clinicians and staff, a change that is perceived as creating more work is likely to be avoided unless the benefit of the change is clear. Describing the benefits, acknowledging that such changes may require extra time, and recognizing everyone's efforts to improve care can increase the likelihood that providers and staff will use new tools and approaches.

Train clinicians and staff

- As you introduce the structured screening tools into your practice you may find using such tools is new to some or all of your clinicians and staff.
 - Consider holding informal training sessions for all staff to present the rationale for using new tools. Include scientific evidence that supports their use. Provide opportunities for questions and review the new tools and how they will be used.
 - Include instructions on any new roles or responsibilities for staff or clinicians.
 - Staff might welcome a session on how to talk about sensitive topics or how to handle difficult situations that may come to light as a result of using the new tools (e.g., maternal depression, family violence).

Determine what to do with completed screenings

- Determine if you need to store completed screenings and where to store them.
- Consider how to incorporate information from the screening into future care. If you are planning to compile data from a sample of screenings to inform quality improvement, determine who will tally and present the data.
- If screening your patients in a structured way uncovers areas where you want to increase your ability as a practice to handle concerns either individually or systematically, develop plans for enhancing those aspects of your practice.

Consider what new resources or referrals your practice may need

- If using structured screening tools is new to your office, you may need to identify community resources for referrals for issues that are revealed by the structured screening approach. Gathering data about the most common concerns of your patients may help you decide which referrals and community resources are the most likely to be needed and used by your patients.

MONITORING PROGRESS

Ask for patient feedback during encounters

- An easy, low technology way to assess your practice's performance is simply to ask families for feedback while they are in the office. When you ask for your patient's input, be prepared to respond.
- Consider running a "feedback drive" once or twice each year in your practice. During your practice's "feedback drive," each clinician and staff person could be instructed to solicit feedback from a set number (e.g., 2 or 3) of patients per day during the course of the drive. A simple feedback tool could be attached to the chart to remind clinicians to collect and provide a place for the data to be recorded. All the completed feedback tools can be summarized and used by the practice to better understand how the patients in the practice perceive their care.
- Regardless of the method you use to collect data from patients on a regular basis, be sure to set aside time at regular practice meetings to share feedback from patients with others on your clinic staff.

The Commonwealth Fund
www.cmwf.org

Pediatric Symptom Checklist

(Jellinek, Murphy, Robinson, et al.)

- Designed to identify emotional, behavioral, and cognitive concerns
- Used for children ages 4-16
- Completed by parents
- Items rated as "Never" (score=0), "Sometimes" (score=1), or "Often" (score=2)
- Two standardized versions
 - 35 items
 - 17 items
- Cut-off scores for each version
 - **35 Items:** 4 and 5 year olds—cut-off score → ≥ 24
6 to 16 year olds—cut-off score → ≥ 28
 - **17 Items:** cut-off score = a total score ≥ 15 OR
heightened score on one or more of three validated subscales:
internalizing → ≥ 5 **externalizing** → ≥ 7 **attention** → ≥ 7
- A score reaching or exceeding the cut-off marker indicates risk for psychosocial impairment and suggests the need for further evaluation

Pediatric Symptom Checklist (PSC)

Emotional and physical health go together in children. Because parents are often the first to notice a problem with their child's behavior, emotions or learning, you may help your child get the best care possible by answering these questions. Please indicate which statement best describes your child.

Please mark under the heading that best describes your child:

		NEVER	SOMETIMES	OFTEN
1. Complains of aches and pains.....	1	_____	_____	_____
2. Spends more time alone.....	2	_____	_____	_____
3. Tires easily, has little energy.....	3	_____	_____	_____
4. Fidgety, unable to sit still..... <i>a</i>	4	_____	_____	_____
5. Has trouble with teacher.....	5	_____	_____	_____
6. Less interested in school.....	6	_____	_____	_____
7. Acts as if driven by a motor..... <i>a</i>	7	_____	_____	_____
8. Daydreams too much..... <i>a</i>	8	_____	_____	_____
9. Distracted easily..... <i>a</i>	9	_____	_____	_____
10. Is afraid of new situations.....	10	_____	_____	_____
11. Feels sad, unhappy..... <i>i</i>	11	_____	_____	_____
12. Is irritable, angry.....	12	_____	_____	_____
13. Feels hopeless..... <i>i</i>	13	_____	_____	_____
14. Has trouble concentrating..... <i>a</i>	14	_____	_____	_____
15. Less interested in friends.....	15	_____	_____	_____
16. Fights with other children..... <i>e</i>	16	_____	_____	_____

Continued on next slide →

	NEVER	SOMETIMES	OFTEN
17. Absent from school.....	17	_____	_____
18. School grades dropping.	18	_____	_____
19. Is down on him or herself...../	19	_____	_____
20. Visits the doctor with doctor finding nothing wrong.....	20	_____	_____
21. Has trouble sleeping.....	21	_____	_____
22. Worries a lot...../	22	_____	_____
23. Wants to be with you more than before.....	23	_____	_____
24. Feels he or she is bad.....	24	_____	_____
25. Takes unnecessary risks.....	25	_____	_____
26. Gets hurt frequently.....	26	_____	_____
27. Seems to be having less fun...../	27	_____	_____
28. Acts younger than children his or her age.....	28	_____	_____
29. Does not listen to rules.....e	29	_____	_____
30. Does not show feelings.....	30	_____	_____
31. Does not understand other people's feelings.....e	31	_____	_____
32. Teases others.....e	32	_____	_____
33. Blames others for his or her troubles.....e	33	_____	_____
34. Takes things that do not belong to him or her.....e	34	_____	_____
35. Refuses to share.....e	35	_____	_____
Total score _____			
Does your child have any emotional or behavioral problems for which she/he needs help? () N () Y			
Are there any services that you would like your child to receive for these problems? () N () Y			
If yes, what services? _____			

Interpretation of a Positive Screen and Follow-Up Activities: General Recommendations

- Protocol for responding to positive screens
 - Determine whether to schedule a separate appointment to present screening results
 - Develop a continuum of intervention options from which to select (Stein, Zitner, & Jensen, 2006)
 - primary care-delivered psychosocial interventions
 - behavioral health/developmental specialist or team based in a primary care
 - linkage with specialty behavioral health services
 - Referral recommendations for further evaluation/intervention should take into consideration: setting(s) in which behavioral health difficulty occurs; developmental status; health status; and family/cultural factors (Squires, Bricker, & Twombly, 2002)
 - Provide assistance to families to ensure that recommended follow-up services are secured

Child's Name: _____

Form Completed By: _____

Date of Birth: _____

Date Form Completed: _____

Pediatric Symptom Checklist: Short Form (PSC-17)

Emotional and physical health go together in children. Because parents are often the first to notice a problem with their children's behavior, emotions, or learning, you may help your child get the best care possible by answering these questions.

Please mark under the heading that best describes your child:					For office use		
		NEVER	SOMETIMES	OFTEN	I	A	E
1	Fidgety, unable to sit still						
2	Feels sad, unhappy						
3	Daydreams too much						
4	Refuses to share						
5	Does not understand other people's feelings						
6	Feels hopeless						
7	Has trouble concentrating						
8	Fights with other children						
9	Is down on him- or herself						
10	Blames others for his or her troubles						
11	Seems to be having less fun						
12	Does not listen to the rules						
13	Acts as if driven by a motor						
14	Teases others						
15	Worries a lot						
16	Takes things that do not belong to him or her						
17	Distracted easily						
					S		
Neg Scn _____ -FOR OFFICE USE ONLY- (TS≥15) _____ (Int≥5) _____ (Att≥7) _____ (Ext≥7) _____ = Pos Scn _____					TS		

Additional Questions:

Do you feel that your child has any emotional or behavioral problems for which she or he needs help? No Yes

Do you or your child receive support services or other help for any of the above difficulties? No Yes

If yes, what services? _____

Questionnaire based on the Pediatric Symptom Checklist (M. Jellinek) and the PSC-17 (W. Gardner, M. Murphy, G. Childs et al.)

Physician Report
Behavior and Developmental Screening

FRONT DESK

Date: _____

Account #: _____

Name: _____

EXAM ROOM

Child/Adolescent Gender: ___ Male ___ Female

Child/Adolescent Age: _____

Screening Tool(s):

- ___ Pediatric Symptom Checklist- Parent Rating
- ___ Pediatric Symptom Checklist- Youth Rating (ages 13 – 16)
- ___ CRAFFT—Screening for substance risk factors
- ___ M-CHAT—Screening for Autism
- ___ Ages and Stages

RESULTS OF SCREENING QUESTIONNAIRES:

Parent Completed Tool:

Adolescent Completed Tools:

___ Negative

___ Negative

___ Positive

___ Positive: PSCL ___; CRAFFT ___

PHYSICIAN ASSESSMENT:

RECOMMENDATIONS: (check all that apply):

1. ___ Results of screening reviewed with patient and parent.
2. ___ Family will monitor symptoms and will initiate re-assessment as needed
3. ___ Consultation with primary care Pediatrician (e.g., counseling, handouts)
4. ___ Referral to in-house Behavioral Health Team member:
 - a. ___ Consulting Pediatrician—Dr. Hodder
 - b. ___ Developmental Pediatrician—Dr. Parikh
 - c. ___ Psychologist—Dr. Barbara Ward-Zimmerman
5. ___ Referral to Community Resource,
 - a. Specify: _____
6. ___ Child/Family already engaged in appropriate services,
 - a. Specify: _____
7. ___ Family not interested in further evaluation/services at this time
8. ___ Other, Specify: _____

Physician Signature: _____

Child's Name: _____

Form Completed By: _____

Date of Birth: _____

Date Form Completed: _____

Pediatric Symptom Checklist: Short Form (PSC-17)

Emotional and physical health go together in children. Because parents are often the first to notice a problem with their children's behavior, emotions, or learning, you may help your child get the best care possible by answering these questions.

Please mark under the heading that best describes your child:					For office use			
		NEVER	SOMETIMES	OFTEN	I	A	E	
1	Fidgety, unable to sit still							
2	Feels sad, unhappy							
3	Daydreams too much							
4	Refuses to share							
5	Does not understand other people's feelings							
6	Feels hopeless							
7	Has trouble concentrating							
8	Fights with other children							
9	Is down on him- or herself							
10	Blames others for his or her troubles							
11	Seems to be having less fun							
12	Does not listen to the rules							
13	Acts as if driven by a motor							
14	Teases others							
15	Worries a lot							
16	Takes things that do not belong to him or her							
17	Distracted easily							
					S			
Neg Scn					FOR OFFICE USE ONLY: (TS≥15) (Int≥25) (Att≥27) (Ext≥27) = Pos Scn			TS

Additional Questions:

Do you feel that your child has any emotional or behavioral problems for which she or he needs help? No Yes
 Do you or your child receive support services or other help for any of the above difficulties? No Yes
 If yes, what services? _____

Questionnaire based on the Pediatric Symptom Checklist (M. Jellinek) and the PSC-17 (W. Gardner, M. Murphy, G. Childs et al.)

Pediatric Symptom Checklist

(Jellinek, Murphy, Robinson, et al.)

Please mark under the heading
that best fits your child

	NEVER	SOMETIMES	OFTEN	I	A	E
a 1. Fidgety, unable to sit still			
i 2. Feels sad, unhappy			
a 3. Daydreams too much			
e 4. Refuses to share			
e 5. Does not understand other people's feelings			
i 6. Feels hopeless			
a 7. Has trouble concentrating			
e 8. Fights with other children			
i 9. Is down on him or herself			
e 10. Blames others for his or her troubles			
i 11. Seems to be having less fun			
e 12. Does not listen to rules			
a 13. Acts as if driven by a motor			
e 14. Teases others			
i 15. Worries a lot			
e 16. Takes things that do not belong to him or her			
a 17. Distracted easily			
						SUM

To score: For 'never', write 0 in the lightly shaded box on the right. For 'sometimes', write 1. For 'often', write 2. Sum the columns. The PSC-17 internalizing (PSC17-I) score is the sum of column I, the attention score (PSC17-A) is the sum of column A, and the externalizing score (PSC17-E) is the sum of column E. The PSC-17 total score is PSC17-I + PSC17-A + PSC17-E. Positive scores are PSC17-I, 5; PSC17-A, 7; or PSC17-E, 7. A positive PSC17 total score is 15.

Gardner, W., Murphy, M., Childs, G., Kelleher, K., Pagano, M., Jellinek, M., McInerney, T., Wasserman, M., Nutting, P., Chiappetta, L. (1999). *Ambulatory Child Health*. Based on the Pediatric Symptom Checklist (M. Jellinek).

Pediatric Symptom Checklist

(Jellinek, Murphy, Robinson, et al.)

... a positive score on the PSC-17 is not a diagnosis and should not be used to label a child. It is a signal for further examination of the child and family.

The PSC, however, includes questions for parents about more specific classes of problems, including internalizing, externalizing, and attention problems.¹⁵ Internalizing problems mainly involve inner distress on the part of the child. PSC ques-

tions about internalizing problems include, 'Does this child feel hopeless?' and, 'Does this child feel he/she is bad?' Externalizing problems primarily involve conflicts with others. Questions about externalizing problems include, 'Does this child not listen to rules?' and, 'Does this child fight with other children?' PSC questions about attention problems include, 'Does this child have trouble concentrating?' and, 'Does this child daydream too much?' Inspection of these items suggested that it would be possible to construct subscales of the PSC that screened for distinct domains of child psychopathology.

Name: _____

Today's Date: _____

Age: _____ Grade: _____

Pediatric Symptom Checklist – Youth Report (Y- PSC)

Please mark under the heading that best suits you:

		Never	Sometimes	Often
1. Complain of aches or pains	1	_____	_____	_____
2. Spend more time alone	2	_____	_____	_____
3. Tire easily, little energy	3	_____	_____	_____
4. Fidgety, unable to sit still	4	_____	_____	_____
5. Have trouble with teacher	5	_____	_____	_____
6. Less interested in school	6	_____	_____	_____
7. Act as if driven by a motor	7	_____	_____	_____
8. Daydream too much	8	_____	_____	_____
9. Distract easily	9	_____	_____	_____
10. Are afraid of new situations	10	_____	_____	_____
11. Feel sad, unhappy	11	_____	_____	_____
12. Are irritable, angry	12	_____	_____	_____
13. Feel hopeless	13	_____	_____	_____
14. Have trouble concentrating	14	_____	_____	_____
15. Less interested in friends	15	_____	_____	_____
16. Fight with other children	16	_____	_____	_____
17. Absent from school	17	_____	_____	_____
18. School grades dropping	18	_____	_____	_____
19. Down on yourself	19	_____	_____	_____
20. Visit doctor with doctor finding nothing wrong	20	_____	_____	_____
21. Have trouble sleeping	21	_____	_____	_____
22. Worry a lot	22	_____	_____	_____
23. Want to be with parent more than before	23	_____	_____	_____
24. Feel that you are bad	24	_____	_____	_____
25. Take unnecessary risks	25	_____	_____	_____
26. Get hurt frequently	26	_____	_____	_____
27. Seem to be having less fun	27	_____	_____	_____
28. Act younger than children your age	28	_____	_____	_____
29. Do not listen to rules	29	_____	_____	_____
30. Do not show feelings	30	_____	_____	_____
31. Do not understand other people's feelings	31	_____	_____	_____
32. Tease others	32	_____	_____	_____
33. Blame others for your troubles	33	_____	_____	_____
34. Take things that do not belong to you	34	_____	_____	_____
35. Refuse to share	35	_____	_____	_____

For office use only:

N Scn _____

P Scn (≥ 30) _____

OVER PLEASE →

Name: _____

T y's Date: _____

Age: _____ Grade: _____

CRAFFT

Please check "Yes" or "No" for each of the following questions:

Yes

No

- C Have you ever ridden in a *car* driven by someone (including yourself) who was "high" or had been using alcohol or drugs? _____
- R Do you ever use alcohol or drugs to *relax*, feel better about yourself, or fit in? _____
- A Do you ever use alcohol or drugs while you are by yourself, *alone*? _____
- F Do you ever *forget* things you did while using alcohol or drugs? _____
- F Do your family or *friends* ever tell you that you should cut down on your drinking or drug use? _____
- T Have you ever gotten into *trouble* while you were using alcohol or drugs? _____

For office use only:

N Scn _____

P Scn _____

Please check "Yes" or "No" for each of the following questions:

Yes

No

- 1 Are you satisfied with your weight? _____
- 2 Do any of your friends smoke or chew tobacco? _____
- 3 Do you think about cutting or harming yourself in any way? _____
- 4 Do you receive help (for example, counseling) for any difficulties that you are experiencing? _____

Things you would most like to talk about with your doctor today:

A Survey From Your Healthcare Provider — PSC-Y

Name		Date	ID		
Please mark under the heading that best fits you or circle Yes or No			Never 0	Sometimes 1	Often 2
-	1. Complain of aches or pains				
-	2. Spend more time alone				
-	3. Tire easily, little energy				
●	4. Fidgety, unable to sit still				
-	5. Have trouble with teacher				
-	6. Less interested in school				
●	7. Act as if driven by motor				
●	8. Daydream too much				
●	9. Distract easily				
-	10. Are afraid of new situations				
▲	11. Feel sad, unhappy				
-	12. Are irritable, angry				
▲	13. Feel hopeless				
●	14. Have trouble concentrating				
-	15. Less interested in friends				
■	16. Fight with other children				
-	17. Absent from school				
-	18. School grades dropping				
▲	19. Down on yourself				
-	20. Visit doctor with doctor finding nothing wrong				
-	21. Have trouble sleeping				
▲	22. Worry a lot				
-	23. Want to be with parent more than before				
-	24. Feel that you are bad				
-	25. Take unnecessary risks				
-	26. Get hurt frequently				
▲	27. Seem to be having less fun				
-	28. Act younger than children your age				
■	29. Do not listen to rules				
-	30. Do not show feelings				
■	31. Do not understand other people's feelings				
■	32. Tease others				
■	33. Blame others for your troubles				
■	34. Take things that do not belong to you				
■	35. Refuse to share				
◆	36. During the past three months, have you thought of killing yourself?			Yes	No
◆	37. Have you ever tried to kill yourself?			Yes	No

Source: Pediatric Symptom Checklist – Youth Report (PSC-Y) (Authors: Drs. Michael Jellinek, Michael Murphy, Sarah Bishop, and Maria Pagano)

FOR OFFICE USE ONLY

Cutoff Scores for Interpretation:

I ≥ 5 ▲

E ≥ 7 ■

A ≥ 7 ●

TS _____

Q 36 or Q 37=Y ◆ TS ≥ 30

- Plan for Follow-up Annual screening Return visit w/ PCP Referred to counselor
 Parent declined Already in treatment Referred to other professional

INSTRUCTIONS FOR USE

Pediatric Symptom Checklist

INSTRUCTIONS FOR SCORING

The Pediatric Symptom Checklist is a psychosocial screen designed to facilitate the recognition of cognitive, emotional, and behavioral problems so that appropriate interventions can be initiated as early as possible. Included here are two versions, the parent-completed version (PSC) and the youth self-report (Y-PSC). The Y-PSC can be administered to adolescents ages 11 and up.

The PSC consists of 35 items that are rated as "Never," "Sometimes," or "Often" present and scored 0, 1, and 2, respectively. The total score is calculated by adding together the score for each of the 35 items. For children and adolescents ages 6 through 16, a cutoff score of 28 or higher indicates psychological impairment. For children ages 4 and 5, the PSC cutoff score is 24 or higher (Little et al., 1994; Pagano et al., 1996). The cutoff score for the Y-PSC is 30 or higher. Items that are left blank are simply ignored (i.e., score equals 0). If four or more items are left blank, the questionnaire is considered invalid.

HOW TO INTERPRET THE PSC OR Y-PSC

A positive score on the PSC or Y-PSC suggests the need for further evaluation by a qualified health (e.g., M.D., R.N.) or mental health (e.g., Ph.D., L.I.C.S.W.) professional. Both false positives and false negatives occur, and only an experienced health professional should interpret a positive PSC or Y-PSC score as anything other than a suggestion that further evaluation may be helpful. Data from past studies using the PSC and Y-PSC indicate that two out of three children and adolescents who screen positive on the PSC or Y-PSC will be correctly identified as having moderate to serious impairment in psychosocial functioning. The one child or adolescent "incorrectly" identified usually has at least mild impairment, although a small percentage of children and adolescents turn out to have very little or no impairment (e.g., an adequately functioning child or adolescent of an overly anxious parent). Data on PSC and Y-PSC negative screens indicate 95 percent accuracy, which, although statistically adequate, still means that 1 out of 20 children and adolescents rated as functioning adequately may actually be impaired. The inevitability of both false-positive and false-negative screens underscores the importance of experienced clinical judgment in interpreting PSC scores. Therefore, it is especially important for parents or other laypeople who administer the form to consult with a licensed professional if their child receives a PSC or Y-PSC positive score.

For more information, visit the Web site: <http://psc.partners.org>.

REFERENCES

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Rx for a Healthy Practice

Discourse on the business of medicine

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Using the PSC *in the pediatrician's office*

The Pediatric Symptom Checklist
lets health care providers
screen for mental health
issues in children—a critically
overlooked area.

Primary care settings are a critical site for the early recognition of children with psychosocial dysfunction and evolving psychiatric disorders. Epidemiological studies indicate that many parents come with psychosocial concerns, and approximately 10% of 4- to 16-year-olds have significant dysfunction.¹⁻³

However, primary care clinicians face numerous barriers, and frequently do not provide children appropriate mental health treatments or referrals to specialists.⁴ Studies indicate that less than 30% of children with substantial dysfunction are recognized by primary care clinicians.⁵ And nationally, referral rates of children seen by pediatricians to mental health services range from 1% to 4%.⁶ Barriers to providing needed psychosocial services to children include insufficient training, the stigma felt by the child and family, very limited or no reimbursement,

and lack of a brief screening method that not only identifies children at risk, but also fits seamlessly into the workflow of a pediatric primary care office.³

The Pediatric Symptom Checklist (PSC) was developed as a screening tool to help pediatricians improve recognition of children with psychosocial dysfunction who could thus benefit from further evaluation. The PSC is a one-page questionnaire that can be completed in approximately three minutes, and reflects parents' impressions of their children's psychosocial functioning. The standard parent-completed PSC form consists of 35 items that are rated as "never," "sometimes," or "often present," and scored 0, 1, or 2, respectively. The scores for each question are added together to yield a single total score, which can be tabulated in under a minute. The PSC is public domain, so can be used free of charge.

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The goal of the PSC is to help pediatric primary care clinicians improve their recognition of 4- to 16-year-old patients who have psychosocial dysfunction in a major area of their daily life—home, school, friends, activities, and/or mood. Recognition should lead to a further assessment by the clinician, confirming the areas of dysfunction, assessing severity, and then, if necessary, suggesting a follow-up visit or a referral for more comprehensive evaluation. The PSC is not meant to yield a definitive diagnosis, nor be part of a simple algorithm to prescribing medications.

Use in office practice

The PSC has been translated into more than a dozen languages, including English, Spanish, Chinese, Hmong, Creole, Dutch, German, and Swahili. A pictorial version of the PSC is available in both English and Spanish. There is a self-report PSC for youth (PSC-Y) available in English, Spanish, French, Haitian-Creole and Brazilian-American Portuguese, and a shorter PSC-17 with subscales, all available at no cost at http://psc.partners.org/psc_order.htm.⁷

In many practices, the PSC is given out at registration during the annual visit, or mailed ahead as part of a pre-visit packet. Clinicians may score the form themselves or have a receptionist attach the scored form to the paperwork related to other screenings (eg, height, weight, hematocrit) they hand to the pediatrician.

For children aged 6 through 16, the cutoff score is 28 or higher (28=impaired; 27=not impaired). The cutoff score recommended is based on large national samples in the US where a score of 28+ identifies about 12% of children as being at risk.⁸ For children ages 3 to 5, the scores on school-related items 5, 6, 17, and 18 are ignored since they are not relevant; a total score based on the 31 remaining items is completed, with the cutoff score for these younger children being 24 or greater.

Conceptually, the PSC is based on the finding that children who have substantial dysfunction in one area commonly have difficulty functioning in other areas. A positive PSC score usually reflects that a child's parents have marked "often" in multiple areas of concern. Scores above the cut point on the PSC occur in 5% to 20% of most populations. This range reflects the fact that economic and cultural factors impact psychosocial functioning and reporting. For example, we have found the children living in poverty who

face many stressors are more likely than middle-class children to score positive on the PSC.

Different cultures may have different cutoff scores. Pediatricians whose practices serve a distinct culture should begin by collecting data on a number of cases to ascertain the accuracy of a cut-off score of 28 for their populations. For example, in Japan, a recommended cutoff score is 17, in European samples it is 24 or 25, and in a newly immigrant Mexican-American sample it is just 12.

If a pediatrician sees 50 patients aged 4 to 16 a week, approximately five (10%) will have positive screens. One or two of these patients may already be known to the physician, and be receiving mental health services. The other three should be asked several questions about the major areas of their daily life—school performance, family relationships, activities, friendships, and their mood (eg, self-esteem, depression). This follow-up interview should last 10 to 15 minutes, and yield enough information to assess the next step—watchful waiting, a follow-up pediatric visit, or mental health referral.

The PSC has been validated by comparing it to the longer Child Behavior Checklist (CBCL), comparing PSC scores to the Children's Global Assessment Scale (CGAS) ratings of impairment, and the presence of psychiatric disorder in a variety of pediatric and subspecialty settings representing diverse socioeconomic backgrounds. The PSC is validated for the full range of pediatric practices, and has been found to be a well-accepted choice as an instrument for screening.⁹

Recent trends and mandates

Routine screening for psychosocial problems in pediatrics has also become a matter of policy in the guidelines for Medicaid and, specifically, the EPSDT (Early Periodic Screening, Diagnosis, and Treatment) program.¹⁰ Motivated by both mandates and class action lawsuits,¹¹ the states of Arizona, Massachusetts,

Point Taken

If a pediatrician sees 50 patients aged 4 to 16 a week, approximately five (10%) will have positive PSC screens: only one or two will be known to you.

Minnesota, Tennessee, and others now recommend the PSC as one option to fulfill the mental health screening requirements.

In Massachusetts, a federal judge recently ruled in favor of a class action lawsuit brought by legal advocates against the state's inadequate mental health system. As part of the court-ordered remedy, he required the state screen all children on Medicaid for autism, psychosocial dysfunction, and substance abuse in adolescence. Massachusetts Medicaid and some private insurers now offers a \$10 reimbursement for the administration and scoring of the PSC, in addition to the reimbursement for the visit. A code can be added to the bill for a routine visit for additional reimbursement, to cover the time used interviewing the families whose children had positive PSCs.

Conclusion

The PSC is a brief psychosocial screening questionnaire that fits into the workflow of pediatric primary care settings. It is free, and meets the EPSDT requirements in a growing number of states. A precedent has not been set with Medicaid and commercial insurers for obtaining reimbursement for its routine use. The use of the PSC is consistent with the principles set forth by the American Academy of Pediatrics regarding the Medical Home, and has been recommended in *Bright Futures: Mental Health*.¹²

Although the PSC now offers an approach to recognition of psychosocial disorders, other barriers still exist. Some pediatricians are too busy, or feel ill at ease or ill-equipped to address psychosocial issues. A practice called co-location may be useful for those pediatricians who feel unequipped to deal with some mental health issues. In co-location, psychologists or social workers are hired or lease space within the pediatric practice to evaluate and treat children identified by the PSC.

Even so, other barriers remain in many communities, due to the shortage of child and adolescent psychiatrists and/or mental health

Point Taken

The Pediatric System Checklist is a first step in helping primary care practitioners recognize and approach the psychosocial needs of their patients.

professionals with pediatric expertise. Reimbursement for the pediatrician and the mental health clinician is often inadequate, and many communities do not have adequate support services.

Nevertheless, children who are having substantial psychosocial dysfunction deserve to be identified, assessed, and treated, and in many communities there are some options available.

The PSC (Table 1 on page 52) is a reasonable first step in helping primary care pediatricians recognize and approach the psychosocial needs of their patients. For some practices, it can be the starting point for providing at least some mental services within their practice. □

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Rx for a Healthy Practice

Table 1

Pediatric Symptom Checklist (PSC) Emotional and physical health go together in children. Because parents are often the first to notice a problem with their child's behavior, emotions or learning, you may help your child get the best care possible by answering these questions. Please mark under the heading that best fits your child. (credit: Jellinek MS, Murphy JM)

Child's Name: _____ Date of Birth: _____ Filled out by: _____

Record Number: _____ Today's Date: _____

	(0) Never	(1) Sometimes	(2) Often		(0) Never	(1) Sometimes	(2) Often
1. Complains of aches/pains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19. Is down on him- or herself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Spends more time alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20. Visits doctor with doctor finding nothing wrong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Tires easily, has little energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	21. Has trouble sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fidgety, unable to sit still	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	22. Worries a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Has trouble with a teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	23. Wants to be with you more than before	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Less interested in school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	24. Feels he or she is bad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Acts as if driven by a motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	25. Takes unnecessary risks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Daydreams too much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	26. Gets hurt frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Distracted easily	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	27. Seems to be having less fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Is afraid of new situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	28. Acts younger than children their age	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Feels sad, unhappy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	29. Does not listen to rules	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Is irritable, angry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30. Does not show feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Feels hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31. Does not understand other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Has trouble concentrating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32. Teases others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Less interest in friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33. Blames others for his or her troubles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Fights with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34. Takes things that do not belong to him or her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Absent from school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35. Refuses to share	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. School grades dropping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TOTAL SCORE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Does your child have any emotional or behavioral problems for which she/he needs help? YES NO

Are there any services that you would like your child to receive for these problems? YES NO

If yes, what services? _____

The PSC-17: a brief pediatric symptom checklist with psychosocial problem subscales.

A report from PROS and ASPN

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ABSTRACT

Objective

Primary care practitioners often fail to recognize psychosocial problems in children. The Pediatric Symptom Checklist (PSC) is a validated parental-report screen for these problems, with more than a decade of use in a wide range of studies and practices. We used factor analysis to create a briefer version of the PSC, to find subscales for specific psychosocial problems, and to determine if the shorter instrument met criteria for validity.

Settings and sample

The data were: (a) parental reports on 18,045 children seen in a national sample of primary care offices and (b) parental and child reports of 406 children seen in a hospital-based, mental health clinic.

Design and methods

Primary care data: each participating clinician enrolled a consecutive sample of approximately 65 children aged 4-15 years presenting for non-emergency care in the presence of a parent or primary caretaker. Parents completed the PSC during the office visit. Mental health clinic data: children were recruited from outpatient and inpatient programs, school-based clinics, and community physicians.

Results

We performed a cross-validated factor analysis on the PSC to determine whether we could shorten it and create subscales to screen for multiple dimensions of psychopathology. Results confirmed the existence of subscales for internalizing, attention, and externalizing problems. These subscales had strong face validity and high internal consistency. We then used the mental health clinic data to validate the subscales by computing receiver operating characteristic (ROC) curves against previously validated screening instruments. The ROC curves had good area under the curve statistics (range 0.83-0.89), with good sensitivities (0.77-0.87) and specificities (0.68-0.80) at the optimal cut-off points.

Implications for practice

Clinicians looking for a brief parent screening tool may wish to use the PSC-17. A child's profile on the internalizing, externalizing, and attention

subscales can provide clinicians with directions to pursue in further assessment of the children.

Keywords

children's psychosocial problems, primary care, screening

Introduction

Epidemiological studies indicate that 5–15% of American children have serious problems in psychosocial functioning.^{1–3} Most of these children do not receive specialty mental health services, but are seen in general medical settings.^{4,5} Unfortunately, primary care practitioners have had low recognition rates of these problems.^{6,7} This means that many children who might benefit from medication, counseling, specialist referrals, or mental health treatment do not receive these services.

This article is a report from a project to develop a multiple-stage child mental health assessment procedure for use in primary care settings. The first stage of this assessment procedure is a brief parent questionnaire intended to help the clinician screen children who need assessments that are more intensive. This instrument is a shortened version of the Pediatric Symptom Checklist (PSC).^{8–10} The PSC is a screening tool for identifying psychosocial problems in primary care settings. It has been extensively validated, including validations in several populations of special interest.^{11–14} Our goal was to derive a screening instrument from the PSC that was not only briefer, but also provided guidance to the clinician about how to proceed in the second stage of the multistage assessment.

To this end, we analyzed the PSC to determine whether we could shorten it and create subscales to screen for specific psychosocial problems. This is a departure from the original goals of the PSC. The designers of the PSC did not intend it to identify children who had mild or even moderate symptoms in a specific domain. Instead, they intended it to

identify children whose overall functioning was significantly impaired. Consistent with this goal, previous studies of the PSC have focused on its total score, which signals to the provider that the child may have a psychosocial problem requiring further investigation.

... a positive score on the PSC-17 is not a diagnosis and should not be used to label a child. It is a signal for further examination of the child and family.

The PSC, however, includes questions for parents about more specific classes of problems, including internalizing, externalizing, and attention problems.¹⁵ Internalizing problems mainly involve inner distress on the part of the child. PSC ques-

tions about internalizing problems include, 'Does this child feel hopeless?' and, 'Does this child feel he/she is bad?' Externalizing problems primarily involve conflicts with others. Questions about externalizing problems include, 'Does this child not listen to rules?' and, 'Does this child fight with other children?' PSC questions about attention problems include, 'Does this child have trouble concentrating?' and, 'Does this child daydream too much?' Inspection of these items suggested that it would be possible to construct subscales of the PSC that screened for distinct domains of child psychopathology.

Creation of PSC subscales would enhance its value in three ways. First, the subscales might increase the sensitivity of the PSC as a screen for a child's psychosocial problems. A screen based on the PSC total score might miss children with pronounced psychopathology confined to only one problem domain. Because this condition might be associated with only a few PSC items, such children may fail to obtain a total score above the cut-off. Second, among children with psychosocial problems requiring a clinical response, the subscales would provide information to clinicians about directions for evaluation or treatment. Finally, although the PSC is easier for parents to complete than instruments such as the Child Behavior Checklist,¹⁶ day-to-day primary

care practice requires that instruments be as brief as possible. Therefore, we sought to reduce the number of PSC items with the minimum compromise of the sensitivity of the instrument.

Methods

A large study of children seen in practice settings provided a dataset suitable for psychometric analyses.¹⁷ The size of this dataset made it ideal for the factor analytic methods employed in this analysis.

To validate the subscales and establish cutpoints, we administered the PSC-17 and three established parent report instruments to 406 children in a hospital-based child psychiatry clinic. The instruments were the Iowa Connors rating scale,¹⁸ which has subscales for aggression and inattention-overactivity, and the Screen for Anxiety-Related Emotional Disorders (SCARED),¹⁹ a screen for internalizing disorders. These three scales provided validity data for the PSC-17 subscales for externalizing, attention, and internalizing problems, respectively.

Sites and settings

Primary care office visit data

Two large primary care research networks participated in this study (Ambulatory Sentinel Practice Network, ASPN, Denver, CO and Pediatric Research in Office Settings, PROS, Elk Grove Village, IL). A complete list of the participating practices is published in an appendix to this study. PROS is a primary care practice-based research network including over 1300 practitioners from more than 475 pediatric practices in all 50 states and the Commonwealth of Puerto Rico. ASPN includes 125 practices in 38 states and six Canadian provinces, composed of approximately 750 clinicians. Of the 206 practices participating in the Child Behaviour Study (CBS), 30% were urban, 38% suburban, and 32% were rural.

All clinicians participating in the Child Behavior Study (Principal Investigator: Kelleher, MH, Grant number 50629) were included for this research (401 clinicians in 44 states, the Commonwealth of Puerto Rico, and four Canadian Provinces). Prior research from both ASPN and PROS confirms the comparability of patients, clinicians, and practices in primary care network studies

with those identified in national samples. In addition, we compared participating clinicians to a random sample of pediatricians from the American Academy of Pediatrics (AAP) on demographic factors, practice characteristics and attitudes on treatment of psychosocial problems. We found few differences between the participating clinicians and the other clinicians.

Mental health clinic data

The children were seen at a clinic in a major psychiatric hospital. The children were recruited from outpatient and inpatient programs, school-based clinics, and community physicians. Informed consent was obtained from children and their parents.

Samples

Child behavior study data

Each participating clinician enrolled a consecutive sample of approximately 65 children aged 4–15 years presenting for non-emergency care in the presence of a parent or primary caretaker. We enrolled a child only once, and did not include families for whom adequate translation services were unavailable. We also excluded children being seen for procedures only. We compared participating children to eligible but non-participating children on the basis of age and gender, and no differences were found. In addition, we examined whether clinician or practice characteristics might affect participation, including clinician discipline, geographical region, practice population size, percentage of managed-care patients, and clinician attitudes toward mental health treatment. Only those clinicians located in the West seemed to include a higher percentage of their eligible participants (85 compared with 81%); none of the other sources of selection bias were statistically significant. We included only cases with complete PSC data in this analysis (18,045 cases). Table 1 summarizes the characteristics of the children and their families.

Clinical validation data

The clinical dataset included 406 children between the ages of 4 and 15, and 71% were male. The children were screened at a clinic in a major psychiatric hospital. The children were recruited from outpatient and inpatient programs, school-based clinics, and community physicians. The children had either been referred to

Table 1: Characteristics of children and families

Child/family variables	Category	Percent
Child's age	4-7 years	46
	8-11	31
	12-15	23
Percent female		50
Race/ethnicity	White	87
	African-American	6
	Hispanic	7
	Other	<1
Highest parental education	No parent > high school	22
	One parent > high school	56
	One parent > college	22
Insurance types*	Managed care	55
	Fee-for-service	37
	Uninsured	4
	Canadian	3
	Medicaid	16

n = 18,045. *Insurance Type percentages do not add to 100% because the categories are not mutually exclusive.

those settings for psychosocial assessments or were already receiving services there for psychosocial problems. Informed consent was obtained from children and their parents. The parent(s) of the children filled out several diagnostic surveys, including the PSC-17, the SCARED,¹⁹ and the Iowa Connors rating scale.¹⁶

Pediatric symptom checklist

The PSC is a 35-item questionnaire reviewing a parent's impressions of a child's symptoms and behaviors. Parents rate each symptom as occurring 'often' (2 points), 'sometimes' (1 point), or 'never' (0 points). The PSC has strong internal consistency, test-retest reliability, and validity with psychiatric assessments of child functioning.^{11,12,14,20} There is good concordance between the longer Child Behavior Checklist and the PSC,⁹ and the PSC is a valid and reliable measure for minority and disadvantaged youth.^{11,14} Parents completed the PSC after providing informed consent and before their visit with the primary care clinician.

The PSC includes four items that assess a child's school functioning. Because these items are frequently missing for children aged 6 years and younger, the authors of the PSC have validated a 31-item version of the form for use with pre-school-aged children (Michael Murphy, pers. comm.). In this study, we removed the school-related items from our analyses so that we could avoid excluding younger children from our sample.

Results

PSC total score

Twelve percent of children had positive PSC scores (total score > 27), compared with a range of 11 to 22% in previous studies. However, studies with the highest proportions of positive scores (21 and 22%) included children from inner-city settings, whereas the other studies reported 11-14% positive scores. Thus, these data appear to be comparable with most of the research using the PSC.

Factor analysis

We performed a cross-validated factor analysis on the PSC to determine whether we could shorten it and create subscales to screen for multiple dimensions of psychopathology. The scales reported here were first developed using a random 45% subset of the entire data reported here. Using non-orthogonal (promax) rotation²¹ techniques, we found three conceptually coherent clusters of items. The clusters included items for parental reports about 'internalizing', 'attention' and 'externalizing' problems (the italicized items in Table 2). Later, when more data were available for analysis, we assessed the stability of our model by randomly splitting the complete (*n* = 18,045) data into two groups and fitting the same three-factor models with promax rotations in each group. The results of these cross-validation analyses were substantively identical to those we obtained originally, and were highly stable across subgroups. For example, the average of the absolute values of the differences across groups in the factor pattern matrix coefficients (the statistics in Table 2) was 0.02. We also factor-analyzed the data separately for boys and girls. Again, the results were substantively identical, with the average of the absolute values of the differences across

Table 2: Factor pattern matrix

Item	Factor		
	Internalizing	Externalizing	Attention
Feel sad	0.59	0.16	-0.06
Feel hopeless	0.64	0.02	0.05
Feel down on self	0.70	-0.03	0.07
Worry a lot	0.68	-0.10	0.01
Seem to have less fun	0.61	0.07	0.00
Fight with other children	0.06	0.60	0.01
Not listen to rules	-0.06	0.56	0.27
Not understand others' feelings	0.13	0.53	0.06
Tease others	0.19	0.54	0.03
Blame others	-0.06	0.68	-0.07
Refuse to share	0.03	0.64	-0.06
Steal things	-0.08	0.60	0.04
Fidget	-0.12	0.21	0.62
Daydream too much	0.22	-0.13	0.56
Easily distracted	-0.02	-0.02	0.88
Trouble concentrating	0.16	-0.02	0.72
Act as if driven by motor	-0.12	0.26	0.50
Complain of aches/pains	0.35	0.00	-0.05
Spend more time alone	0.41	0.02	0.02
Tire easily	0.49	-0.13	-0.02
Afraid of new situations	0.19	0.15	0.30
Feel irritable	0.30	0.22	0.02
Less interest in friends	0.35	0.06	0.08
Dr finds nothing wrong	0.40	0.34	-0.02
Trouble sleeping	0.44	0.05	0.07
Be with you more	0.15	0.10	-0.01
Feel he/she is bad	0.34	0.06	0.10
Take unnecessary risks	0.3	0.15	0.08
Get hurt quickly	0.39	0.23	0.08
Act younger than age	0.02	0.40	0.24
Not show feelings	0.13	0.26	0.16

$n = 18,045$.

genders in the factor pattern matrix coefficients equal to 0.03.

The PSC-17 subscales

We created subscales for internalizing, attention, and externalizing problems by adding scores for the items indicated in Table 2. A PSC-17 total score was calculated by summing all 17 items. Table 3 reports Cronbach's α , a measure of the internal consistency of a summative scale. Cronbach's α was high for each subscale, indicating that the items have similar meanings for a parent reporting his or her impressions of

a child. Cronbach's α was also high for the PSC-17, reflecting the correlation among the factors.

The internalizing, attention, and externalizing problem subscales were substantially correlated (for internalizing and externalizing, $r = 0.46$; for internalizing and attention, $r = 0.46$; and for externalizing and attention, $r = 0.58$; $n = 18,045$). The correlation among the subscales most likely reflects frequent comorbidity among the problem domains. However, because the PSC is a parent-report instrument, variation among parents in tendencies to under-report or over-report psychosocial problems will also contribute to correlations among PSC items and therefore correlation among PSC subscales.

Table 3: Summary statistics for PSC-17 subscales

Scale	Max	Mean	SD	Cut	AUC	Sensitivity	Specificity	% Pos.	α
Internalizing	10	1.8	1.9	= 5	82%	79%	68%	10%	0.79
Externalizing	14	3.8	2.8	= 7	87%	77%	80%	17%	0.83
Attention	10	2.8	2.5	= 7	90%	87%	79%	10%	0.83
PSC-17	30	8.4	5.9	= 15	88%	82%	81%	15%	0.89

The minimum scores are zero on each scale. $n = 18,045$.

Validation of PSC-17 scores against other parent report instruments

Next, we examined whether the PSC-17 identified similar cases to those identified by established parent-report instruments. The PSC-17 internalizing subscale was compared to the SCARED, the externalizing subscale was compared to the Iowa Connors aggression scale, and the Attention Subscale was compared to the Iowa Connors inattention–overactivity scale. Receiver operating characteristic (ROC) curves were calculated to select cutpoints on the PSC-17 and the PSC-17 subscales that optimized their sensitivities and specificities. To validate the total PSC-17 score, we created a problem score that was positive if the child was positive on the SCARED or either Connors subscale. Table 3 reports the area under the ROC curve (AUC, a measure of the quality of a screening instrument), cutpoints on the PSC-17 scales that maximize agreement with the other instruments, and sensitivities and specificities for those cutpoints. The validation data show good agreement between the PSC-17 and the parent screeners.

As Table 3 reports, 15% of the CBS children scored positive on the PSC-17. This rate is higher than the 35-item PSC (12%), but lower than the proportion of children that clinicians judged to have psychosocial problems (18%). An even larger proportion (25%) of children had at least one positive PSC-17 subscale.

Conclusions

The reduction of the PSC from 35 to 17 items is likely to improve the completion rate of the instrument in clinical and research settings. In addition, we found

that positive PSC responses often fell into clusters reflecting parental concerns about internalizing, attention, or externalizing problems. The PSC-17 internalizing items are similar to those included in the Child Behavior Checklist's (CBCL);¹⁵ 'Withdrawn' and 'Anxious-Depressed' internalizing subscales. The externalizing items are most similar to the CBCL 'Aggressive Behavior' externalizing subscale, whereas the attention items resemble those on the CBCL's 'Attention Problems' scale.

Parental reports about child internalizing, externalizing, or attention problems can be represented in numerical subscales by summing the scores on the PSC items in these clusters. The child's profile on the subscales can provide clinicians with directions to pursue in further assessment of the children. We stress that we did not have confirmatory diagnoses with which we could validate the PSC-17 subscales. This will be a goal for future research. We obtained reasonable agreement, however, with previously validated and accepted parent-report instruments for internalizing, externalizing, and attention problems. Thus, we can recommend that clinicians examine PSC-17 subscale results in considering what further assessment procedures to conduct.

Our conclusions are limited by two significant factors. First, the PSC-17 subscales have not been validated against research-quality diagnoses, as opposed to validated screening instruments. Second, our validation sample was a population that had already been identified as having psychosocial problems. It is also desirable to validate the instrument in an unselected primary care population.

We envision the PSC-17 as forming the first stage of a multistage child psychopathology screening procedure for primary care, similar to the procedure embodied in

the PRIME-MD screen for adults.^{22,23} Parents would fill out the PSC-17 while waiting for their appointments. The clinician could then score the PSC-17 in real time, or electronically from a machine-readable form. This would enable the clinician to review the results while examining the child. The multistage procedure would also direct the clinician to the next appropriate assessment, based on the PSC-17 results and the clinician's independent judgement.

Implications for practice

The purpose of the PSC-17 must be understood correctly. We strongly warn clinicians that a positive score on the PSC-17 *is not a diagnosis and should not be used to label a child*. It is a signal for further examination of the child and family. We stress this particularly because the PSC-17 will have a higher rate of positive scores than did the 35-item PSC, and the proportion of children who will test positive on at least one subscale is much higher. This is not necessarily undesirable behavior in a screening instrument, and indeed there has been substantial concern that primary care physicians under-recognize and under-treat childhood psychosocial problems.¹⁷ However, if a positive score on a screen is promoted to a diagnosis without a more thorough evaluation, there is also a risk that some children may receive unnecessary treatments, including psychotropic medications.

We are developing the PSC-17 to be the preliminary screen in a multiple-stage assessment procedure (as was the PSC). A positive score on the PSC-17 internalizing subscale, for example, will trigger the clinician to administer a more specialized diagnostic procedure focusing on childhood internalizing problems. We also stress that the PSC-17 should not displace a clinician's judgement about a child's psychosocial functioning. The PSC-17 is a parental report, and parents may fail to recognize their children's problems, or deny them. Thus, a negative score should not dissuade a clinician from pursuing further diagnostic techniques, if the clinician has reason to believe the child has psychosocial problems based on other observations.

In summary, these results indicate that the PSC can be shortened and its utility as a childhood psychopathology screen can be enhanced by the use of

subscales reflecting distinct psychosocial problem domains. We urge clinicians using the PSC-17 or the PSC as a screen to examine not only the total scores, but also the clusters of symptoms identified by these subscales. Even when the PSC total score is below threshold, there may be grounds for concern about a psychosocial problem. These symptom clusters may focus their follow-up examinations. The clinician should regard the PSC-17 as an aid in the assessment of the child, with positive scores suggesting the need for further exploration.

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Commentary

The under-detection of child mental health problems in pediatric practice has been well documented.¹ New standards for comprehensive child health supervision^{2,3} call for review of developmental and behavioral issues at each visit and the use of new classification schemes⁴ of early stages of problem behavior for preventive interventions. Nevertheless, most children, even those with serious problems, are overlooked. One strategy to address this problem has been for parents to complete a brief questionnaire to clearly identify these serious cases prior to seeing the doctor. That way, the clinician can spend the extra time to discuss these behavioral concerns on the approximately 12% of children with positive screens, rather than squander precious time on less serious cases.

The Pediatric Symptom Checklist (PSC) is a 35-item parent questionnaire designed for this purpose, and data are beginning to show that it has reasonable sensitivity to such serious cases in a number of populations. The study printed in this journal reports PSC data from a large national sample of US children. The data suggest that over half of the parent questionnaire items do not make a statistical contribution to the overall score and may be eliminated. If validation testing confirms this estimation, it would be hard to argue against using such an instrument based on the time required of the parent in the waiting room. It is hoped that this further demonstration of efficiency will soften resistance to such screening, and more children with psychiatric disorders will be referred to beneficial therapy.

A briefer parent questionnaire thus makes the desired child psychiatric triage system even more efficient and potentially acceptable where resources are limited. But a briefer questionnaire may have disadvantages for the process of clinical review of the identified cases and for providers aspiring to follow the recommendations for mental health review for all children. First, this briefer questionnaire is more difficult to score, since there are three scales (also cut-off scores are not given in the article and may require machine-scoring of weighted factors). Secondly, this test breaks down the global score of the original PSC into three statistically defined dimensions (internalizing, attention and externalizing), which appear too abstract to really facilitate a conversation with the parent, or even a mutual understanding of the problem the parent would like to see addressed. For example, items regarding stealing, school problems, and trouble sleeping were dropped from the larger questionnaire for technical reasons, but may be important conversation pieces and key motivators, despite their statistical irrelevance. Neither the shorter version of the PSC nor the original version documents the chief complaints and parental priorities that generally guide our clinical interviews. Furthermore, the global scores do not help translate symptoms into the clinical and coding language of DSM-PC or DSM-IV. The authors promise that this brief questionnaire is just the first part of a multistage assessment they are building, which will guide the follow-through clinical process. However, if practitioners are to take on the challenge of reviewing mental health issues and concerns for all parents, clinical issues beyond statistical parsimony will need to be addressed. The perception among parents that child health clinicians are open and comfortable with discussion of mental health issues may be more important than the particular clinical instrument used. The availability of a very brief questionnaire should help change the parent's perception of the clinician's interest, at least while still in the waiting room.

Biosketch: Raymond Sturmer MD is Associate Professor of Pediatrics and Director of Behavioral Fellowship Training at The Johns Hopkins University School of Medicine. He is co-director of the Center for Promotion of Child Development through Primary Care. The Center is devoted to the investigation of innovation in child health supervision and operates a demonstration laboratory in a community practice. Dr Sturmer has written extensively on the use of screening measures in primary care.

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Appendix

ASPN participating practices

Arkansas: Batesville Family Practice Center (Batesville); California: Foothills Family Medical Group (Auburn) Loma Linda Family Medical Group (Loma Linda); Colorado: Renate Justin, MD (Fort Collins), Harrington, Knaus, & Spence, P.C. (Carbondale), La Mariposa Clinic (Denver), Colorado Springs Health Partners (Monument), Penrose Family Health Center (Penrose); Florida: The Family Doctors of Belleview (Belleview); Georgia: Titus Taube, MD (Warner Robbins); Louisiana: Family Medicine Center of Baton Rouge (Baton Rouge); Minnesota: Eagle Medical (Excelsior), Ramsey Clinic – Maplewood (Maplewood) Family Medical Practice, PA (Willman), Family Medicine of Winona (Winona), River Valley Clinic (Hastings), Family Medicine Clinic of Lake Crystal (Lake Crystal), Gateway Family Health Clinic (Moose Lake), Eagan Medical Associates (Eagan), Fairview Uptown Clinic (Minneapolis), Bay Area Health Center (Silver Bay), West Side Health Center (St. Paul), Hopkins Family Physicians (Hopkins), Family Practice Center (St. Cloud), Mt. Royal Medical Center (Duluth), North Memorial Family Practice (Minneapolis); New Hampshire: Mascorna Valley Community Care (Enfield) Hillsboro Medical Services (Hillsboro), Community Care Center (Lebanon); New Jersey: A. John Orzano, MD (Flemington); New Mexico: Santa Fe Family Practice (Santa Fe); New York: Raj B. Kachoria, MD

(Macedon), Canal Park Family Practice (Palmyra), Montefiore Comprehensive Family Care (Bronx), Mary Kay Ness, MD (Honeoye Falls); North Carolina: Bakersville Community Medical Clinic (Bakersville), Nalle Clinic (Matthews); North Dakota: Minot Center for Family Medicine (Minot); Ohio: Center for Family Medicine (Cleveland); Oregon: Dunes Family Health Care, Inc. (Reedsport); Pennsylvania: John Farmer, DO (Waynesboro), Good Samaritan Family Practice (Lebanon); Tennessee: Michael H. Hartsell, MD (Greeneville), Mountain City Extended Hours Clinic (Mountain City); Texas: Van Horn Rural Health Clinic (Van Horn); Virginia: June Tunstall, MD (Surry); Tappahannock Family Practice (Tappahannock); West Virginia: North Fayette Family Health Center (Hico); Wisconsin: Kronenwetter Clinic (Mosinee), Poynette Family Practice Center (Poynette), Medical Associates (Baraboo), Plymouth Family Physicians (Plymouth), Monroe Clinic (Monroe), UCC/Mona Grove (Madison), Family Doctors-Black Creek (Black Creek), Southwestern Family Practice (South Milwaukee), Family Health Plan (Elm Grove), LaSalle Clinic (Appleton), Marshfield Clinic – Merrill Center (Merrill), Tigerton Clinic (Tigerton), Dean Medical (Oregon), Physicians Plus/Fitchburg (Fitchburg), Family Health Plan (Glendale), Franciscan Skemp Clinic (Tomah), Galesville Medical Center (Galesville), Medical Associates (Beaver Dam), LaSalle Clinic (Waupaca); Alberta: Foothills Family Medicine Centre (Black Diamond); New Brunswick: David Ross, M.D. (Moncton); Newfoundland: Newhook Community Health Center (Whitbourne), Ross Thomas, MD (Sackville); Ontario: Steve Nantes, MD (Kitchener), Metcalfe & Dowdell (Kitchener), Bryan Alton, M.D. (Hamilton).

PROS participating practices

The pediatric practices or individual practitioners who completed this study are listed here by AAP Chapter: Alabama: Drs Heilpern & Reynolds, PC (Birmingham); Alaska: Anchorage Neighborhood Health Center (Anchorage); Arizona: Mesa Pediatrics Professional Association (Mesa), Pediatric Ambulatory Care Clinic (Phoenix), Orange Grove Pediatrics (Tucson); California 1: Anita Tolentino-Macaraeg, MD (Hollister), Palo Alto Medical Foundation (Los Altos); Colorado: Arvada Pediatric Associates (Arvada), Family Health Center (Denver), Gino Figlio, MD (Lamar); Connecticut: Gerald Jensen, MD (Bristol), Barry Keller, MD (Danbury), Community Health Services (Hartford),

St Francis Pediatric Primary Care Center (Hartford); Florida: Atlantic Coast Pediatrics (Merritt Island), Children's Clinic (Tallahassee); Georgia: The Pediatric Center (Stone Mountain); Hawaii: Melinda Ashton, MD (Honolulu), Straub Clinic - Pediatrics (Aiea); Iowa: Newborn & Pediatric Specialist, PC (Des Moines), David Kelly, MD (Marshalltown); Illinois: SIU Physicians & Surgeons (Auburn), Emalee Flaherty, MD (Chicago), South-west Pediatrics (Palos Park); Indiana: Bloomington Pediatric Association (Bloomington), Community Health Access Program (Bloomington), Georgetown Medical Care (Indianapolis), Jeffersonville Pediatrics (Jeffersonville), Pediatric Advocates (Peru); Kansas: Bethel Pediatrics (Newton); Kentucky: Tri-State Pediatrics, PSC (Ashland); Louisiana: Children's Clinic of South-west LA (Lake Charles); Maine: John Salvato, MD (Waterville), Intermed Pediatrics (Yarmouth); Maryland, O'Donovan & Ahluwalia, MD, PA (Baltimore), Children's Medical Group (Cumberland), Shore Pediatrics (Easton), Clinical Associates Pediatrics (Towson/Pikesville); Massachusetts: Holyoke Pediatric Associates (Holyoke), Medical Associates (Leominster), The Fallon Clinic (Worcester); Michigan: University Pediatricians, PC (Detroit), Pediatric Associates of Farmington (Farmington), Mott Children's Health Center (Flint), H.M. Hildebrandt, MD (Ypsilanti); Montana: Stevensville Pediatrics (Stevensville); Nebraska: South-west Pediatrics (Omaha); Nevada: Capital Medical Associates (Carson City), Physician's Center West (Fallon); New Hampshire: Exeter Pediatric Associates (Exeter); New Jersey: Delaware Valley Pediatric Association (Lawrenceville); New Mexico: Albuquerque Pediatric Association (Albuquerque); New York 1: Pediatric Associates (Camillus), Elmwood Pediatric Group (Rochester), Park Medical Group (Rochester), Edward D. Lewis, MD (Rochester), Panorama Pediatric Group (Rochester), Amherst Pediatric Associates (Williamsville); New York 2: Centro Medico (Jackson Heights); New York 3: Pediatric Office at Roosevelt Island (New York); North Carolina: Triangle Pediatric Center (Cary), Goldsboro Pediatrics (Goldsboro), Medical Association of Surry (Mount Airy), Peace Haven Family Health Center (Winston-Salem); North Dakota: MeritCare Medical Group-Pediatrics (Fargo), Grand Forks Clinic (Grand Forks), Dakota Clinic (Jamestown), Medical Arts Clinic (Minot); Ohio: Oxford Pediatrics & Adolescents (Oxford), Pediatrics (Portsmouth), St Elizabeth Health Center (Youngstown); Oklahoma: Eastern Oklahoma Medical Plaza (Poteau), Shawnee Medical Center Clinic (Shawnee), Pediatric & Adolescent Care (Tulsa); Pennsylvania: Pediatric

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PSC-17

An example of the checklist is given in Table A1.

Pediatric Symptom Checklist

(Jellinek, Murphy, Robinson, et al.)

Table A1: The PSC-17 chart

	Please mark under the heading that best fits your child			For office use		
	NEVER	SOMETIMES	OFTEN	I	A	E
a 1. Fidgety, unable to sit still			
i 2. Feels sad, unhappy			
a 3. Daydreams too much			
e 4. Refuses to share			
e 5. Does not understand other people's feelings			
i 6. Feels hopeless			
a 7. Has trouble concentrating			
e 8. Fights with other children			
i 9. Is down on him or herself			
e 10. Blames others for his or her troubles			
i 11. Seems to be having less fun			
e 12. Does not listen to rules			
a 13. Acts as if driven by a motor			
e 14. Teases others			
i 15. Worries a lot			
e 16. Takes things that do not belong to him or her			
a 17. Distracted easily			
						SUM

To score: For 'never', write 0 in the lightly shaded box on the right. For 'sometimes', write 1. For 'often', write 2. Sum the columns. The PSC-17 internalizing (PSC17-I) score is the sum of column I, the attention score (PSC17-A) is the sum of column A, and the externalizing score (PSC17-E) is the sum of column E. The PSC-17 total score is PSC17-I + PSC17-A + PSC17-E. Positive scores are PSC17-I, 5; PSC17-A, 7; or PSC17-E, 7. A positive PSC17 total score is 15.

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