

<b>A</b>	Achenbach
<b>S</b>	System of
<b>E</b>	Empirically
<b>B</b>	Based
<b>A</b>	Assessment

# **DSM-Oriented Guide for the Achenbach System of Empirically Based Assessment (ASEBA<sup>®</sup>)**

*An Integrated System of  
Multi-Informant Assessment*

**Thomas M. Achenbach, Ph.D.**

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## Ordering Information

This *Guide* and other ASEBA materials can be ordered from:

ASEBA	Fax: 802-656-5131
1 South Prospect Street	E-mail: mail@ASEBA.org
Burlington, VT 05401-3456	Web: www.ASEBA.org

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# User Qualifications

This *Guide* is to be used in conjunction with the *Manuals* for the ASEBA forms and profiles for ages 1½-5, 6-18, and 18-59 (Achenbach & Rescorla, 2000, 2001, 2003). For use of multicultural norms, please consult the *Multicultural Supplement for the ASEBA Forms & Profiles for Ages 1½-59* and the age-appropriate *Multicultural Supplements* (Achenbach & Rescorla, 2007, 2010, 2014a, 2014b). Proper use of the computer software for scoring ASEBA forms requires data obtained with the standard English-language ASEBA forms or authorized translations of the forms.

Discrepancies often occur between self-reports of psychopathology and reports by informants who know the person being assessed. Discrepancies are also common between reports by informants who play different roles with respect to the person being assessed, such as parents vs. teachers and spouses vs. other family members. Such discrepancies may reflect cross-situational differences in functioning, as well as informant differences in views of the person being assessed. Because no single source of information can provide the absolute truth about a person's functioning, comprehensive assessment requires that information be obtained from multiple informants whenever possible. This can be done by having parallel ASEBA forms completed independently by different informants. To help users quickly compare data from different informants, the ASEBA software displays side-by-side bar graphs of scores obtained

from multiple informants for each DSM-oriented scale, as well as other scales.

For proper use of ASEBA forms, the data should be scored on the appropriate profiles. ASEBA software provides directions that can be followed by users familiar with basic computer procedures. The profiles scored from ratings by all informants should be compared with each other, with ASEBA norms, and with other relevant data. Users need to be knowledgeable about the theory and methodology of standardized, normed assessment procedures, as well as about the relevant services for clients and their families. The necessary training will differ according to the specific use of ASEBA instruments. Relevant graduate training equivalent to the Master's degree level or to two years of residency in psychiatry, pediatrics, or family practice is usually necessary. However, no amount of prior training can substitute for professional maturity, thorough knowledge of the procedures and cautions presented in this *Guide* and in the relevant *Manual* and *Multicultural Supplement*, as well as adherence to professional ethical codes.

All users should understand that ASEBA instruments are designed to provide standardized descriptions of functioning. No scores on ASEBA scales should be automatically equated with a particular diagnosis or disorder. Instead, the responsible professional will integrate ASEBA data with other types of data to provide comprehensive evaluations of functioning.

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# Chapter 1

## Introduction

One purpose of this *Guide* is to document changes in ASEBA DSM-oriented scales that reflect changes from DSM-IV to DSM-5 criteria (American Psychiatric Association, 1994, 2013). A second purpose is to explain relations between DSM models for diagnostic categories and ASEBA models for assessing psychopathology. And a third purpose is to illustrate practical and research applications of the ASEBA DSM-oriented scales. Owners of ASEBA ADM software for scoring the DSM-IV versions of the scales can obtain free DSM-5 versions at <http://www.aseba.org/admupdates.html>.

DSM-oriented scales have been constructed for scoring ASEBA forms in ways that provide crosswalks between empirically based assessment of people's problems in terms of informants' ratings, on the one hand, and DSM diagnostic categories, on the other. The DSM-oriented scales consist of ASEBA items that international experts have rated as being very consistent with DSM criteria for disorders that are defined mainly in terms of behavioral, emotional, social, and thought problems. Being based on experts' judgments, the DSM-oriented scales complement the ASEBA syndrome scales, which comprise patterns of co-occurring problems identified statistically via factor analyses of informants' ratings of large samples of individuals.

The ASEBA problem items have been selected for their ability to identify people who are apt to need help from mental health, special education, substance abuse, or other providers of helping services. Each item is therefore important in its own right. For example, for evidence-based assessment of needs for help, it is important to determine how an individual is rated on items such as the following, whether or not the items are included in particular scales: *Can't concentrate, can't pay attention for long; Physically attacks people; Sees things that aren't there; Sets fires; and Unhappy,*

*sad, or depressed.* However, it is also important to compare ratings of an individual's problems with ratings for normative samples of peers in order to determine the degree to which the individual's scores for particular kinds of problems deviate from relevant norms. To enable users to compare individuals' scores with norms and to "chunk" information about many specific problems into easily understood groupings of related problems, scales are needed that comprise sets of related problems.

As detailed later, the DSM-oriented scales aggregate ASEBA problems according to experts' judgments of consistency with DSM diagnostic criteria. Both the construction of DSM diagnostic categories and the use of experts' ratings of ASEBA items to form DSM-oriented scales start with experts' concepts of disorders. This approach can be described as *top-down*, because it starts "at the top" with experts' concepts and then works down to experts' judgments about specific assessment criteria. The use of statistical methods such as factor analysis to empirically identify syndromes of problems that are mutually associated in informants' ratings can be described as a *bottom-up* approach, because it starts with ratings of many individuals and then derives syndromes from correlations among the item ratings.

### DSM-ORIENTED SCALES

ASEBA forms are designed to assess diverse behavioral, emotional, social, and thought problems, plus competencies, strengths, and adaptive functioning, using data from multiple informants. This *Guide* focuses mainly on ratings of problems by parent figures, preschool teachers, and daycare providers for ages 1½-5; parent figures and teachers for ages 6-18; youths' self-ratings for ages 11-18; and self-ratings as well as ratings by collaterals such as spouses, partners, family members, friends, and therapists for adults.

## Development of the ASEBA

The ASEBA originated with efforts to determine whether more syndromes of co-occurring problems could be identified for children than were implied by the two diagnostic categories for children's disorders specified in the first edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-I; American Psychiatric Association, 1952). The two DSM-I categories were *Adjustment Reaction of Childhood* and *Schizophrenic Reaction, Childhood Type*. Factor analyses of problems rated from child psychiatric case histories revealed many more syndromes than were implied by the DSM-I diagnostic categories (Achenbach, 1966). Analyses of associations among problems comprising the different syndromes also revealed that problems of anxiety, depression, social withdrawal, and somatic complaints without apparent physical cause formed a broad grouping that was dubbed *Internalizing*. Problems of aggression and rule-breaking behavior (e.g., lying, setting fires, stealing, truancy, substance use) formed a second broad grouping that was dubbed *Externalizing*. Subsequent reviews of numerous early factor-analytic studies supported the hierarchical distinction between several "narrow-band" syndromes and the "broad-band" Internalizing and Externalizing groupings (Achenbach & Edelbrock, 1978; Quay, 1979).

The form that Achenbach (1966) originally developed for rating problems reported in case histories was subsequently adapted for assessing children in various contexts in which problem scores were found to be associated with a variety of important variables (reviewed by Achenbach, 1974). After further development through numerous pilot editions and feedback from parents, teachers, youths, and mental health professionals, the Child Behavior Checklist (CBCL), Teacher's Report Form (TRF), and Youth Self-Report (YSR) were published with extensive manuals for practical and research applications (Achenbach & Edelbrock, 1983, 1986, 1987). These editions were followed by revised editions of the forms and extensive changes in scales for scoring the forms, plus new U.S. national norms (Achenbach, 1991;

Achenbach & Rescorla, 2001). ASEBA forms were also developed for assessing preschool children (Achenbach, 1992; Achenbach & Rescorla, 2000), and adults (Achenbach, 1997; Achenbach & Rescorla, 2003; Achenbach, Newhouse, & Rescorla, 2004).

## Development of the DSM

Meanwhile, the Third Edition of the DSM (DSM-III; American Psychiatric Association, 1980) introduced important changes in the format of psychiatric diagnoses. Whereas the DSM-I and DSM-II (American Psychiatric Association, 1952, 1968) provided brief narrative descriptions for diagnostic categories, DSM-III provided explicit criteria and decision rules for determining whether individuals met criteria for each category. The DSM-III and subsequent editions of the DSM have been said to provide operational definitions of disorders (Narrow et al., 2013; Rapoport & Ismond, 1996). However, except for specifying that standardized intelligence tests should be used to confirm deficits in intellectual functioning in order to meet criteria for Intellectual Disability (American Psychiatric Association, 2013), the DSM does not specify assessment procedures for operationalizing its diagnostic criteria. Instead, for each case, the practitioner must decide what to assess, from what sources to obtain data, how to obtain the data, and how to combine often-discrepant data from different sources into yes-versus-no decisions about whether individuals meet diagnostic criteria.

## DSM-Oriented Scales Based on DSM-IV Criteria

Because ASEBA forms are used to assess people in many settings where DSM diagnoses are desired, research studies have tested the degree to which high scores on ASEBA scales agree with DSM diagnoses. Even though the ASEBA syndromes have been derived empirically without being targeted on DSM categories, numerous studies have yielded significant associations between scores on ASEBA syndrome scales and DSM diagnoses (e.g., Edelbrock, & Costello, 1988; Kasius, Ferdinand, van den Berg, & Verhulst, 1997; Weinstein, Noam, Grimes, Stone, & Schwab-Stone, 1990).



In order to provide clearer crosswalks between the ASEBA and DSM diagnostic categories, DSM-oriented scales were constructed for scoring ASEBA problem items that experts judged to be very consistent with particular DSM-IV categories. (Details are provided in the ASEBA *Manuals* for ages 1½-5, 6-18, 18-59, and 60-90+; Achenbach et al., 2004; Achenbach & Rescorla, 2000, 2001, 2003). The DSM-IV-oriented scales were constructed as follows:

1. Experts from 19 societies were invited to identify ASEBA items that they judged to be very consistent with DSM-IV diagnostic categories that were defined mainly in terms of behavioral, emotional, social, and thought problems.
2. The experts were e-mailed a matrix whose leftmost column listed the problem items of the ASEBA forms for one of the following age ranges: 1½-5, 6-18, 18-59, or 60-90+.
3. Each of the columns to the right of the item list was headed with the name of a DSM-IV diagnostic category and provided space for the experts to enter ratings of each item for consistency with the DSM category.
4. The DSM-IV symptom criteria for each category were included in the e-mails to the experts.
5. The experts were instructed to rate each ASEBA item for consistency with each DSM category as follows: *0 = not consistent with the category; 1 = somewhat consistent with the category; 2 = very consistent with the category.*
6. The instructions included the following points:
  - a. Please consult the accompanying DSM symptom criteria to help you decide whether a problem is consistent with the diagnostic category.
  - b. You may feel that some problem items are appropriate diagnostic indicators of particular disorders, but that the items lack precise counterparts among the symptom cri-

teria. Feel free to rate these problem items as being consistent with the categories, according to the scoring rules.

7. The instructions also stated “Feel free to rate an item 0, 1, or 2 for any category, regardless of the ratings you give that item for other categories. For example, you can give an item a rating of 0 for three categories, 1 for four categories, and 2 for two categories. In other words, do not spend time choosing a single category for your highest rating of an item. Instead, just consider each category alone when rating each problem item. You may decide that some problem items should be rated 0 for all categories, whereas other problem items should be rated 2 for several categories.”
8. An ASEBA item was assigned to a scale for a DSM category if at least 60% of experts rated the item 2 (*very consistent*) with the category. Because the number of experts ranged from 16 to 22 for the different age groups, the precise criterion for assigning an item to a scale differed slightly, as follows: Ages 1½-5 10/16 experts = 63%; ages 6-18 14/22 experts = 64%; ages 18-59 13/21 experts = 62%; and ages 60-90+ 10/16 experts = 63%.

At least five ASEBA items needed to meet the criterial number of ratings of 2 for a particular DSM category to warrant constructing a scale for that category.

Because of overlaps in criteria between certain DSM categories and between certain items found to meet the criterial number of ratings of 2, a single DSM-oriented scale was constructed to represent certain sets of DSM categories. For example, the overlapping DSM criteria and expert ratings argued for constructing a single Affective Problems scale to represent the DSM categories of Dysthymic Disorder and Major Depressive Disorder. And a single Anxiety Problems scale was constructed to represent the DSM categories of Generalized Anxiety Disorder (GAD), Separation Anxiety Disorder (SAD), and Specific Phobia.

In the few instances where an ASEBA item received enough ratings of 2 to qualify for >1 DSM-oriented scale, the item was assigned to the scale for which it received the most ratings of 2. For the very few qualifying items that were rated 2 by equal numbers of experts on two scales, the item was assigned to the scale on which the item received the fewest ratings of 0. Table 1-1 lists the names of the DSM-oriented scales that were based on ratings by experts who used DSM-IV criteria.

### DSM-Oriented Scales Based on DSM-5 Criteria

To update the DSM-oriented scales for consistency with DSM-5 criteria, DSM-5 criteria relevant to the DSM-oriented scales were examined. The DSM-oriented scales for which relevant changes occurred from DSM-IV to DSM-5 include *Anxiety Problems*, for which minor changes have been made in GAD, SAD, and Specific Phobia, plus Social Phobia has been replaced by Social Anxiety Disorder; *Pervasive Developmental Problems*, for which changes have been made that included consolidation of multiple DSM-IV categories into the new category of Autism Spectrum Disorder, warranting changing the DSM-oriented scale to *Autism Spectrum Problems*; and *Somatic Problems*, for which the DSM-IV categories of Somatization Disorder and Somatoform Disorder have been replaced by the new category of Somatic Symptom Disorder. Although changes in wording occurred in other categories (e.g., DSM-5 refers to Inattention and Hyperactivity-Impulsivity as “manifestations” of ADHD, rather than as the DSM-IV’s “types” of ADHD), the symptom criteria relevant to the DSM-oriented scales have not changed. However, the ASEBA DSM-oriented *Affective Problems* scales for ages 1½-5 and 6-18 have been re-named *Depressive Problems* to take account of the DSM-5’s change of Dysthymic Disorder to Persistent Depressive Disorder.

Procedures for constructing DSM-5 versions of the ASEBA DSM-oriented scales were similar to those for constructing DSM-IV versions of the scales. Experts from 30 societies rated ASEBA problem items as 0 = *not consistent*, 1 = *somewhat consistent*, or 2 = *very consistent* with

DSM-5 categories for which changes from DSM-IV might affect the DSM-oriented scales. The matrices that were e-mailed to the experts listed the ASEBA problem items for ages 1½-5, 6-18, or 18-59 in a column on the left. Columns to the right of the list were headed with the diagnostic categories for which changes in DSM-5 necessitated new ratings. Each column provided space for the experts’ 0-1-2 ratings of each ASEBA item for consistency with DSM-5. For ages 1½-5, the experts rated ASEBA items for consistency with DSM-5 Anxiety Disorders in one column (GAD, SAD, Specific Phobia, and Social Anxiety Disorder), and Autism Spectrum Disorder in a second column. For ages 6-18 and 18-59, the experts rated ASEBA items for consistency with the same Anxiety Disorders as for ages 1½-5, and also for consistency with Somatic Symptom Disorder.

Ratings were not obtained for ages 60-90+, because DSM-5’s focus for those ages changed to neurocognitive disorders, which are defined in terms of hypothesized etiologies. Although DSM-5 has dispensed with “dementia” as a diagnostic label, “the term *dementia* is not precluded from use in the etiological subtypes in which that term is standard . . . . The term *dementia* is retained in DSM-5 for continuity and may be used in settings where physicians and patients are accustomed to this term” (American Psychiatric Association, 2013, p. 591). Consequently, the ASEBA *Dementia Problems* scale remains useful for scoring the Older Adult Self-Report (OASR) and Older Adult Behavior Checklist (OABCL) to assess phenotypic characteristics corresponding to the clinical concept of dementia. The other DSM-oriented scales for ages 60-90+ represent diagnostic categories that are less specific to older people but that include ASEBA items that are especially appropriate for the elderly, based on ratings by experts who specialize in work with the elderly.

Ratings based on DSM-5 were received from 19 experts for ages 1½-5, 19 for ages 6-18, and 20 for ages 18-59. Appendix A lists the 58 experts, 24 of whom had also provided ratings for the DSM-IV versions of the DSM-oriented scales. The

**Table 1-1**  
**DSM-Oriented Scales Based on DSM-IV Criteria**

		<u>Age Ranges</u>			
		1½-5	6-18	18-59	60-90+
1. Affective Problems			1. Affective Problems	1. Depressive Problems	1. Depressive Problems
2. Anxiety Problems			2. Anxiety Problems	2. Anxiety Problems	2. Anxiety Problems
3. Pervasive Developmental Problems			3. Somatic Problems	3. Somatic Problems	3. Somatic Problems
4. Attention Deficit/Hyperactivity Problems			4. Attention Deficit/Hyperactivity Problems	4. Avoidant Personality Problems	4. Dementia Problems
5. Oppositional Defiant Problems			5. Oppositional Defiant Problems	5. Attention Deficit/Hyperactivity Problems	5. Psychotic Problems
			6. Conduct Problems	6. Antisocial Personality Problems	6. Antisocial Personality Problems

DSM-5 raters included 19 psychiatrists, 38 psychologists, and 1 social worker. They had a mean of 22.5 years of experience since receiving their first doctorate or other highest degree. All but two had published on psychopathology.

For an ASEBA item to be assigned to the DSM-5 version of a DSM-oriented scale, it had to receive a rating of 2 from at least 12 of the raters (12/19 = 63%; 12/20 = 60%). No items that received >12 ratings of 2 for a particular DSM-oriented scale also received >12 ratings of 2 for another DSM scale. However, for ages 1½-5, one item (38. *Has trouble getting to sleep*) that met the criterion for the DSM-5 Anxiety Problems scale had received a larger percentage of ratings of 2 for the DSM-IV Affective Problems scale. For ages 6-18, two items (54. *Overtired without good reason*; 100. *Trouble sleeping*) that met the criterion for the DSM-5 Anxiety Problems scale had received larger percentages of ratings of 2 for the DSM-IV Affective Problems scale. Because the relevant DSM criteria had not changed, the items were not moved to the DSM-5 Anxiety Problems scale for either ages 1½-5 or 6-18. Tables 1-2, 1-3, and 1-4 display the items comprising the DSM-oriented scales for ages 1½-5, 6-18, and 18-59, respectively.

### SUMMARY

This *Guide* documents DSM-5-based changes in ASEBA DSM-oriented scales, explains relations between DSM and empirically based mod-

els, and illustrates practical and research applications of the DSM-oriented scales.

The DSM-oriented scales provide crosswalks between informants' ratings of problems and DSM diagnostic categories. The scales comprise items rated by international experts as being very consistent with DSM criteria for disorders that are defined mainly in terms of behavioral, emotional, social, and thought problems.

The ASEBA forms that are scored on the DSM-oriented scales originated with research in the 1960s that empirically identified considerably more syndromes of childhood problems than were reflected in DSM-I. Subsequent editions of the DSM have brought more differentiation among diagnostic categories, plus more explicit diagnostic criteria, although few criteria are operationalized in terms of assessment procedures.

This chapter detailed construction of DSM-oriented scales, plus changes from DSM-IV to DSM-5 versions of the scales. For relevant diagnostic categories whose symptom criteria changed from DSM-IV to DSM-5, experts from 30 societies identified ASEBA items that they judged to be very consistent with the DSM-5 diagnostic categories. The items comprising the resulting scales are displayed in Tables 1-2, 1-3, and 1-4.

**Table 1-2**  
**Items Comprising DSM-5-Oriented Scales for Ages 1½-5<sup>a</sup>**

<b>1. Depressive Problems</b>	<b>2. Anxiety Problems</b>	<b>3. Autism Spectrum Problems</b>	<b>4. Attention Deficit/Hyperactivity Problems</b>	<b>5. Oppositional Defiant Problems</b>
12. Apathetic <sup>b</sup>	10. Clings	4. Avoids eye contact	5. Can't concentrate	15. Defiant
13. Cries	22. Doesn't want to sleep alone <sup>c</sup>	7. Can't stand things out of place	6. Can't sit still	20. Disobedient
24. Doesn't eat well <sup>c</sup>	28. Doesn't leave home <sup>c</sup>	21. Disturbed by change	8. Can't stand waiting	22. Mean <sup>b</sup>
38. Trouble sleeping <sup>c</sup>	32. Fears	23. Doesn't answer	16. Demands must be met	44. Angry moods
43. Looks unhappy	37. Upset by separation	25. Doesn't get along with peers	19. Daydreams <sup>b</sup>	81. Stubborn
49. Overeating <sup>c</sup>	47. Nervous	63. Rocks head, body	24. Difficulty with directions <sup>b</sup>	85. Temper
50. Overtired	48. Nightmares <sup>c</sup>	67. Unresponsive to affection	28. Disturbs others <sup>b</sup>	88. Uncooperative
71. Little interest	49. Fears daycare/school <sup>b</sup>	70. Little affection	36. Gets into everything	
74. Sleeps less <sup>c</sup>	51. Panics <sup>c</sup>	76. Speech problem	48. Fails to carry out <sup>b</sup>	
89. Underactive	87. Fearful	80. Strange behavior	51. Fidgets <sup>b</sup>	
90. Sad	99. Worries	92. Upset by new	59. Quickly shifts	
		98. Withdrawn	64. Inattentive <sup>b</sup>	
			75. Overactive <sup>b</sup>	

<sup>a</sup>Items are designated by the numbers they bear on the CBCL/1½-5 and C-TRF and summaries of their content.

<sup>b</sup>Not on CBCL/1½-5

<sup>c</sup>Not on C-TRF

**Table 1-3**  
**Items Comprising DSM-5-Oriented Scales for Ages 6-18<sup>a</sup>**

<b>1. Depressive Problems</b>	<b>2. Anxiety Problems</b>	<b>3. Somatic Problems</b>	<b>4. Attention Deficit/Hyperactivity Problems</b>	<b>5. Oppositional Defiant Problems</b>	<b>6. Conduct Problems</b>
5. Enjoys little	11. Dependent	56a. Aches	4. Fails to finish	3. Argues	15. Cruel to animals <sup>c,d</sup>
14. Cries	29. Fears	56b. Headaches	8. Can't concentrate	6. Defiant <sup>b,d</sup>	16. Mean
18. Harms self	30. Fears school	56c. Nausea	10. Can't sit still	22. Disobedient at home <sup>c</sup>	21. Destroys others'
24. Doesn't eat well <sup>c</sup>	31. Fears doing bad	56d. Eye problems	15. Fidgets <sup>b,d</sup>	23. Disobedient at school	26. Lacks guilt
35. Worthless	45. Nervous	56e. Skin problems	22. Difficulty w. directions <sup>b,d</sup>	86. Stubborn	28. Breaks rules
52. Guilty	47. Nightmares <sup>c</sup>	56f. Stomach aches	24. Disturbs others <sup>b,d</sup>	95. Temper	37. Fights
54. Tired	50. Fearful	56g. Vomits	41. Impulsive		39. Bad companions
60. Apathetic <sup>b,d</sup>	71. Self-conscious		53. Talks out <sup>b,d</sup>		43. Lies, cheats
76. Sleeps less <sup>c</sup>	112. Worries		67. Disrupts others <sup>b,d</sup>		57. Attacks people
77. Sleeps more <sup>c</sup>			78. Inattentive		67. Runs away <sup>c</sup>
91. Talks/thinks suicide			93. Talks much		72. Sets fires <sup>c</sup>
100. Sleep problems <sup>c</sup>			100. Fails to carry out tasks <sup>b,d</sup>		73. Behaves irresponsibly <sup>b,d</sup>
102. Lacks energy			104. Loud		81. Steals at home <sup>c</sup>
103. Sad					82. Steals outside home
					90. Swears
					97. Threatens
					101. Truant
					106. Vandalism <sup>c,d</sup>

<sup>a</sup>Items are designated by the numbers they bear on the CBCL/6-18, TRF, and YSR and summaries of their content.

<sup>b</sup>Not on CBCL/6-18

<sup>c</sup>Not on TRF

<sup>d</sup>Not on YSR

Table 1-4  
Items Comprising DSM-5-Oriented Scales for Ages 18-59<sup>a</sup>

<i>1. Depressive Problems</i>	<i>2. Anxiety Problems</i>	<i>3. Somatic Problems</i>	<i>4. Avoidant Personality Problems</i>	<i>5. Attention Deficit/Hyperactivity Problems</i>	<i>6. Antisocial Personality Problems</i>
14. Cries	22. Worries about future	56a. Aches	25. Doesn't get along with others	1. Too forgetful	3. Argues a lot
18. Harms self	29. Fears	56b. Headaches	42. Would rather be alone	8. Can't concentrate	5. Blames others
24. Doesn't eat well	45. Nervous	56c. Nausea	47. Lacks self-confidence	10. Can't sit still	16. Mean
35. Feels worthless	50. Fearful	56d. Eye problems	67. Trouble keeping friends	36. Accident-prone	21. Damages others' things
52. Feels too guilty	72. Worries about family	56e. Skin problems	71. Self-conscious	41. Impulsive	23. Breaks rules
54. Feels tired	112. Worries	56f. Stomach aches	75. Too shy or timid	59. Fails to finish things	26. Lacks guilt
60. Enjoys little		56g. Vomits	111. Withdrawn	61. Poor work performance	28. Bad relations w. family
77. Sleeps more		56h. Heart pounding <sup>c</sup>		89. Rushes into things	37. Fights
78. Trouble making decisions		56i. Numbness <sup>c</sup>		105. Is disorganized	39. Bad companions
91. Talks/thinks suicide				108. Loses things	43. Lies, cheats
96. Passive <sup>b</sup>				115. Fidgety	57. Attacks people
100. Sleep problems				118. Too impatient	76. Irresponsible behavior
102. Lacks energy				119. Not good at details	82. Steals
103. Sad					92. Trouble with the law
107. Can't succeed					95. Hot temper
					97. Threatens
					101. Avoids work
					114. Fails to pay debts
					120. Drives too fast
					122. Trouble keeping job

<sup>a</sup>Items are designated by the numbers they bear on the ASR and ABCL and summaries of their content.

<sup>b</sup>Not on ASR

<sup>c</sup>Not on ABCL

## Chapter 2

# Practical Applications of the DSM-Oriented Scales

This chapter illustrates practical applications of the DSM-oriented scales to assessment of children and adults. The ASEBA forms from which the DSM-oriented scales are scored assess diverse aspects of functioning that are scored on multiple scales in addition to the DSM-oriented scales. To provide comprehensive assessment, parallel ASEBA forms are completed by different informants. The assessment of diverse aspects of functioning from the perspectives of different informants enables users to obtain evidence regarding possible DSM-disorders within a comprehensive informational context.

In addition to the DSM-oriented scales, the ASEBA forms are scored on empirically based syndromes, Internalizing, Externalizing, and Total Problems scales. Some of the forms are also scored on scales shown by research to be good measures of clinical constructs such as obsessive-compulsive disorders, stress disorders, and sluggish cognitive tempo. Other scales assess competencies, adaptive functioning, positive qualities, and personal strengths. All the scales are displayed on profiles in relation to norms for the individual's age and gender, as well as for the type of informant (parent, teacher, self, adult collateral). The norms are based on distributions of scores obtained by large representative samples of people.

To enable users to take account of possible differences in scores for people from different societies, software for scoring the ASEBA problem scales provides multicultural norms based on scores obtained for representative samples of people in many societies (Achenbach & Rescorla, 2014a). By selecting the relevant society, users can display problem scale scores in relation to norms appropriate for that society. If normative data are not available for a particular society, users can choose to see scale scores displayed in relation to norms for a similar society and/or in relation to de-

fault norms. The next sections provide guidelines for using the DSM-oriented scales, followed by case illustrations.

### GUIDELINES FOR USING THE DSM-ORIENTED SCALES

The DSM-oriented scales are scored from the standard set of items on each ASEBA form. Consequently, when ASEBA forms are completed, no extra practitioner, client, or informant time is needed to obtain data for the DSM-oriented scales. Furthermore, when ASEBA computer software is used to score the forms, no extra time is required to have clients' DSM-oriented scores displayed on profiles in relation to age, gender, informant, and multicultural group norms.

The flow chart in Figure 2-1 summarizes a typical sequence for obtaining and using the DSM-oriented scale scores. Such a sequence is especially easy to follow when ASEBA forms are routinely used to obtain assessment data from clients and relevant informants. Most candidates for services related to behavioral, emotional, social, and thought problems expect to complete forms such as the ASEBA as part of the referral and evaluation process. ASEBA forms can be self-administered online or on paper copies at home, in waiting rooms, and elsewhere.

If a client or other informant is unable to complete a form alone, ASEBA forms can be administered by a staff member without clinical or other specialized training. The staff member simply reads the items to the respondent and enters the responses online or on a paper ASEBA form. In many cases, it is helpful to provide the respondent with a copy of the ASEBA form to look at while the staff member reads the items aloud. For respondents who are not sufficiently proficient in English, translations of ASEBA forms are available in over 90 languages (listed at [www.aseba.org](http://www.aseba.org)).



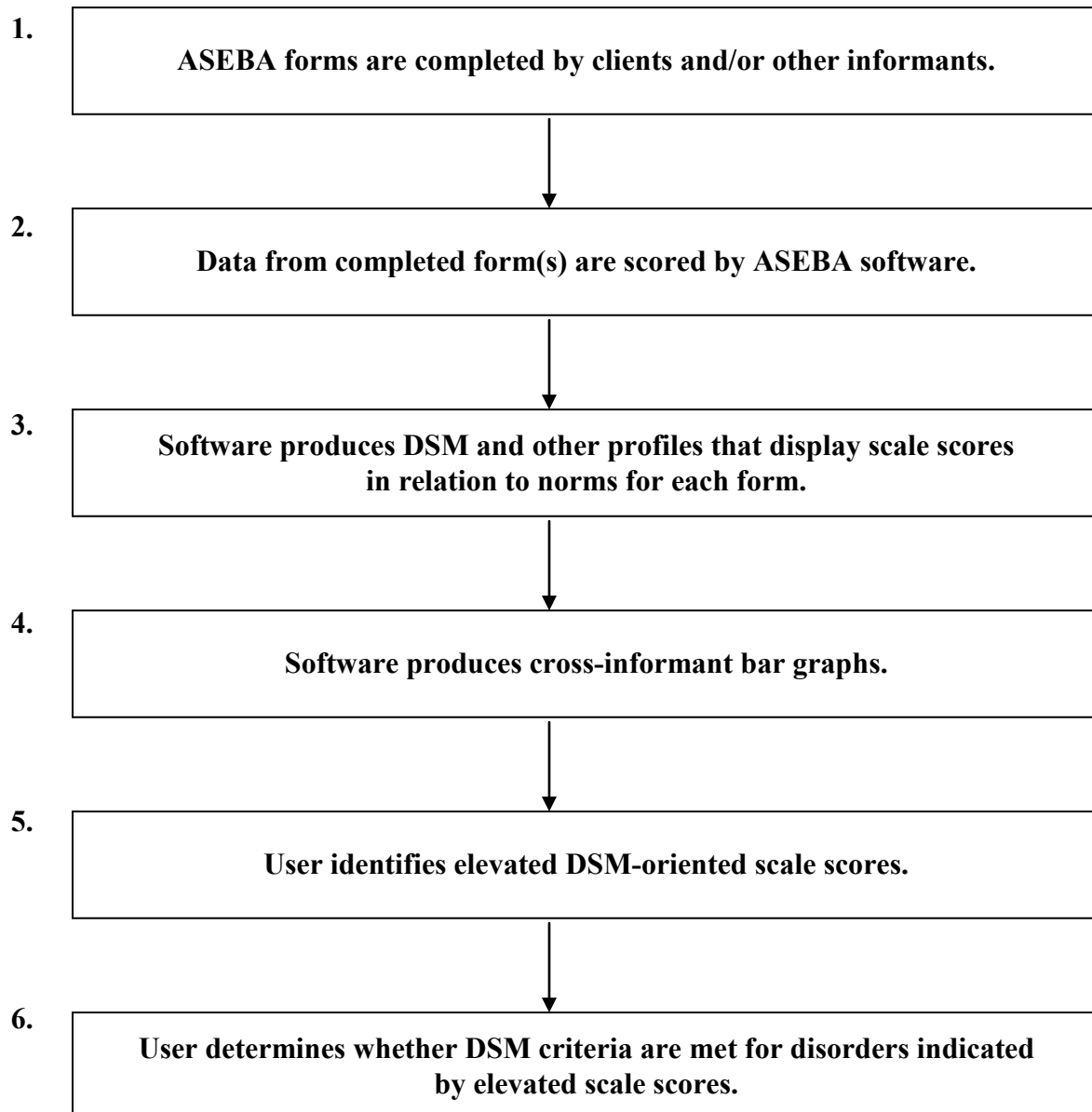


Figure 2-1. Steps for using DSM-oriented scales.

As Box 3 in Figure 2-1 indicates, the ASEBA software produces profiles that display DSM-oriented and other scales scored from each ASEBA form in relation to appropriate norms. As indicated in Box 4, the software also produces cross-informant bar graphs that enable users to quickly compare normed scale scores obtained from various informants. Users can thus identify DSM-oriented scale scores that are elevated into the clinical range (above the top broken line on the bar graphs and profiles; >97th percentile) or are elevated into the borderline clinical range (between the two broken lines 93rd-97th percentiles). Elevated DSM-oriented scale scores can alert users to DSM diagnostic categories for which further investigation may be warranted to determine whether criteria for diagnoses are met. Elevated scores on particular DSM-oriented scales in ratings by different kinds of informants, such as parents and teachers, can provide evidence that problems occur in more than one setting, as required to meet criteria for disorders such as ADHD (American Psychiatric Association, 2013, p. 60).

### CASE ILLUSTRATIONS

ASEBA forms are often completed as part of the referral and evaluation processes in mental health, special education, medical, forensic, and other settings. The profiles scored from the forms enable practitioners to quickly see areas in which high levels of problems are reported, as well as seeing the informants' 0-1-2 ratings of the problem items. Practitioners who see the completed ASEBA forms and profiles before interviewing clients can use the data to guide interviews. Because the ASEBA forms cover such diverse arrays of problems, practitioners can tailor precious interview time to follow up on evidence obtained with the forms, rather than having to begin by asking about the many possible problems assessed with ASEBA forms.

After asking if clients have questions about the forms, the practitioner can ask about particular items. For example, if an item such as *Can't get mind off certain thoughts* was endorsed, the practitioner can ask an interviewee to describe the details and can then discuss the details with the interviewee.

Elevations on particular DSM-oriented scales can guide practitioners' investigations to determine whether diagnostic criteria for particular disorders are met. Referral complaints and the types of services sought (e.g., medication for ADHD; therapy for anxiety) often imply that diagnoses are already assumed. However, focusing on assumed diagnoses can cause premature closure, which may result in insufficient evaluation of other diagnostic possibilities. The profiles of DSM-oriented scales, as well as the profiles of syndrome scales, can help practitioners avoid focusing too narrowly on assumed diagnoses that may become self-fulfilling prophecies. Because comorbidity is so pervasive, the profiles of DSM-oriented and syndrome scales often reveal elevated levels of problems in areas other than the assumed diagnoses.

The following sections illustrate use of the DSM-oriented scales in the assessment and evaluation of a preschool girl, an adolescent boy, and an adult. Subsequent sections outline use of the ASEBA to evaluate clients' progress and outcomes, and also to train practitioners. Names and other personal details are fictitious.

#### Caroline Perry, Age 3

As part of a screening program for early special education services, Caroline's mother and father were each asked to complete the CBCL/1½-5 and were asked to grant permission to have Caroline's preschool teacher and daycare provider complete the C-TRF. Caroline's parents and preschool teacher had felt that Caroline was socially immature but expected her to grow out of her immaturity. Figure 2-2 displays the profile of DSM-oriented scales scored from the C-TRF completed by Caroline's preschool teacher. As you can see in Figure 2-2, Caroline's score on the Autism Spectrum Problems scale was in the clinical range, above the top broken line (>97th percentile). And her score on the Attention Deficit Hyperactivity Problems scale was in the borderline clinical range, between the two broken lines (93rd-97th percentiles). Even though Caroline's teacher had not thought of Caroline's immature behavior as indicating autism or ADHD, her ratings indicated substantially more problems in both those areas than indicated by C-TRF ratings

**C-TRF/1.5-5 - DSM-Oriented Scales for Girls Scored Using T Scores for United States**

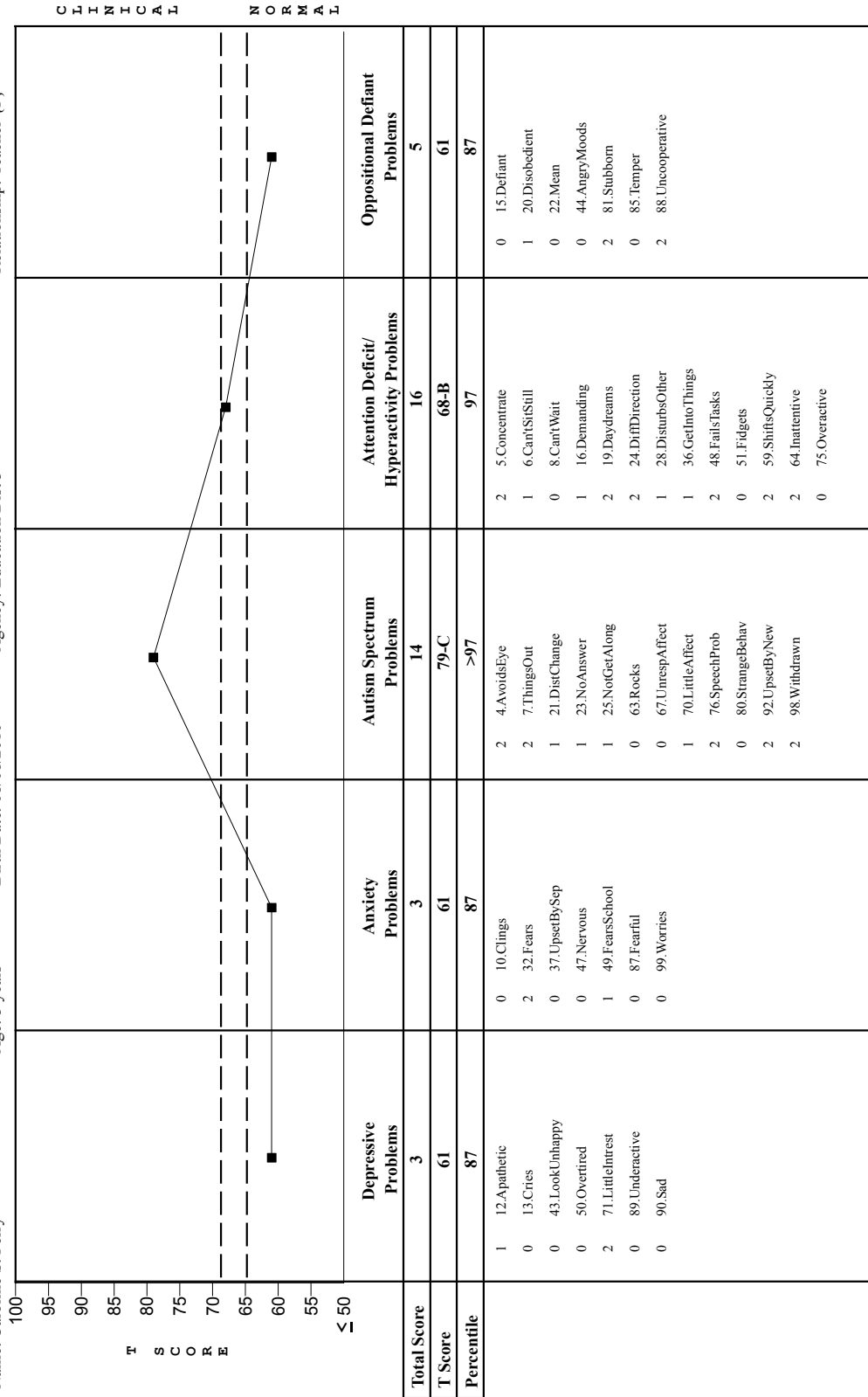
Informant: Meg Murray  
Relationship: Teacher {F}

Clinician: Ames  
Agency: Education Dist 3

Date Filled: 10/10/2013  
Birth Date: 08/08/2010

Gender: Female  
Age: 3 years

ID: Name: Caroline S. Perry



B = Borderline clinical range; C = Clinical range

Broken lines = Borderline clinical range

Figure 2-2. Profile of DSM-5-oriented scales scored from C-TRF completed for Caroline Perry by her preschool teacher.

of most girls in the normative sample appropriate for the society in which Caroline lived.

**Cross-Informant Comparisons.** To facilitate comparisons between the DSM-oriented scale scores obtained from different informants, the ASEBA software displays bar graphs of the scores from multiple informants. Figure 2-3 shows the bar graphs of DSM-oriented scale scores from the C-TRFs completed by Caroline's teacher and daycare provider, as well as from the CBCLs completed by Caroline's mother and father.

As you can see in Figure 2-3, the Autism Spectrum Problems scale scores from Caroline's parents' CBCLs and her teacher's C-TRF were in the clinical range, while the score from the C-TRF completed by her daycare provider was in the borderline clinical range. Neither the Attention Deficit/Hyperactivity Problems scale nor any of the other DSM-oriented scales reached the borderline clinical range in ratings by Caroline's parents or daycare provider. Although differing in severity, the elevated scores on the Autism Spectrum Problems scale obtained from ratings by all four informants indicate that Caroline manifested numerous ASD problems, as seen by four adults in three different settings (school, daycare, family). This evidence thus argues for determining whether Caroline meets criteria for a diagnosis of ASD and/or is eligible for special education services for children with ASD. Caroline's borderline clinical range score on the Attention Deficit/Hyperactivity Problems scale on the C-TRF completed by her teacher suggests that she may also need help with ADHD problems in school settings.

**ASEBA Scores as Evidence for ASD.** The ability of ASEBA instruments to identify children who qualify for ASD diagnoses has been supported by research in the U.S. and Italy. In a U.S. study, children referred to an autism program were assessed with the CBCL/1½-5, the Autism Diagnostic Observation Scale-Generic (ADOS-G; Lord et al., 2000), the Gilliam (1995) Autism Rating Scale (GARS), and other assessment instruments, observations, and diagnostic interviews (Sikora, Hall, Hartley, Gerard-Morris, & Cagle, 2008). Scores on the CBCL/1½-5 DSM-IV-oriented Pervasive

Developmental Problems scale (predecessor of the DSM-5-oriented Autism Spectrum Problems scale) and the Withdrawn syndrome scale were more strongly associated with ADOS-G diagnoses of ASD than was the GARS autism score. Both CBCL/1½-5 scales also yielded better sensitivity than the GARS in relation to diagnoses of ASD.

The Italian study similarly used the ADOS-G as a criterion for ASD (Muratori et al., 2011). Like Sikora et al. (2008), Muratori et al. found that the CBCL/1½-5 Pervasive Developmental Disorders and Withdrawn scales were the best discriminators between children with ASD and other children referred for mental health services. Receiver operating characteristic (ROC) analyses showed that the Pervasive Developmental Problems *T* score of 65 (i.e., the standard CBCL/1½-5 cutpoint for the borderline clinical range) provided optimal discrimination between children diagnosed as having ASD versus other children referred for mental health services. Although the Sikora et al. and Muratori et al. studies were done before the 2013 release of DSM-5, the international experts using DSM-5 criteria (detailed in Chapter 1) identified the same ASEBA items for the Autism Spectrum Problems scale as had previously been identified for the Pervasive Developmental Problems scale, except for the omission of item 3. *Afraid to try new things*. Because the DSM-5-oriented Autism Spectrum Problems scale thus has one less item than the DSM-IV-oriented Pervasive Developmental Problems scale, all sets of *T* scores have been recalibrated on the basis of the DSM-5-oriented scale scores.

### **Jerry Carlson, Age 12**

Based on Jerry's inattention, poor school achievement, and occasional disruptive behavior, Jerry's teacher, Tyrone King, became sufficiently concerned to consult the school psychologist about whether Jerry might have ADHD. With the consent of Jerry's mother, the school psychologist asked Mr. King to complete the TRF. The TRF yielded a *T* score of 77 on the DSM-oriented Attention Deficit Hyperactivity Problems scale, which was well up in the clinical range. Although this high score was evidence for ADHD, the TRF ratings also

**Cross-Informant Comparison - DSM-5-Oriented Scale T Scores CBCL 1.5-5/C-TRF 1.5-5**

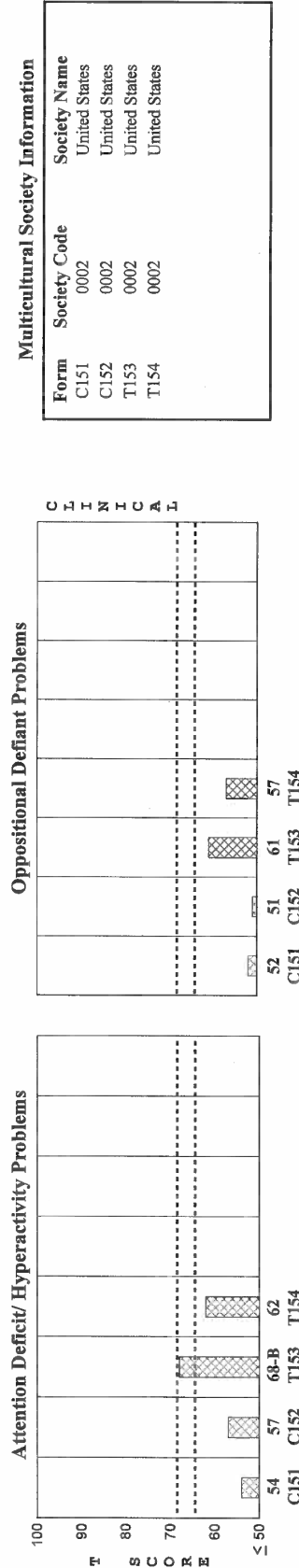
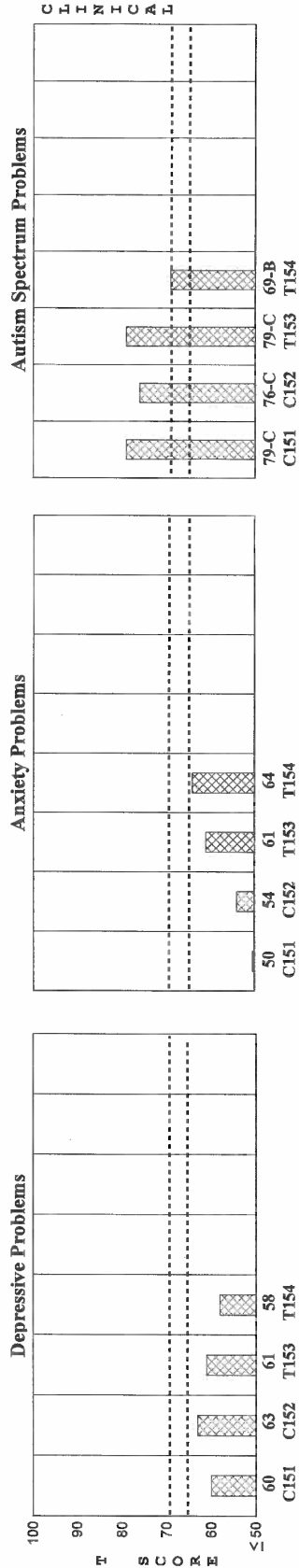
Comparison date: 10/24/2013

Birth Date: 08/08/2010

Gender: Female

Name: Caroline S. Perry

Form	Eval ID	Age	Informant Name	Relationship	Date	Form	Eval ID	Age	Informant Name	Relationship	Date
C151		3 years	A. Perry	Mother	10/10/2013						
C152		3 years	N. Perry	Father	10/10/2013						
T153		3 years	M. Murray	Teacher (F)	10/10/2013						
T154		3 years	L. Roe	Caregiver (F)	10/10/2013						



B = Borderline clinical range; C = Clinical range  
 Broken lines = Borderline clinical range

nc = not calculated due to insufficient data  
 {F}=Female {M}=Male

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Figure 2-3. Bar graphs of DSM-5-oriented scales for Caroline Perry scored from CBCL/1½-5 forms completed by her parents and C-TRFs completed by her preschool teacher and daycare provider.

yielded *T* scores in the borderline clinical range on the DSM-oriented Depressive Problems and Conduct Problems scales. The evidence for a high level of ADHD problems but also borderline-clinical levels of Depressive and Conduct problems warranted further assessment. Consequently, the school psychologist asked Jerry's mother to complete the CBCL/6-18 and requested her consent to have Jerry complete the YSR.

The CBCL/6-18 completed by Jerry's mother yielded a score in the clinical range on the DSM-oriented Conduct Problems scale, plus scores in the borderline clinical range on the Depressive Problems, Attention Deficit Hyperactivity Problems, and Oppositional Defiant Problems scales. Although Jerry's mother thus reported enough ADHD problems to reach the borderline clinical range, her ratings indicated considerably greater deviance on the Conduct Problems scale, as well as borderline clinical levels of problems on the Depressive Problems and Oppositional Defiant Problems scales.

As shown in Figure 2-4, Jerry's YSR yielded a score in the high normal range on the Attention Deficit Hyperactivity Problems scale but a *T* score of 80, well up in the clinical range, on the Depressive Problems scale. Jerry's YSR also yielded a *T* score of 70, just above the borderline clinical range, on the Anxiety Problems scale, as well as a score in the borderline clinical range on the Conduct Problems scale.

**Cross-Informant Comparisons.** It is not unusual for youths to report fewer problems of ADHD, ODD, and CD than parents and teachers report. However, Jerry's endorsement of so many items on the Depressive Problems scale, as well as enough items on the Anxiety Problems scale to reach the clinical range, indicated a high level of emotional distress that was evidently not apparent to his mother and teacher. As you can see from the multi-informant bar graphs in Figure 2-5, the patterns of elevated scale scores in the parent, teacher, and self-ratings indicate that Jerry's problems were too complex to be adequately captured by a diagnosis of ADHD alone. Based on the cross-informant comparisons and the evidence for emotional prob-

lems as well as attention deficit and conduct problems, the school psychologist concluded that Jerry needed more help than could be provided by in-school accommodations and interventions. Consequently, she recommended that Jerry's mother take Jerry to a mental health provider.

### **Jack Aiken, Age 30**

A court ordered that Jack be evaluated by a mental health professional after he had been arrested three times for rather odd acts of vandalism. As part of the evaluation, Jack was asked to complete the ASR and his mother and girlfriend were asked to complete ABCLs to describe Jack's functioning. The ABCLs both yielded scores in the clinical range on the DSM-oriented Antisocial Personality Problems scale and in the borderline range on the Attention Deficit Hyperactivity Problems scale. The ASR completed by Jack yielded scores in the borderline clinical range on the Somatic Problems, Attention Deficit Hyperactivity Problems, and Antisocial Personality Problems scales. Figure 2-6 displays the multi-informant bar graphs for Jack's ABCL and ASR DSM-oriented scale scores.

The elevated ABCL and ASR scores on the Antisocial Personality Problems scale were consistent with Jack's offenses. However, the criteria for the DSM diagnostic category of Antisocial Personality Disorder are quite heterogeneous, including both aggressive and unaggressive behaviors. By contrast, factor analyses of the ASR and ABCL have yielded separate syndromes comprising aggressive versus unaggressive antisocial behaviors. These syndromes are designated as Aggressive Behavior and Rule-Breaking Behavior, respectively. (Aggressive Behavior and Rule-Breaking Behavior syndromes have also been obtained from factor analyses of the CBCL/6-18, TRF, and YSR, for which the DSM-oriented Conduct Problems scale comprises both aggressive and unaggressive behaviors, reflecting the heterogeneous behaviors included in the DSM Conduct Disorder category.)

On the ABCL and ASR syndromes, Jack obtained substantially higher scores on the Rule-Breaking Behavior syndrome than the Aggressive Behavior syndrome. These findings indicated that

YSR/11-18 - DSM-5-Oriented Scales for Boys Scored Using T Scores for United States

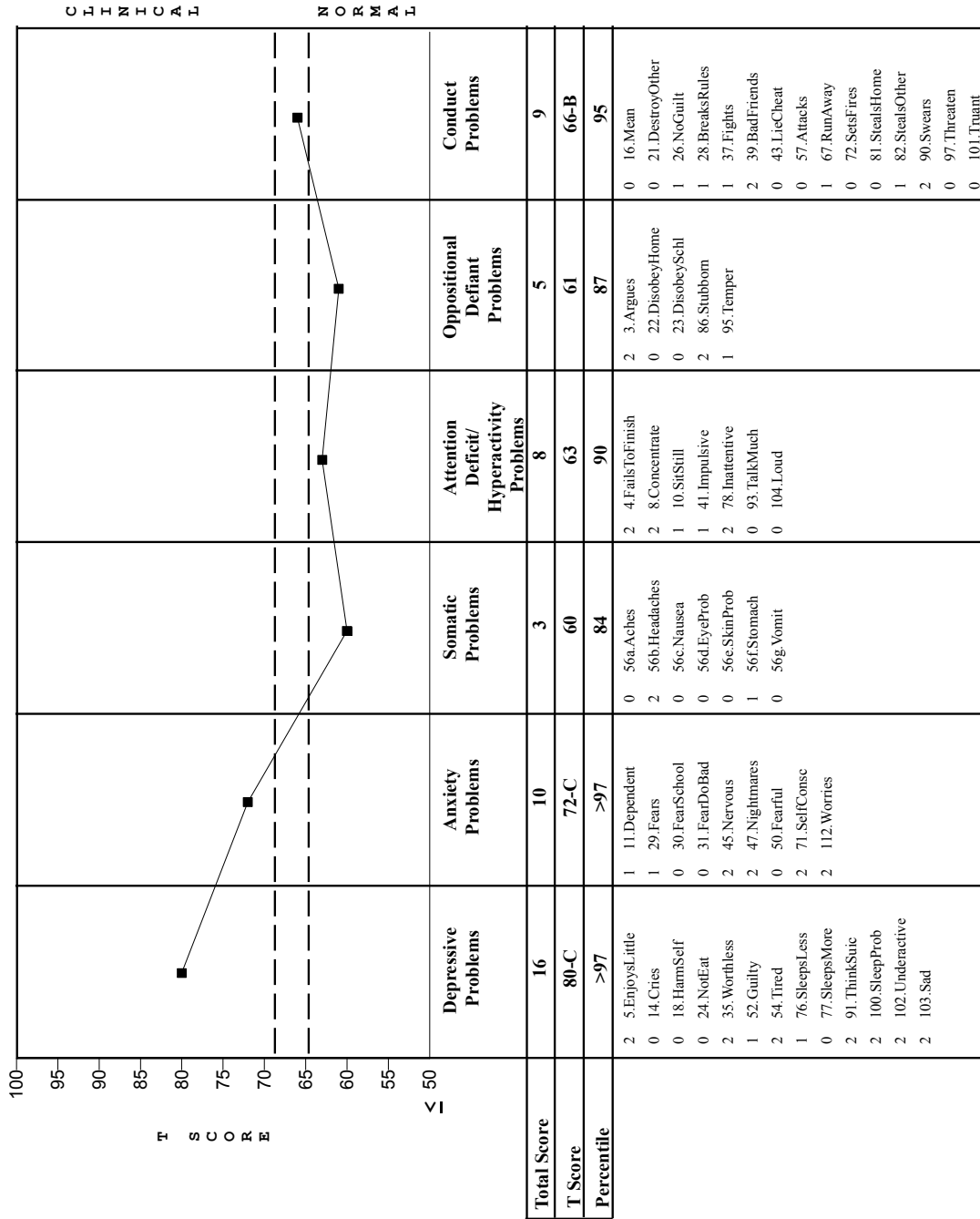
Informant: Self  
Relationship: Self

Clinician:  
Agency:

Date Filled: 09/09/2013  
Birth Date: 04/04/2001

Gender: Male  
Age: 12

ID: Name: Jerry M. Carlson



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Figure 2-4. Profile of DSM-5-oriented scales scored from YSR completed by Jerry Carlson.

**Cross-Informant Comparison - DSM-5-Oriented Scale T Scores CBCL/TRF/YSR**

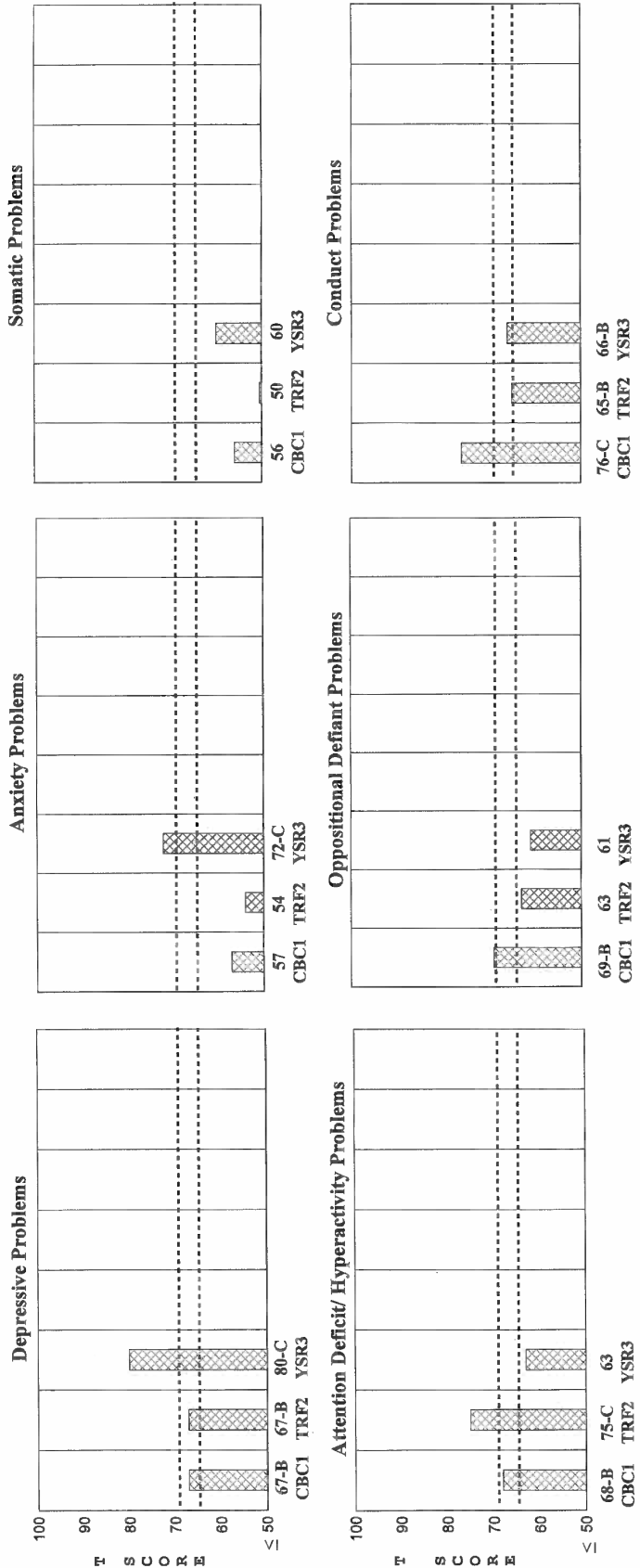
Comparison date: 10/28/2013

Birth Date: 04/04/2001

Gender: Male

Name: Jerry M. Carlson

Form	Eval ID	Age	Informant Name	Relationship	Date	Form	Eval ID	Age	Informant Name	Relationship	Date
CBC1		12	E. Carlson	Biological Mother	09/09/2013						
TRF2		12	T. King	Classroom Teacher (M)	09/09/2013						
YSR3		12	Self	Self	09/09/2013						



**Multicultural Scoring Information**

Form	Society Name	Society Code
CBC1	United States	0002
TRF2	United States	0002
YSR3	United States	0002

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 Burlington, VT 05401-3456  
 www.ASEBA.org

Figure 2-5. Bar graphs of DSM-5-oriented scales for Jerry Carlson scored from CBCL, TRF, and YSR forms.



Cross-Informant Comparison - DSM-5-Oriented Scale T Scores ASR/ABCL

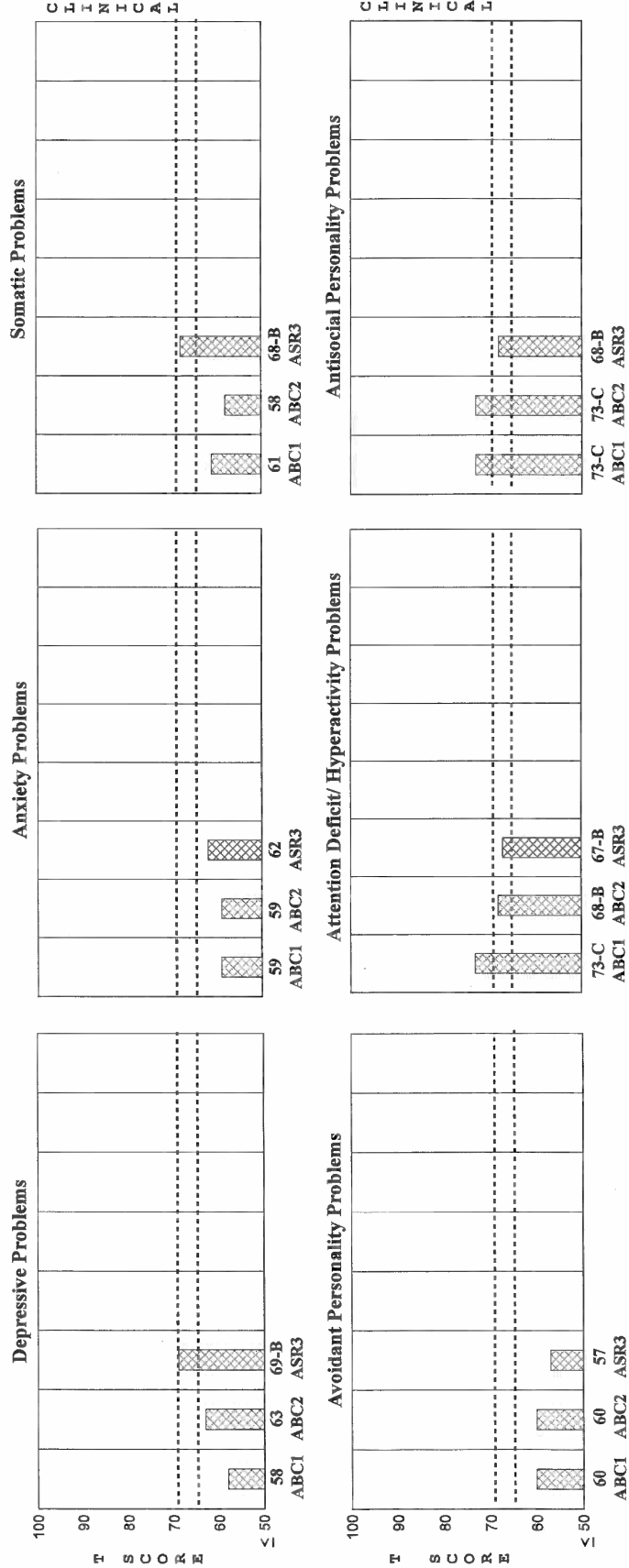
Comparison date: 10/24/2013

Birth Date: 07/07/1983

Gender: Male

Name: Jack L. Aiken

Form	Eval ID	Age	Informant Name	Relationship	Date	Form	Eval ID	Age	Informant Name	Relationship	Date
ABC1		30	L. Aiken	Mother	10/11/2013	ABC1	61	58	68-B		
ABC2		30	A. Randell	Partner	10/11/2013	ABC2	59	59	67-B		
ASR3		30	Self	Self	10/11/2013	ASR3	73-C	73-C	68-B		



B = Borderline clinical range; C = Clinical range  
 Broken lines = Borderline clinical range

nc = not calculated due to insufficient data

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Figure 2-6. Bar graphs of DSM-5-oriented scales for Jack Aiken scored from ABCLs completed by Jack's mother and girl-friend and ASR completed by Jack.

Jack's behavior was less aggressive than might be inferred from a diagnosis of Antisocial Personality Disorder. Examination of Jack's ASR syndrome scores revealed that his Somatic Complaints score was in the clinical range, reflecting self-ratings of 2 on the following items: 51. *I feel dizzy or light-headed*; 54. *I feel tired without good reason*; 56b. *Headaches*; 56h. *Heart pounding or racing*; 56i. *Numbness or tingling in body parts*; and 100. *I have trouble sleeping*. Items 51, 54, 56h, 56i, and 100 are not on the DSM-oriented Somatic Problems scale.

Further examination of the syndrome scales revealed scores in the clinical range on the Thought Problems syndrome scale scored from Jack's ASR and from the ABCL completed by his girlfriend, as well as a score in the borderline clinical range on the ABCL completed by his mother. The endorsed items included 9. *Can't get mind off certain thoughts, obsessions*; 66. *Repeats certain acts over and over, compulsions*; 84. *Strange behavior*; 85. *Strange ideas*, and 91. *Thinks/talks about killing self*. Figure 2-7 displays the multi-informant bar graphs for Jack's ABCL and ASR syndrome scores.

Jack's behaviors corresponding to the DSM Antisocial Personality category were primarily unaggressive, rule-breaking behaviors that may be by-products of the difficulties indicated by his elevated scores on the Somatic Complaints, Thought Problems, and Attention Deficit Hyperactivity Problems scales. The results of the court-ordered evaluation thus argued for diverting Jack from criminal prosecution to medical and mental health services.

#### **FURTHER APPLICATIONS OF THE DSM-ORIENTED SCALES**

The three case illustrations provide samples of how ASEBA instruments and DSM-oriented scales can be used in the assessment of preschoolers, school-age children, and adults. Because the ASEBA forms can be self-administered online or on paper by multiple informants, they enable practitioners to obtain extensive assessment data from multiple informants at no cost in practitioner

time. The ASEBA data provide practitioners with evidence on which to base clinical interviews. If practitioners deem it appropriate, they can show clients the scored ASEBA profiles to help them see the areas in which help may be needed, as well as the differences between problem ratings by different informants.

Scores on the DSM-oriented scales provide evidence that practitioners can use when deciding which DSM diagnoses to consider and when choosing among diagnoses. The syndrome scales and other scales scored from ASEBA forms can also be used in making diagnostic formulations that are more comprehensive than formal diagnoses are and also in designing interventions. As an example, the combination of elevated DSM-oriented and syndrome scale scores obtained for Jack Aiken revealed somatic, thought, and attention problems that argued more for mental health treatment than for a diagnosis of Antisocial Personality Disorder or for severe penalties for his offenses. Similarly, the ADHD problems on which evaluation of Jerry Carlson initially focused were found to be only one part of more complex patterns that could not be adequately handled with school-based accommodations and interventions.

#### **Reassessment of Clients**

When ASEBA forms are completed as part of referral and/or evaluation processes, they provide baseline assessments for comparison with subsequent reassessments. If interventions are implemented, ASEBA forms can be completed again after a few months to assess progress in terms of changes from baseline scores. If problem scale scores have not declined or if new problems are revealed by the ASEBA data, practitioners may wish to consider modifying the interventions. ASEBA forms can be completed again at termination and again at follow-ups to obtain evidence regarding improvements following treatment. Because ASEBA ratings and scales are quantitative, they are sensitive to changes in degrees of DSM-related criteria, whereas the present-versus-absent criteria for DSM diagnoses are much less sensitive for measuring change.

Cross-Informant Comparison - Syndrome Scale T Scores ASR/ABCL

ID:		Name: Jack L. Aiken		Gender: Male		Form		Eval ID		Age		Relationship		Date	
ABC1		L. Aiken		Mother		ABC1		63		30		L. Aiken		10/11/2013	
ABC2		A. Randall		Partner		ABC2		64		30		A. Randall		10/11/2013	
ASR3		Self		Self		ASR3		65-B		30		Self		10/11/2013	

Comparison date: 10/24/2013

Birth Date: 07/07/1983

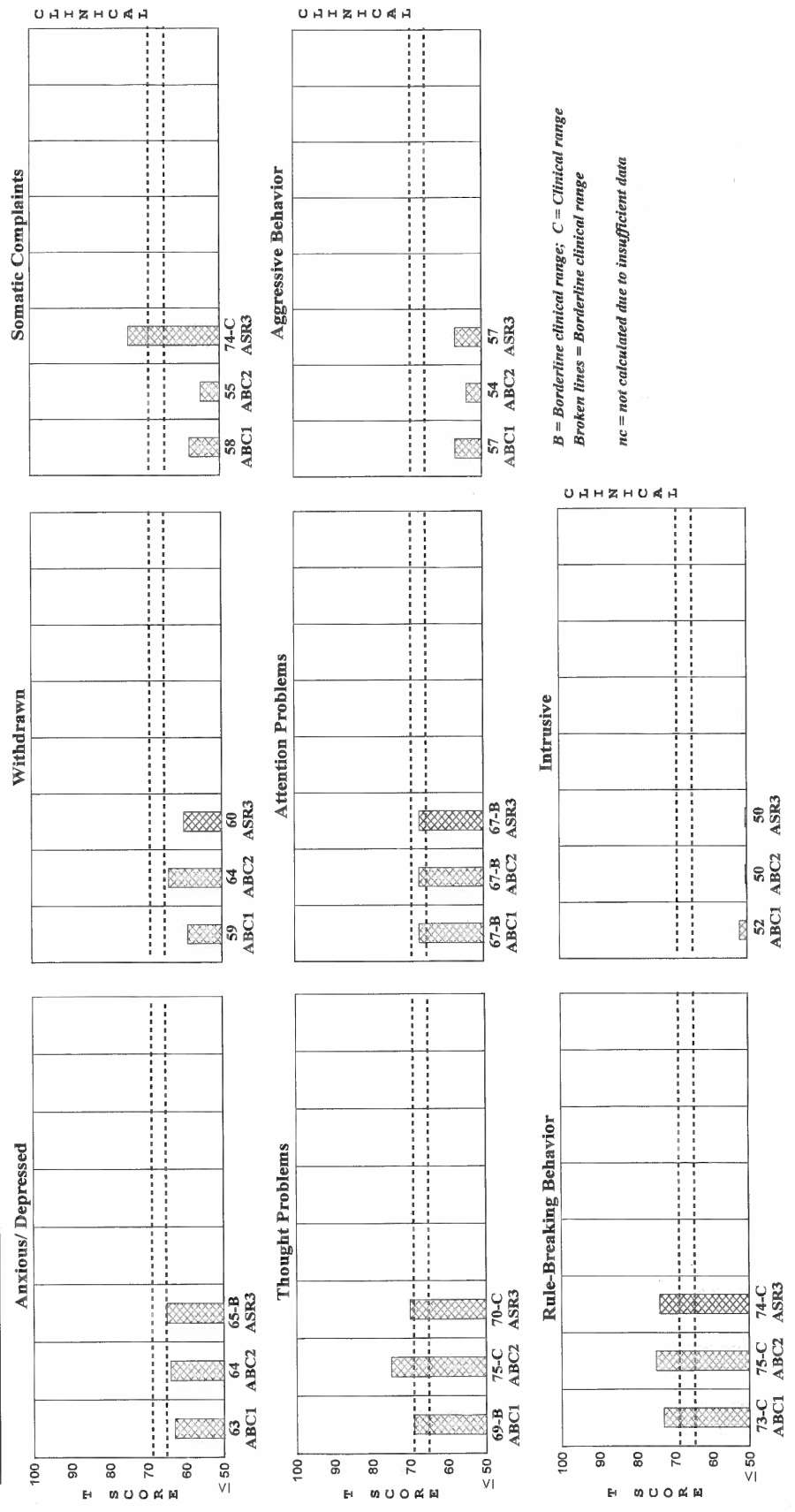


Figure 2-7. Bar graphs of syndrome scales for Jack Aiken scored from ABCLs completed by Jack's mother and girlfriend and ASR completed by Jack.

### **Evaluating Services**

Just as it is important to evaluate progress and outcomes for individual clients, it is also important to evaluate the effects of services. If most or all clients receiving particular services are initially assessed with ASEBA forms, completion of the forms again following the services makes it possible to measure pre- to post-treatment changes for all the participating clients. Comparisons of changes for clients having different characteristics—such as females versus males, younger versus older clients, and clients with different presenting problems and/or diagnoses—may reveal whether some kinds of clients are improving more than others. If outcomes are found to differ in relation to client characteristics, this evidence can be used as a basis for changing services to improve outcomes for the kinds of clients who are not improving much and/or to identify kinds of clients who should be referred elsewhere.

To test the effectiveness of services, it is necessary to compare pre- to post-service changes for clients who are randomly assigned to two or more variations of services, i.e., to test services via randomized controlled trials (RCTs) that compare the effects of different services. If at least two service variations are available, clients can be randomly assigned to receive either Service A or Service B. Such a design can test whether outcomes are better for clients receiving A versus B, but it is desirable to also include a no-treatment control condition. As an example, people on a waiting list for service can be assessed when they are accepted for the waiting list and again when they move from the waiting list to receiving an active service. Comparison with a waiting-list or other no-treatment control condition makes it possible to test whether Service A, B, or both are followed by better outcomes than no treatment.

### **TRAINING PRACTITIONERS**

Practitioners are increasingly expected to provide evidence to support their decisions about the services they provide and the effectiveness of those services. Although rigorous studies of effectiveness, such as RCTs, are typically team ef-

forts that may span years, each practitioner can use evidence-based methods with every case. To teach trainees to use evidence-based methods while sharpening their clinical skills, they can be asked to complete the CBCL to describe their child clients and the ABCL to describe their adult clients. When completing the CBCL or ABCL, trainees need to focus carefully on many specific strengths and problems relevant to the client. If a trainee lacks sufficient information, the trainee can be encouraged to investigate by observing and asking the client and collaterals.

After trainees complete the CBCL or ABCL, the ASEBA software can display item ratings and scale scores from the trainees' forms in comparisons with forms completed by clients and collaterals. For example, multi-informant bar graphs like those shown in Figure 2-6 for Jack Aiken's DSM-oriented scale scores can include bars scored from the ABCL completed by a trainee to describe Jack. Similarly, cross-informant bar graphs comparing syndrome scale scores—like those shown for Jack in Figure 2-7—can include bars scored from the ABCL completed by a trainee to describe Jack. The ASEBA software also displays side-by-side comparisons of 0-1-2 ratings of each problem item by all informants, including trainees who complete the ABCL.

Trainees can quickly view the bar graphs and item ratings to identify their agreements and disagreements with other informants and to learn from their disagreements. As another training exercise, trainees can complete the YSR or ASR in order to identify agreements and disagreements between their ratings of clients and clients' self-ratings. If supervisors and multiple trainees rate the same clients, the profiles scored from their ratings can be compared and discussed to develop more differentiated perspectives on the clients' functioning. This is especially helpful for training clinicians, child-care workers, foster parents, and special educators.

In addition to sharpening trainees' skills in assessing clients and in understanding discrepancies among informants, the trainees' ASEBA forms and the computer output from them can be retained as

documentary evidence of how the trainees viewed the clients' functioning. The clients' and collaterals' ASEBA forms and computer output likewise provide documentary evidence regarding clients' functioning at intake. If ASEBA forms are subsequently completed to assess progress and outcomes, the completed forms and computer output should also be retained as documentary evidence of changes in functioning. If trainees need to communicate about cases with supervisors and/or other practitioners, the ASEBA computer output can provide readily understood evidence.

### SUMMARY

This chapter illustrated practical applications of the DSM-oriented scales to children and adults. The typical sequence for using the DSM-oriented scales starts with clients and/or other informants completing ASEBA forms, which are then scored with ASEBA software. The software produces profiles that compare DSM-oriented and other scale scores with norms for the client's age, gender, the type of informant, and the relevant multicultural norm group. Multi-informant bar graphs enable users to quickly identify DSM-oriented scale scores that are clinically elevated in informants' ratings. Elevated scale scores alert users to determine whether criteria are met for the corresponding diagnoses.

One case illustration was of 3-year-old Carolyn Perry, whose CBCL/1½-5 and C-TRF ratings yielded elevated scores on the Autism Spectrum Problems scale.

The second case illustration was of 12-year-old Jerry Carlson, whose teacher became concerned about problems suggesting ADHD. However, DSM-oriented scales scored from TRF ratings by the teacher, CBCL/6-18 ratings by Jerry's mother, and YSR ratings by Jerry revealed elevated scores on Depressive Problems, Anxiety Problems, Oppositional Defiant Problems, and Conduct Problems, in addition to Attention Deficit Hyperactivity Problems. The complex picture found in the multi-informant ratings argued for referral to a mental

health provider rather than school-based accommodations and interventions for ADHD.

The third case was of 30-year-old Jack Aiken, who was arrested for odd acts of vandalism. The ABCLs completed by Jack's mother and girlfriend and the ASR completed by Jack yielded elevated DSM-oriented scale scores on Somatic Problems and Attention Deficit Hyperactivity Problems, in addition to Antisocial Personality Problems. The syndrome scale scores yielded by the ABCLs and ASR amplified on the DSM-oriented findings by revealing clinically elevated scores for Somatic Complaints and Thought Problems. A considerably higher score on the Rule-Breaking Behavior syndrome than the Aggressive Behavior syndrome showed that Jack's elevated score on the DSM-oriented Antisocial Personality Problems scale mainly reflected unaggressive rather than aggressive antisocial behavior.

Because the quantitative ASEBA item ratings and scale scores are more sensitive to change than are present-versus-absent DSM diagnoses, the scale scores are especially useful for measuring changes in problems reported for individual clients and also for evaluating the effects of services for groups of clients.

The ASEBA item ratings and scales can be used to train practitioners in evidence-based services. By completing ASEBA collateral and self-report forms to describe clients, trainees can learn to closely attend to many specific strengths and problems. ASEBA software can display item ratings and scale scores from ASEBA forms completed by practitioners side-by-side with item ratings and scale scores from ASEBA forms completed by clients and collaterals. Trainees can thus see and learn from agreements and disagreements between their ratings and others' ratings of clients' functioning. The completed ASEBA forms and scored output provide documentary evidence that can be shared with supervisors and colleagues, as well as being retained in clients' records.

## Chapter 3

# Research Applications of the ASEBA

The ASEBA is designed to advance knowledge via research and to advance practice via research-based evidence. Practical and research applications of the ASEBA can often be combined in service settings where ASEBA forms are used to assess clients as part of the referral and intake process and where efforts are made to advance knowledge and services through research. If ASEBA forms are completed online by clients and/or data from ASEBA paper forms are key entered into scoring software, a computerized data base can be maintained. With appropriate protection of personal identifying data, the data base can be analyzed to tabulate the percentage of clients having deviant scores on each DSM-oriented scale, syndrome scale, and other scales. The data base can also be analyzed to tabulate the percentage of clients for whom certain problem items are reported, such as suicidal thoughts and behavior.

In addition to tabulating the overall percentage of clients having particular scores, users can determine whether particular demographic groups have especially elevated rates of certain problems or deviant scores on particular scales. For example, it may be found that elevated scores on certain DSM-oriented scales are especially common for females of certain ages and/or ethnic groups, whereas elevated scores on other DSM-oriented scales are especially common for males of certain ages and/or ethnic groups. Such findings can be used for in-service training oriented toward meeting the needs indicated by elevated rates of certain kinds of problems among particular demographic groups. The data base can also be mined for information to present in reports of the kinds and prevalence of problems being treated in caseloads over particular periods, such as annually.

### ASEBA SCALE SCORES AND DIAGNOSES

The DSM-oriented scales comprise items identified by experts as being very consistent with DSM di-

agnostic categories. However, because each ASEBA item is rated 0-1-2 and each raw scale score is computed by summing item ratings, the items and scales reflect quantitative gradations in problems, as perceived by informants who complete ASEBA forms.

Although each criterial symptom for DSM diagnoses must be judged as present or absent and each diagnosis is defined as being present or absent, the DSM-5 Manual states that “dimensional approaches . . . will likely supplement or supersede current categorical approaches in coming years” (American Psychiatric Association, 2013, p. 13). Furthermore, as argued by Michael Rutter (2011), a leading British child psychiatrist, “Empirical findings indicate that most risk factors for mental disorders operate dimensionally and most mental disorders are also dimensional in their operation” (p. 655). And meta-analyses have shown that dimensional (quantitative) methods for assessing psychopathology are substantially more reliable and valid than present-vs.-absent (categorical) methods (Markon, Chmielewski, & Miller, 2011).

Considering that quantitative approaches are increasingly recognized as being more informative than categorical approaches to diagnosis, an important research focus concerns relations between scores on quantitative scales and diagnoses. The following sections address some relevant research issues and findings.

### Relations between Raw Scores and *T* Scores for ASEBA Scales

The raw scale scores obtained by summing the 0-1-2 ratings of ASEBA problem items have different distributions for different scales, because the scales comprise different numbers of items and because the frequencies of 0, 1, and 2 ratings differ among the items comprising different scales. The distributions of scores on particular scales may also differ for ratings of females vs. males, individuals of different ages, and ratings by different

kinds of informants. To provide a standard metric that makes it easy to compare scores across different scales completed by different kinds of informants for females and males of different ages, the ASEBA software transforms each raw scale score to a normalized *T* score. Normalized *T* scores are standard scores that are based on the percentiles occupied by raw scale scores in the distribution of scores obtained by individuals in the relevant normative sample. Consequently, the *T* score obtained by an individual tells us approximately how high (in terms of a percentile) the individual's scale score is, compared to the scores obtained by individuals in the relevant normative sample.

So that users need not learn the percentile represented by each *T* score, the ASEBA computer software and hand-scored profiles display percentiles as well as *T* scores. However, because *T* scores that are in the clinical range ( $T > 69$ ;  $> 97$ th percentile for DSM-oriented and syndrome scales) are above the range of meaningful percentiles in normative samples, they are based on the number of possible scores in a scale that exceed the 97th percentile in the normative sample. Details of *T* score assignments are presented in the *Manuals* for ages 1½-5, 6-18, 18-59, and 60-90+ (Achenbach et al., 2004; Achenbach & Rescorla, 2000, 2001, 2003), while details of *T* scores based on multicultural norm groups are presented in the *Multicultural Supplements* for ages 1½-5, 6-18, and 18-59 (Achenbach & Rescorla, 2007, 2010, 2014b).

Because substantial percentages of individuals in the normative samples obtained very low scores on the DSM-oriented and syndrome scales (e.g., scores of 0 or 1), the *T* score assignments start at 50, which represents the 50th percentile of scores in a normative sample. In other words, all raw scale scores that were in the lowest 50 percent of the distribution are assigned a *T* score of 50. Consequently, on DSM-oriented and syndrome scale profiles and on multi-informant bar graphs, such as those displayed in Figures 2-2 through 2-7, the lowest possible *T* scores are 50. The raw scale scores grouped at  $T = 50$  are all too low to indicate needs for help. Although the highest possible *T* scores on particular scales range from 75 to 100

(depending on the number of raw scale scores that are available above the 97th percentile), each *T* score from 50 to 69 (97th percentile) represents approximately the same percentile on all DSM-oriented and syndrome scales, for females and males of different ages, rated by different kinds of informants, and compared with the multicultural norm group selected by the user.

### **Use of Raw Scores vs. *T* Scores for Statistical Analyses**

The ASEBA *T* scores are particularly useful for viewing profiles and multi-informant bar graphs of scale scores, because the *T* scores provide a metric that is standardized on the basis of comparable percentiles for the different scales and norm groups. However, for statistical analyses, raw scale scores are often preferable, because they reflect all the variation that actually occurs in scores obtained by the individuals whose data are being analyzed. *T* scores, by contrast, lump together some raw scale scores, such as the different low scores that are given a *T* score of 50. On the other hand, if the lack of differentiation among very low scale scores is irrelevant (e.g., when few scale scores in an analysis are very low), then use of *T* scores has the advantage of taking account of differences in the normative distributions for different scales, individuals of different genders and ages, different kinds of informants, and multicultural norm groups.

Because *T* scores are not truncated for the broad-band Internalizing, Externalizing, and Total Problems scales, the *T* scores for these scales can be analyzed without loss of differentiation among low scale scores. The *Manuals* and *Multicultural Supplements* provide more extensive guidance for statistical analyses of raw scale scores, *T* scores, and other kinds of standard scores (Achenbach et al., 2004; Achenbach & Rescorla, 2000, 2001, 2003, 2007, 2010, 2014b).

### **Testing Associations between ASEBA Scale Scores and Diagnostic Data**

ASEBA item and scale scores are quantitative, whereas DSM diagnoses are categorical. Nevertheless, ASEBA data can be analyzed categorically as well as quantitatively. For example, the borderline

and clinical cutpoints that are displayed on profiles of ASEBA scales can be used to dichotomize scale scores as normal vs. combined borderline and clinical, or as combined normal and borderline vs. clinical. Or, if users prefer somewhat more differentiated categories, they can trichotomize the scale scores as normal vs. borderline vs. clinical. Users can also impose other cutpoints based on the nature of their samples, research questions, or findings with methods such as receiver operating characteristic (ROC) analyses. In any event, it is always possible to convert continuous quantitative scores to categories by imposing cutpoints on the distributions of quantitative scores.

It is not possible to convert categorical present-vs.-absent diagnoses to true quantitative scores, although numbers can be used as “dummy” variables to represent the presence-vs.-absence of a diagnosis (e.g., present = 1, absent = 0). Because the criteria for many DSM diagnostic categories include lists of symptoms, the numbers of criterial symptoms judged to be present can provide quantitative scores for those DSM categories, although the yes-vs.-no judgments for whether other criteria are met—such as age of onset and duration—cannot be readily quantified.

If ASEBA scale scores are converted to categories via cutpoints, their associations with present-vs.-absent diagnoses can be tested with categorical statistics such as chi square, phi correlation, tetrachoric correlation, kappa, and logistic regression. Associations of quantitative ASEBA scale scores with present-vs.-absent diagnoses can be tested with statistics such as point-biserial correlation and discriminant analysis. And associations of ASEBA scale scores with the number of criterial symptoms judged to be present can be tested with statistics such as the Pearson product-moment correlation and multiple regression.

### **Methodological Issues Relevant to Diagnoses**

Most DSM diagnoses are not operationalized in terms of procedures for obtaining assessment data nor for combining (often discrepant) data from different sources. Consequently, methods for obtaining and combining assessment data into judgments about

whether diagnostic criteria are met vary across settings and even among practitioners and cases within settings.

Standardized diagnostic interviews (SDIs) have been developed to operationalize DSM diagnoses by translating DSM criteria into questions that can be answered by people who are being assessed and, for children, by parents. Examples of adult SDIs include the Diagnostic Interview Schedule (DIS; Robins, Helzer, Croughan, & Ratcliff, 1981) and the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978). Child versions include the Diagnostic Interview Schedule for Children (DISC; Shaffer et al., 2000) and the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Ambrosini, 2000).

SDIs are widely used in research, but—because they require extensive interviewer training and hours to administer—they are not widely used in practice. Although SDIs are often regarded as diagnostic “gold standards,” SDIs administered to different informants (e.g., children vs. their parents) often yield discrepancies between diagnoses (e.g., Jensen et al., 1999). Different SDIs also yield discrepancies between diagnoses of the same individuals (e.g., Brugha, Jenkins, Taub, Meltzer, & Bebbington, 2001; Cohen, O’Connor, Lewis, Velez, & Malachowski, 1987). Furthermore, the test-retest reliability of diagnoses made from SDIs administered twice over intervals of days to weeks is considerably lower (e.g., Schwab-Stone et al., 1996) than the test-retest reliability of ASEBA scale scores (Achenbach et al., 2004; Achenbach & Rescorla, 2000, 2001, 2003).

Meta-analyses of multiple studies have yielded only low to moderate agreement between many diagnoses made from SDIs used to assess clinically referred clients and diagnoses of the same clients on the basis of clinical evaluations (Rettew, Lynch, Achenbach, Dumenci, & Ivanova, 2009). These findings, plus discrepancies between diagnoses of the same individuals made via different SDIs and on different occasions, indicate that DSM-diagnoses cannot be taken at face value as gold-standard equivalents of each individual’s “true” diagnosis. Instead, DSM diagnoses are affected by many methodological variables.



### Associations between ASEBA DSM-Oriented Scale Scores and Diagnostic Data

Over 250 publications report findings on associations between ASEBA scores and diagnostic data (Bérubé & Achenbach, 2014). Diagnostic assessments are done with many different kinds of data, which are obtained, combined, and judged in many different ways on the basis of many different diagnostic criteria. Diagnostic data are also aggregated differently for analyses in different studies, such as aggregating Generalized Anxiety Disorder, Separation Anxiety Disorder, and Specific Phobia into a single category vs. analyzing them as separate categories. Moreover, diagnostic categories and criteria have changed markedly from DSM-I through DSM-5 (American Psychiatric Association, 1952, 1968, 1980, 1987, 1994, 2013). Diagnoses based on different editions of the DSM—even successive editions—are often found to be discrepant (e.g., Lahey et al., 1990). Furthermore, DSM categories and criteria differ in many ways from those of the World Health Organization's (1992) International Classification of Diseases (ICD). The fallibility of diagnoses and the measurement errors that affect all assessment procedures, including SDIs and rating scales, inevitably limit agreement between diagnostic data and ASEBA scale scores.

Articles reporting associations between ASD diagnoses and ASEBA scale scores were reviewed in Chapter 2 (Muratori et al., 2011; Sikora et al., 2008).

The *Manual for the ASEBA School-Age Forms & Profiles* (Achenbach & Rescorla, 2001) reports point-biserial correlations between CBCL/6-18 DSM-oriented scale scores and DSM diagnoses of children evaluated in the University of Vermont's Child and Adolescent Psychiatry Service. The point-biserial correlations ranged from .34 for scores on the DSM-oriented Conduct Problems scale with diagnoses of Conduct Disorder to .60 for scores on the DSM-oriented Attention Deficit Hyperactivity Problems scale with diagnoses of ADHD.

The *Manual* also reports Pearson product-moment correlations between DSM-oriented scale

scores and scores on the interviewer-administered DSM-IV Checklist (Hudziak, 1998). The DSM-IV Checklist scores comprise sums of criterial symptoms endorsed by family members (including child clients) for DSM-IV diagnoses. The correlations between the DSM-oriented scales and DSM-IV Checklist scores ranged from .43 for the Anxiety Problems scale with DSM-IV Checklist scores for Separation Anxiety Disorder and Mixed Anxiety Depressive Disorder to .80 between the Attention Deficit Hyperactivity Problems scale with DSM-IV Checklist scores for ADHD.

The mean Pearson correlation of .61 with DSM-IV Checklist scores was substantially higher than the mean point-biserial correlation of .45 with diagnoses. The higher correlations with the DSM-IV Checklist probably reflect the fact that the Checklist data were quantified scores for informants' reports of symptoms assessed in the same way for all cases, rather than present-vs.-absent diagnoses based on different data combined and judged in different ways from practitioner to practitioner and case to case. The higher correlations with the DSM-IV Checklist may also reflect the fact that quantitative methods for assessing psychopathology are typically more reliable and valid than categorical, present-vs.-absent methods (Markon et al., 2011).

Two studies have tested associations of ASEBA DSM-oriented scale scores with diagnoses in samples of Dutch children referred for mental health services. One of the Dutch studies compared the ability of CBCL/6-18 DSM-oriented scale scores with the ability of computerized aggregations of CBCL item ratings to predict DSM-IV diagnoses made from the DISC (Krol, De Bruyn, Coolen, & van Aarle, 2006). It was found that the DSM-oriented scale scores and the computerized aggregations of CBCL item ratings predicted DSM diagnoses with similarly significant levels of accuracy.

The second Dutch study (Ferdinand, 2008) tested associations of CBCL/6-18 and YSR DSM-oriented Affective Problems (now called Depressive Problems) and Anxiety Problems scale scores with DSM-IV diagnoses made from the Anxiety Disor-

ders Interview Schedule for Children (ADIS-C/P; Silverman, Saavedra, & Pina, 2001). It was found that CBCL and YSR Affective Problems scale scores corresponded closely to diagnoses of Major Depressive Disorder and Dysthymia, whereas CBCL and YSR Anxiety Problems scale scores corresponded less well to diagnoses of anxiety disorders, which included Generalized Anxiety Disorder, Separation Anxiety Disorder, and Specific Phobia.

Another Dutch study (Van Lang, Ferdinand, Oldehinkel, Ormel, & Verhulst, 2005) tested associations of YSR DSM-oriented Affective Problems and Anxiety Problems scale scores with scores on the Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) completed by 2,230 10-12-year-olds in a community sample. The DSM-oriented Affective Problems and Anxiety Problems scales had large correlations (according to Cohen's, 1988, criteria) with the RCADS Major Depression Disorder scale and with the three RCADS Anxiety Disorder scales, respectively. Although the YSR Anxious/Depressed syndrome had correlations with the three RCADS Anxiety Disorder scales that equaled or exceeded their correlations with the DSM-oriented Anxiety Problems scale, the addition of three anxiety items to the DSM-5 revision of the YSR Anxiety Problems scale is apt to strengthen its association with the RCADS Anxiety Disorder scales in community samples, such as that used in the Van Lang et al. study, as well as with diagnoses of anxiety disorders.

A Swiss study tested the prediction of diagnoses of ADHD from the CBCL/6-18 DSM-oriented Attention Deficit Hyperactivity Problems scale, separately in a community sample and a child psychiatric sample (Aebi, Winkler Metzke, & Steinhausen, 2010). The DISC was used to make DSM-III-R diagnoses in the community sample. In the clinical sample, ICD-10 diagnoses of Hyperkinetic Disorder (analogous to ADHD) were based on consensus between a postgraduate clinician and a senior child/adolescent psychiatrist who used all available information. In both samples, the CBCL/6-18 DSM-oriented Attention Deficit Hyperactivity Problems scale was found to be a better

predictor of ADHD diagnoses than the CBCL/6-18 Attention Problems syndrome.

In a study of 476 6-18-year-olds referred to outpatient clinics in Boston and Hawaii (Ebesutani et al., 2010), DSM-IV diagnoses were made from parent interviews via the Children's Interview for Psychiatric Syndromes, Parent Version (P-ChIPS; Weller, Weller, Teare, & Fristad, 1999). CBCL/6-18 scores on the DSM-oriented Affective Problems, Anxiety Problems, ADHD Problems, Oppositional Defiant Problems, and Conduct Problems scales discriminated significantly between children who received vs. did not receive the diagnoses corresponding to the scales. Comparisons with the CBCL/6-18 syndrome scales showed that the Anxiety Problems scale was the only DSM-oriented scale that discriminated significantly better than the syndrome scales between children with and without the relevant diagnoses.

It is important to note the foregoing studies used a variety of methods to obtain and combine diagnostic data, and that none of the studies reported the reliability or validity of the diagnostic data. Consequently, it is not known how much the less-than-perfect reliability and validity of the various kinds of diagnostic data limited agreement with other data, such as DSM-oriented scale scores.

### **Studies of Other Aspects of DSM-Oriented Scale Scores**

Extensive psychometric data for the DSM-oriented scales have been published in the relevant ASEBA manuals and in peer-reviewed articles (Achenbach, Bernstein, & Dumenci, 2005; Achenbach, Dumenci, & Rescorla, 2003; Achenbach et al., 2004; Achenbach & Rescorla, 2000, 2001, 2003). These data include internal consistencies; test-retest reliabilities over periods of one to two weeks; longer-term stabilities; cross-informant correlations; associations with syndrome scale scores; and statistics testing the ability of DSM-oriented scale scores to discriminate between clinically referred and nonreferred samples. Moreover, a study of CBCL/6-18 DSM-oriented scale scores obtained by 673 ethnically diverse children referred for mental health services in Hawaii reported internal consistencies similar to those in the *Manual for the*

*ASEBA School-Age Forms & Profiles* (Achenbach & Rescorla, 2001), plus correlations with multiple measures supporting the convergent and divergent validity of the DSM-oriented scales (Nakamura, Ebesutani, Bernstein, & Chorpita, 2009).

Italian researchers tested the heritability of the CBCL/6-18 DSM-oriented scales in a study of 398 8-17-year-old twin pairs (Spatola et al., 2007). They found heritabilities ranging from .54 for Anxiety Problems to .71 for Conduct Problems, with the models for all the scales indicating no significant contributions from shared environmental influences. Heritabilities for the syndrome scales ranged from nonsignificant for Social Problems to .77 for Rule-Breaking Behavior. The models for Social Problems and for Aggressive Behavior both included significant contributions from shared as well as nonshared environmental influences, whereas the models for the other syndrome scales that were analyzed included only genetic and non-shared environmental influences.

Two studies tested the predictive power of the YSR DSM-oriented Oppositional Defiant Problems scale to predict self-reported violent offenses from ages 10-12 through 17-19 in a Chicago community sample of 2,415 youths (Boots & Wareham, 2009; Wareham & Boots, 2012). (The DSM-oriented Conduct Problems scale was not tested, because it overlaps with the offenses that were assessed.) After controlling for many neighborhood, demographic, and family variables, prior violence, and scores on other ASEBA scales, the authors found that YSR Oppositional Defiant Problems scale scores remained as significant predictors of violent offenses.

### SUMMARY

Research applications of the ASEBA can often be implemented in service settings where ASEBA forms are used for assessment of clients. Although the DSM-oriented scales are based on the DSM's diagnostic categories, the 0-1-2 ratings of ASEBA items and the summing of items to obtain scale scores provide dimensional (quantitative) measures of psychopathology that are increasingly recognized as more informative than present-vs.-

absent (categorical) approaches. Meta-analyses have shown that quantitative methods for assessing psychopathology are more reliable and valid than categorical methods.

Profiles of ASEBA scales display raw scale scores (sums of item ratings) in relation to percentiles and normalized *T* scores (raw scale scores transformed to a standard metric based on percentiles in normative samples). Because *T* scores for the narrow-band scales (DSM-oriented and syndrome scales) start at  $T = 50$  (50th percentile), raw scale scores may be preferable to *T* scores for statistical analyses of samples that include substantial proportions of very low scale scores.

Associations between ASEBA scale scores and diagnostic data can be tested in various ways using quantitative ASEBA scale scores or by using cut-points to categorize ASEBA scores (e.g., as normal vs. clinically deviant or normal vs. borderline vs. clinical). Categorical diagnoses cannot be converted to true quantitative scores, although the number of criterial symptoms judged to be present can be used as quantitative scores.

Because the DSM does not operationalize diagnoses, methods for judging DSM criteria vary across settings, practitioners, and cases. Standardized diagnostic interviews (SDIs) have been developed to operationalize DSM criteria for research. However, discrepancies are often found between diagnoses made from parallel SDIs administered to different informants (e.g., children vs. their parents), from SDIs administered on different occasions, and from different SDIs administered to the same individuals. Meta-analyses have yielded only low to moderate agreement between diagnoses made from SDIs vs. clinical evaluations.

Because diagnoses are affected by many methodological variables, agreements between diagnoses and other kinds of assessments are limited by the fallibility of diagnoses, as well as by measurement errors that affect all assessment. Published findings were reviewed that support the psychometric properties of the DSM-oriented scales and show various associations between the DSM-oriented scales and other kinds of data.

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# Appendix A

## Expert Raters for ASEBA DSM-5 Scales

<b>Argentina</b>	Corina Samaniego, Ph.D.
<b>Australia</b>	Joe Rey, M.D., Ph.D. Michael Sawyer, M.D., Ph.D.
<b>Belgium (Flanders)</b>	Patricia Bijttebier, M.D., Ph.D. Laurence Claes, M.D. Hans Grietens, Ph.D. Karla Van Leeuwen, Ph.D.
<b>Brazil</b>	Edwiges Silvaes, Ph.D.
<b>Canada</b>	Marco Battaglia, M.D.
<b>Czech Republic</b>	Ladislav Csémy, Ph.D.
<b>Denmark</b>	Niels Bilenberg, M.D., Ph.D.
<b>France</b>	Djaouida Petot, Ph.D. Jean-Michel Petot, Ph.D.
<b>Hong Kong</b>	Patrick Leung, Ph.D.
<b>Iceland</b>	Halldór Sig. Guðmundsson, M.S.W. Helga Hannesdottir, M.D., Ph.D.
<b>India</b>	Valsamma Eapen, M.D., Ph.D.
<b>Italy</b>	Monica Bellina, Ph.D. Alessandra Frigerio, Ph.D. Alfio Maggiolini, Ph.D.
<b>Japan</b>	Yasuko Funabiki, M.D., Ph.D. Yoshiharu Kim, M.D., Ph.D.
<b>Korea (South)</b>	Kyung Ja Oh, Ph.D.
<b>Kosovo</b>	Mimoza Shahini, M.D., Ph.D.
<b>Latvia</b>	Sandra Sebre, Ph.D.



<b>Lithuania</b>	Roma Jusiene, Ph.D. Roma Simulione, Ph.D. Rita Zukauskiene, Ph.D.
<b>Netherlands</b>	Frank Verhulst, M.D., Ph.D.
<b>Norway</b>	Bo Larsson, M.D., Ph.D.
<b>Portugal</b>	J. Carlos Caldas, Ph.D. Pedro Dias, Ph.D. Bárbara Machado, Ph.D. Paulo Moreira, Ph.D.
<b>Puerto Rico</b>	Glorisa Canino, Ph.D.
<b>Romania</b>	Anca Dobrean, Ph.D.
<b>Serbia</b>	Jasminka Marković, M.D., Ph.D.
<b>Singapore</b>	Daniel Fung, M.D.
<b>Spain</b>	Lourdes Ezpeleta, Ph.D. Carmina Saldaña, Ph.D.
<b>Switzerland</b>	Klaus Schmeck, M.D.
<b>Taiwan</b>	Yi-Chuen Chen, Ph.D.
<b>Turkey</b>	Cem Atbaşoğlu, M.D. Direnc Sakarya, M.D.
<b>United Kingdom</b>	Tony Charman, Ph.D. Joel Talcott, Ph.D.
<b>United States</b>	Russell Barkley, Ph.D. Susan Campbell, Ph.D. Gabrielle Carlson, M.D. Alice Carter, Ph.D. Helen Egger, M.D. Mariellen Fischer, Ph.D. Robert Krueger, Ph.D. Catherine Lord, Ph.D. Richard Mattison, M.D. Vicky Phares, Ph.D. Daniel Shaw, Ph.D. Matthew Speltz, Ph.D.

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