

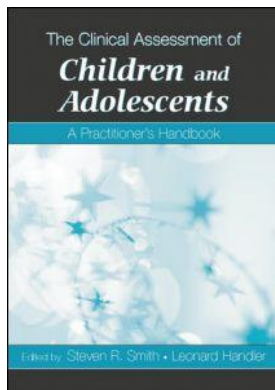
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The Minnesota Multiphasic Personality Inventory–Adolescent

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THE MINNESOTA MULTIPHASIC
PERSONALITY INVENTORY—ADOLESCENT

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SELF-REPORT ASSESSMENT WITH ADOLESCENTS

Questionnaire-based methods of assessing adolescents require careful attention to issues of the adolescent's capacity to provide an accurate self-report and the adequacy of the assessment instrument in providing reliable and valid measurement of psychological functioning during this developmental period. There are relatively few self-report personality measures available for use with adolescents, perhaps in part because of the constraints related to reading/comprehension ability, cognitive/affective developmental status, and motivational level of adolescents in clinical settings. Currently available measures include the Millon Adolescent Clinical Inventory (MACI; Millon, 1993) and the Adolescent Psychopathology Scale (APS; Reynolds, 1998), and an adolescent version of the Personality Assessment Inventory (PAI-A) is currently under development (Morey, 2000). By a large margin, however, the most widely used self-report measure of adolescents' functioning is the Minnesota Multiphasic Personality Inventory—Adolescent (MMPI-A).

Responding to a self-report personality inventory requires some capacity for self-reflection and abstract thinking. Adolescence is a time of rapid cognitive development and, in Piagetian (1975) terms, is the period during which most individuals shift from Concrete Operations to the Formal Operations stage. As this shift occurs, the adolescent acquires the ability to manipulate ideas and concepts, changes that facilitate the adolescent's ability to respond accurately to a self-report personality inventory (Archer, 2005).

In the development of a self-report assessment instrument for adolescents, the reading level of the items is of particular concern. An adolescent's inability to understand items may lead to frustration, inaccurate responses, or omitted items, all of which can jeopardize the validity of test results. There are a number of standardized methods for assessing the reading level of items (for example, computer programs to evaluate item difficulty based on number of syllables per word and number of words per sentence), and the items must be carefully scrutinized in this regard during test development. In addition, the reading level of the individual adolescent test taker must be determined before administration and specifically evaluated with the use of a standardized reading test when deemed necessary.

Finally, it is essential that an adolescent self-report personality inventory use an appropriate item pool to provide adequate content validity. Items must be appropriate to contemporary adolescent experience, as well as to the types of psychopathology and behavior problems most commonly seen in adolescents, such as eating disorders, substance abuse, and problems related to school and family. Likewise, test content should not include areas that are unlikely to be of concern to most adolescents, such as problems with an employer or chronic marital discord.

The Minnesota Multiphasic Personality Inventory (MMPI) and its successor, the MMPI-2, have long been among the most popular assessment instruments for use with adults (e.g., Piotrowski & Keller, 1989). Although the original MMPI was commonly used with adolescents (Archer, Maruish, Imhof, & Piotrowski, 1991), a number of concerns about its appropriateness for use with this population emerged gradually in the late 1970s and 1980s. In order to adequately address issues such as those discussed above, an adolescent form of the MMPI was developed and was eventually introduced as the Minnesota Multiphasic Personality Inventory-Adolescent (MMPI-A; Butcher et al., 1992).

DEVELOPMENT OF THE MMPI, MMPI-2, AND MMPI-A

The MMPI and the MMPI-2

In 1937, Starke R. Hathaway and J. C. McKinley began construction on what eventually became the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1940), an objective self-report instrument designed to identify and describe psychological features. The basic clinical scales of the MMPI were developed with the use of a method known as empirical or criterion keying, which at the time was considered revolutionary. Previous personality test development methods had generally relied on rational selection of items, with the use of face validity as the primary criterion; that is, items were selected based on the degree to which they appeared to be related to a given construct. In contrast, the empirical keying approach identifies test items based solely on their ability to differentiate effectively between normal and criterion groups. The criterion groups used for scale development consisted of clinical patients divided into discrete diagnostic categories, including Hypochondriasis (*Hs*; scale 1), Depression (*D*; scale 2), Hysteria (*Hy*; scale 3), Psychopathic Deviancy (*Pd*; scale 4), Paranoia (*Pa*; scale 6), Psychasthenia (*Pr*; scale 7), Schizophrenia (*Sc*; scale 8), and Mania (*Ma*; scale 9). Eventually the Masculinity-Femininity (*Mf*; scale 5) and Social Introversion (*Si*; scale 0) scales were also added, although these were considered nonclinical scales and were often omitted by early test users (Archer, 2005). A particularly important feature of the MMPI was its validity scales, which evaluated consistency and accuracy in responding. The MMPI was published in 1942 and quickly became established as

the most commonly utilized objective personality assessment instrument in the United States across a variety of settings (e.g., Lubin, Larsen, & Matarazzo, 1984; Lubin, Larsen, Matarazzo, & Seever, 1985; Lubin, Wallis, & Paine, 1971; Piotrowski & Keller, 1989). The test was eventually revised and released as the MMPI-2, intended for assessing adults 18 years old and older (Butcher et al., 1989).

The original MMPI normative sample included a small number of adolescents, although no formal adolescent norms were provided (Dahlstrom, Welsh, & Dahlstrom, 1972). In 1972, however, Marks and Briggs used data from 1,766 normal adolescents to generate the most frequently used set of adolescent norms for the original MMPI. During the same time period, Marks, Seeman, and Haller (1974) reported the first actuarially based adolescent personality descriptors for 29 MMPI code types. Their study was based on the responses of approximately 1,250 adolescents, aged 12 through 18, who had undergone at least 10 hours of psychotherapy between 1965 and 1973. The Marks et al. (1974) study was critical in providing the first correlate information for interpreting adolescent code types.

Evidence of the popularity of the MMPI as an adolescent instrument continued to grow. In 1987, Archer produced a comprehensive guide to using the MMPI with adolescents, and the survey conducted by Archer et al. (1991) found that the original MMPI was the most frequently utilized objective personality assessment instrument in the United States for evaluating adolescents. However, survey respondents cited several areas of concern about using the MMPI with adolescents. These included the length of the test, the lack of contemporary norms, the demanding reading level, and the presence of inappropriate or outdated items (e.g., "I used to play drop-the-handkerchief"). In addition, important aspects of adolescent experience were not represented in the original inventory's items because of its focus on adult assessment. These largely omitted content areas included adolescent substance abuse, eating disorders, and school problems.

In July of 1989, an advising committee was appointed by the University of Minnesota Press to develop an adolescent form of the MMPI (Archer, 2005). An overarching goal was to maintain continuity with the original MMPI, including the preservation of basic validity and clinical scales. An effort was therefore made to minimize changes to the basic clinical scales. However, the revision provided an opportunity to make the item pool more appropriate for adolescents and to create several new scales directly relevant to adolescent development and psychopathology. A final goal was the collection of a new normative sample representative of a diverse and contemporary population of adolescents.

The MMPI-A Normative Sample

Data were initially collected from about 2,500 adolescents in Minnesota, Ohio, California, Virginia, Pennsylvania, New York, North Carolina, and Washington. Application of exclusion criteria resulted in a normative sample of 1,620 adolescents including 805 boys and 815 girls. The mean age was 15.5 ($SD = 1.7$) for boys and 15.6 ($SD = 1.18$) for girls. The sample participants were 76% Caucasian, 12% African American, and 12% from other ethnic groups. The MMPI-A normative data were a clear improvement over the Marks and Briggs (1972) norms in terms of geographic and ethnic diversity, but the newer norms also have some less desirable characteristics. Many adolescents included in the MMPI-A normative set were children of highly educated parents, as noted by Archer (2005) and Black (1994). For example, about 50% of the adolescents' fathers and about 40% of their mothers reported obtaining a bachelor's degree or higher (in comparison to U.S. census data from 1980, indicating that about 20% of males and 13% of adult females held college degrees). Butcher et al.

(1992) also noted that the MMPI–A norms were less representative of adolescents with histories of truancy, delinquency, or dropping out of school, issues of particular concern when adolescents are evaluated in juvenile detention or correctional facilities.

Structure and Psychometric Characteristics of the MMPI–A

The MMPI–A was adapted from the original MMPI with the following changes: 58 standard scale items were deleted from the basic scales, with 88% of these items coming from scales *F* (Infrequency), *5*, and *0*. Items eliminated from the original MMPI in the development of the MMPI–A typically pertained to religious attitudes and practices, sexual preferences, bowel and bladder functioning, and topics deemed inappropriate for evaluating adolescents (e.g., voting in elections). The MMPI–A includes the original 10 basic clinical scales and 3 basic validity scales, 4 newly developed validity scales, 15 content scales, 6 supplementary scales, 28 Harris-Lingoes subscales (Harris & Lingoes, 1955), and 3 *Si* subscales. The new validity scales included in the MMPI–A are the *F1* and *F2* subscales, the True Response Inconsistency Scale (*TRIN*), and the Variable Response Inconsistency Scale (*VRIN*).

After identifying the items in the MMPI–2 content scales appropriate for the assessment of adolescents, the MMPI–A content scales were refined by the addition or deletion of items based on their relative contributions to the overall scale reliability. A rational review of scales' item content was completed to ensure that items were considered appropriate for measuring underlying constructs. In addition, items that correlated more strongly with a scale or scales other than the one to which they were originally assigned were deleted. The manner in which the MMPI–A content scales were developed resulted in relatively face valid scales, which can be easily influenced by an overreporting or underreporting response style. Therefore, it is important to carefully consider the validity indicators, particularly scores on the Defensiveness or *K* scale, when the content scales are being interpreted. Furthermore, although the MMPI–A content scales have internal consistency, most of the scales also possess one or more content components. Sherwood, Ben-Porath, and Williams (1997) have developed a set of content component scales for 13 of the 15 MMPI–A content scales to assist in the evaluation of specific areas of content endorsement.

The supplementary scales of the MMPI–A include three scales previously developed for the original MMPI: Welsh's Anxiety (*A*) Repression (*R*; Welsh, 1956), and the MacAndrew Alcoholism Scale–Revised (*MAC-R*; MacAndrew, 1965). Additional supplementary scales developed specifically for the MMPI–A include the Immaturity (*IMM*) scale developed by Archer, Pancoast, and Gordon (1994), the Alcohol Drug Acknowledgment (*ACK*) scale, and the Alcohol/Drug Problem Proneness (*PRO*) scale developed by Weed, Butcher, and Williams (1994). Finally, the relatively low number of item deletions made to the MMPI–A clinical scales made it possible to retain the Harris-Lingoes and *Si* subscales and extend them to the MMPI–A.

Information on the test-retest reliability, internal consistency, and factor structure of the MMPI–A, as well as correlate information for normal and clinical samples, is provided in the MMPI–A manual (Butcher et al., 1992) and was recently updated by Archer (2005). The MMPI–A exhibits adequate temporal stability, with test-retest correlation values for basic scales ranging from $r = .19$ for the *F1* subscale to $r = .84$ for scale *0*. Similarly, test-retest correlations for the content scales range from $r = .40$ for the Negative Treatment Indicators (*A-trt*) scale to $r = .73$ for the School Problems (*A-sch*) scale. The standard error of measurement for the basic scales on the MMPI–A is typically estimated to be between 2

and 3 raw score points, reflecting good reliability (Butcher et al., 1992). The internal reliability (coefficient alpha) values for the MMPI-A scales range from lower values on scales 5 ($r = .43$) and 6 ($r = .57$), to relatively higher values ($r \geq .80$) for many of the content scales and the *IMM* scale.

Forbey (2003) has estimated that approximately 120 studies of the MMPI-A were completed between 1992 and 2002. A number of these studies have examined the effectiveness of the validity scales in detecting deviant response patterns and have collectively shown that validity assessment is a particular strength of the inventory (Krishnamurthy, 2005). Archer and Krishnamurthy (2002) also note that the MMPI-A has been the subject of numerous master's thesis studies and doctoral dissertations, further reflecting the strong research interest in the inventory. Furthermore, because the MMPI-A retains many characteristics of the MMPI, the research done with adolescents on the original MMPI is largely generalizable to the MMPI-A (Archer, 2005). Research has also shown that correlates for the basic scales and several supplementary scales appear similar for adolescents and adults (e.g., Williams & Butcher 1989; Archer, Gordon, Anderson, & Giannetti, 1989; Archer, Gordon, Giannetti, & Singles, 1988).

One of the areas in which adolescents differ clearly from adults is in their responses to critical items. Archer and Jacobson (1993) examined the endorsement frequency of the Koss-Butcher (1973) and the Lachar-Wrobel (1979) critical items among normative and clinical samples for the MMPI-A and the MMPI-2 and found that adolescents in both the normative and clinical samples endorsed items at a higher frequency than did normal adults. Furthermore, results indicated that adolescents in clinical settings did not generally endorse these critical items more frequently than normal adolescents. In an effort to address this issue, Forbey and Ben-Porath (1998) developed a set of MMPI-A critical items by comparing the item level responses of the MMPI-A normative sample with 419 adolescents receiving treatment in a Midwest residential treatment facility. The result of this effort was a critical item set composed of 82 items grouped into 15 content areas, including aggression, conduct problems, and depression-suicidal ideation.

The *K*-correction procedure used with the original MMPI was not carried over to the MMPI-A. The function of the *K*-correction is to improve the ability of the clinical scales to detect psychopathology by adding varying proportions of *K* scale raw score values to the scales 1, 4, 7, 8, and 9 (Graham, 2000). Alperin, Archer, and Coates (1996) derived experimental *K*-weights for the MMPI-A to determine whether it could improve test accuracy in adolescent samples. Results indicated that the use of the *K*-correction procedure did not result in any systematic improvement in identifying adolescents with psychological disorders from adolescents from the MMPI-A normative sample.

As noted earlier, a substantial amount of research has been devoted to evaluating the MMPI-A validity scales. Preliminary evaluations of the *VRIN* and *TRIN* validity scales, reported in the test manual (Butcher et al., 1992), indicate that these scales were useful in detecting inconsistent responding (*VRIN*) as well as an acquiescent or nay-saying response style (*TRIN*). The test manual also noted that the *T*-score difference between *F1* and *F2* could prove useful in identifying changes in an adolescent's test-taking approach between the first and second half of the test. Archer (2005) presented a random response pattern on the MMPI-A, with the resulting profile showing elevations on the scales *L* (Lie), *VRIN*, *F1*, and *F2*, an invalid profile easily detected by most interpreters. Baer, Ballenger, Berry, and Wetter (1997) evaluated varying degrees of random responding on the MMPI-A. Their results demonstrated a pattern of increasing scores on *F1*, *F2*, *F*, and *VRIN*, as profile randomness increased. Archer

and Elkins (1999) also found that scores on the validity scales *F*, *F1*, and *F2* were effective in differentiating profiles of a clinical sample of 354 adolescents from randomly generated protocols. Other studies (e.g., Stein & Graham, 1999; Stein, Graham, & Williams, 1995) have shown that standard validity scales discriminate effectively between fake-bad and standard profiles and between fake-good and nonfaked profiles.

MMPI-A ADMINISTRATION AND SCORING

The MMPI-A can be used by clinicians who have training in test theory and test construction as well as adolescent development, personality, psychopathology, and diagnosis. In addition, effective use of the MMPI-A requires a thorough review of the test manual (Butcher et al., 1992). The test was essentially designed to assess adolescents aged 14 through 18, although it can be extended downward for use with 12- and 13-year-olds who possess the necessary reading level and cognitive skills. An 18-year-old can potentially be assessed with the use of either the MMPI-A or the MMPI-2, and this decision should be made on an individual basis in consideration of the adolescent's current life context and level of autonomy (Butcher et al., 1992).

Administration

Evaluation of an adolescent's reading ability before administration of the MMPI-A is essential, and failure to do so can result in an invalid protocol due to a high frequency of item omissions (e.g., Ball & Carroll, 1960; Archer and Gordon, 1991). The test manual (Butcher et al., 1992) provides an estimate of reading difficulty for all items, with findings ranging from the 1st to 16th grade levels. The manual recommends that a 7th-grade reading level be considered the necessary standard for completing the test, based on the criterion that at least 80% of the test items should be comprehensible in order to ensure that test results are valid. When there is a question about whether an adolescent's level of academic achievement corresponds to his or her grade level, it may be desirable to administer a brief screening test of reading ability, such as the reading subtest of the Wide Range Achievement Test-Third Edition (WRAT-3; Wilkinson, 1993) or the Gray Oral Reading Test-Fourth Edition (GORT-IV; Wiederholt & Bryant, 2001).

If an adolescent asks for word definitions during the MMPI-A administration, responses should be made in as neutral a manner as possible, preferably by providing dictionary definitions. However, the examiner should avoid providing explanations of items that the adolescent clearly comprehends. It is permissible to instruct the adolescent to respond to the item as it applies to him or her, and to answer in a way that reflects his or her own beliefs or opinions. In cases where reading deficits exist but cognitive ability is sufficient to understand the test items, the MMPI-A can be administered via audiotape. There are translations of the MMPI-A available in Dutch/Flemish, French, and Italian, as well as separate Spanish versions for use in the United States and Mexico, for evaluation of adolescents for whom English is not the primary language.

When administering the MMPI-A, it is important to provide an environment that is sufficiently private but which allows for adequate supervision. In addition, the setting should be as comfortable and as quiet as possible. The MMPI-A should not be left with an adolescent to complete in an unsupervised setting such as a waiting room. Similarly, it should never

be sent home for completion. Supervision of the administration should be nonintrusive, while also providing for a proctor to be available at all times to monitor the process and provide help when necessary. In addition, rest periods should be provided whenever needed. It is possible to administer an abbreviated form of the MMPI–A by giving only the first 350 items of the test, which may be useful for evaluation of adolescents who are particularly resistant or low in motivation. However, this format should be considered only as a last resort because neither the validity scales *VRIN*, *TRIN*, *F*, and *F2* nor the content and supplementary scales can be scored. When the respondent's test-taking stamina is a concern, it is preferable to divide testing over two sessions, separated by a reasonably short interval, rather than use an abbreviated administration.

There are a number of steps evaluators can take to maximize adolescents' motivation and cooperation with the testing process. Presenting the test in a careful and serious manner increases the likelihood that valid results will be obtained. First, it is important to allow time to develop good rapport before initiation of the test procedure. In addition, the adolescent should be given clear, concise instructions as well as an explanation of the purpose of the testing and how the results will be used. Instructions for completing the test are printed on the inside of the test booklet, and after these have been read, a brief verbal summary should be provided. Time should be taken to answer any questions the adolescent may have about the testing process and purpose. Finally, whenever possible, adolescents should be informed that they will have the opportunity to receive feedback on their test results.

Test Materials

MMPI–A testing materials are available from Pearson Assessments. The necessary materials include testing booklets (available in hardcover or softcover), answer sheets, templates and profile sheets for hand-scoring, and/or a computer scoring program. There are different answer sheets available, depending on whether hand scoring or computer scoring is to be used, and therefore the scoring method must be taken into account when answer sheets are selected. Also available is an audiocassette version of the test and software for computerized test administration.

Scoring

Scoring should begin with a visual scan of the answer sheet to determine whether a significant number of items have been omitted or scored in both the true and false directions. The next step is to obtain the raw score value for each scale, with the use of either the hand-scoring technique or the computer scoring program. The raw scores are then converted to *T*-scores with the use of the appropriate adolescent norm tables (as previously noted, there is no *K*-scale correction procedure used for the MMPI–A). Careful attention should be paid to the gender of the adolescent when raw scores are converted to *T*-scores. The *T*-score values can then be plotted on the MMPI–A profile sheet. When computer scoring is used, the Basic Scale Profile Report provides information for an abbreviated administration, including raw and *T*-scores for four validity scales (*L*, *F*, *FI*, *K*) and the 10 basic clinical scales. The Extended Score Report provides raw scores and *T*-scores for all MMPI–A scales and subscales and a list of omitted items. As an alternative to purchasing the computer scoring program, test users can also utilize the Pearson Assessments mail-in scoring service.

VALIDITY SCALES AND INTERPRETATION

MMPI–A Validity Scales

A significant advantage of the MMPI–A is the information it provides regarding an adolescent's test-taking style and the validity of test results. An initial step in evaluating validity is taken by calculating the Cannot Say (?) score, which is a simple tally of the number of items left unanswered or that were endorsed in both directions. When the total number of such items is 30 or less, it is considered unlikely that the omitted items will significantly affect the test results. Further information regarding validity can be obtained with the Infrequency (*F*) scale. This scale contains items that were endorsed in a deviant direction by less than 20% of the MMPI–A normative sample and is thus a measure of infrequently reported psychopathology. When the *F* scale is elevated, it may indicate an attempt by the adolescent to “fake bad” or overreport symptoms. Elevations may also indicate genuinely severe psychiatric illness or, in some cases, the product of a random response set. The latter possibility can be assessed by examination of other validity scale information, specifically the Variable Response Inconsistency (*VRIN*) scale. An MMPI–A profile is considered to be invalid if the *F* *T*-score is ≥ 90 (Butcher et al., 1992). *T*-scores ranging from 66 to 89 suggest that other validity indicators should be carefully examined, and if the profile is otherwise valid it is likely that significant psychopathology is present. *F* scale elevations between 60 and 65 are considered moderate and are often produced by adolescents who are experiencing some psychopathology. A normal-range *F* score would be expected to fall at $T \leq 59$. The *F* scale is also parent to the *F1* and *F2* subscales. The *F1* scale contains 33 items occurring with the first 350 items on the test, and the *F2* scale contains 33 items occurring after item 242. Thus, if the *F1* score is normal while the *F2* is elevated, this might suggest a random response set during the second half of the test (Butcher et al., 1992).

The MMPI–A Lie (*L*) scale contains 15 items that ask about common human faults and is useful in identifying adolescents who portray themselves in an excessively favorable and virtuous manner. When the *L* scale is elevated above a *T*-score of 65, it is also possible (although rare) that an adolescent is using an all-false or “nay-saying” response set. *T*-scores between 56 and 65 on the scale suggest an emphasis on conformity and conventional behaviors, and scores between 46 and 55 are considered to fall in the normal range. When *T*-scores for the *L* scale are 45 or lower, this may reflect an open, confident approach. However, an all-true or “fake-bad” response set is also possible and can be further evaluated by examination of other validity scale data, particularly the *TRIN* scale score.

The Defensiveness (*K*) scale contains 30 items that have empirically identified test-takers who objectively display symptoms of psychopathology but who provide normal-range profiles. This scale identifies more subtle forms of guardedness than the *L* scale. Because most items are scored in the True direction, the *K*-scale score can also help detect an all-true response set. In general, however, elevations on the *K*-scale are associated with defensiveness and the tendency to consciously or unconsciously underreport psychological symptoms or problems. When the *K* scale is elevated to a *T*-score greater than 65, this degree of defensiveness is considered to predict poorer prognosis and longer treatment duration (Archer, 2005). Scores ranging from 56 to 65 may reflect self-reliance and a reluctance to seek help, and scores between 41 and 55 are considered to be normal. *T*-scores of 40 or less may be produced by individuals who have poor self-concepts and limited coping resources.

The configuration of an adolescent's validity scale scores may provide additional insight into the test-taking approach. For example, marked ($T > 65$) elevations of scales *L* and *K*,

in combination with an *F* scale below 50, suggest an extremely guarded adolescent who is making a strong attempt to present himself or herself favorably. Conversely, an elevated *F* scale combined with *L* and *K* scales below 50 is indicative of an adolescent who is very openly reporting psychological symptoms or problems. Extreme elevations of the *F* scale relative to *L* and *K*, however, may also suggest a conscious or unconscious attempt to overreport symptoms.

Overreporting is generally easier to detect and typically results in elevations on the *F* scale, with low-range scores on scales *L* and *K*. Underreporting is often suggested by marked elevations on *L* and *K*, combined with low or normal-range scores on *F*. However, some individuals may successfully underreport symptoms without elevating *L* and *K*, making it difficult to ascertain whether an adolescent is merely somewhat guarded and defensive, or is experiencing significant psychopathology that he or she is trying to hide.

Additional validity scales for the MMPI–A include the *VRIN* and *TRIN* scales, both of which examine an individual's tendency to respond in a consistent manner. The *VRIN* scale includes 50 item pairs with similar or opposite content and assesses how frequently an adolescent responds to the item pairs in a logically inconsistent manner. Elevations on the *VRIN* scale suggest that an adolescent responded to the test in a random or inconsistent manner. This hypothesis appears particularly when the *F* scale is also elevated (Wetter, Baer, Berry, Smith, & Larsen, 1992). When *T*-score values equal to or greater than 80 are obtained on the *VRIN* scale, indiscriminate responding renders the profile invalid and uninterpretable (Butcher et al., 1992). *T*-scores between 70 and 79 indicate marginal degrees of inconsistent responding. The *TRIN* scale includes 24 item pairs that are opposite in content, and it is thus sensitive to all-true or all-false response sets. The *T*-score is traditionally followed by a "T" or "F" to indicate whether the responses were skewed in the true or false direction, and all *TRIN* *T*-scores must be ≥ 50 . Interpretation guidelines are similar to those for the *VRIN* scale: *T*-scores between 70 and 79 are considered to indicate marginal validity, and *T*-scores ≥ 80 suggest that the profile should be considered invalid.

BASIC CLINICAL SCALES

Profile Elevation Issues

When a *T*-score of ≥ 65 is used as the clinical cutoff point for the MMPI–A, many adolescents in clinical settings fail to produce clinically elevated scores. In an effort to address this issue, the MMPI–A utilizes a range of values that serves as a transitional zone between normal-range and clinical-range elevations. Therefore, *T*-scores between 60 and 65 are considered to be marginal elevations on the MMPI–A, and adolescents may be expected to demonstrate some, but not all, of the correlates associated with a scale that is elevated within this range. From a conceptual as well as psychometric standpoint, this transitional zone suggests that the difference between normal adjustment and psychopathology is less clear in adolescence than in adulthood.

Scale 1(Hs): Hypochondriasis

The 33 items on scale *I* are focused on somatic complaints and concerns. Research on adult populations indicates that elevations on this scale are produced by individuals who report numerous and often vague physical complaints, are not psychologically minded, and may use

physical complaints as a means of manipulating others (Graham, 2000). Other descriptors for T -scores ≥ 60 include

- Excessive somatic concerns that are likely to be vague in nature
- Somatic responses to stress, which may include eating problems
- Increased likelihood of internalizing problems such as guilt, fears, social withdrawal, perfectionism, dependency, and anxiety
- Demanding, critical, selfish, and whining in interpersonal relationships
- Less likely to engage in delinquent behaviors
- Likely to report school problems, including academic and adjustment difficulties

Scale 2 (D): Depression

The 57 items on this scale are associated with general dissatisfaction, poor morale, and social withdrawal. Adolescents in inpatient settings who show elevations on this scale are also more likely to have depressive symptoms that include histories of suicidal gestures or attempts (Butcher et al., 1992). Descriptors associated with elevations on scale 2 ($T \geq 60$) include

- Feelings of unhappiness, dissatisfaction, and hopelessness
- Apathy and lack of interest in activities
- Feelings of guilty, shame, and despondency
- Social isolation and withdrawal
- Feelings of inadequacy, pessimism, and low self-esteem

Scale 3 (Hy): Hysteria

The 60 items of scale 3 measure a tendency to respond to stressful situations with physical symptoms that do not have an organic basis, with an associated strong need for social acceptance and approval. Personality characteristics of individuals with moderate elevations on this scale may include social extroversion, exhibitionistic behavior, superficial relationships, and self-centeredness. In addition, elevations on scale 3 ($T \geq 60$) may be associated with

- Somatic preoccupations and concerns
- Social involvement and achievement orientation
- Pattern of overreaction to stress that involves the development of physical symptoms
- Self-centered, egocentric, and immature actions
- Strong needs for attention, affection, and social approval

Scale 4 (Pd): Psychopathic Deviate

The 49 items on this scale were chosen based on a clinical sample of adolescents that were court-referred for evaluations because of delinquent behaviors. Content areas covered by this scale include family conflict, social isolation, delinquency, dissatisfaction with life, and problems with authority figures. Elevations on scale 4 ($T \geq 60$) are associated with the following:

- Increased probability of delinquency, oppositional behaviors, and externalizing behavior problems

- Hostility and rebelliousness toward authority figures
- History of poor school adjustment
- Greater likelihood of conduct disorder diagnoses
- Poor planning ability, low frustration tolerance, and impulsivity
- Use of acting out as a primary defense mechanism
- Higher incidence of risk-taking and sensation-seeking behavior
- Higher incidence of use and abuse of drugs and alcohol
- Relative absence of guilt and remorse in regard to wrongdoing

Scale 5 (Mf): Masculinity/Femininity

Scale 5 is a 44-item measure probably best conceptualized as assessing stereotypical gender characteristics, with normal range scores suggesting a relative balance between traditional masculine and feminine features. *T*-score conversions for this scale are reversed for males and females, so that a high raw score for boys produces a high *T*-score, whereas a high raw score for girls produces a low *T*-score. Low scores for both boys and girls are associated with traditional gender roles. Boys who score high on scale 5 ($T \geq 60$) may exhibit the following characteristics:

- Intelligence with aesthetic interests
- Higher levels of academic achievement
- Passivity and submissiveness in interpersonal relationships
- Lower likelihood of delinquent or antisocial behaviors

Girls who score high on scale 5 ($T \geq 60$) may show these characteristics:

- Assertiveness and competitiveness
- Aggressiveness with a greater likelihood of school conduct problems
- Possibility of stereotypically masculine interests in academics and sports

When boys score low on scale 5 ($T \leq 40$), the following characteristics may be observed:

- Masculine emphasis in self-presentation
- Higher frequency of school problems and delinquency
- Relatively narrow range of interests defined by traditional masculine stereotypes

Girls who score low on scale 5 ($T \leq 40$) may exhibit the following characteristics:

- Passivity and submissiveness in interpersonal relationships
- Stereotypically feminine self-presentation
- Higher levels of academic achievement and lower levels of behavior problems

Scale 6 (Pa): Paranoia

Moderate elevations on the 40-item scale 6 are often produced by individuals who are excessively sensitive to the beliefs and actions of others and who are often guarded and suspicious

in their interactions. Very high elevations on scale 6 are more typical of individuals with psychotic paranoid symptoms. Traditionally, adolescents have tended to endorse more items on this scale than adults do, largely because of their sense of being controlled and treated unfairly by others. Adolescents who produce marked elevations on scale 6 ($T \geq 70$) may display the following characteristics:

- Use of projection as a primary defense mechanism
- Hostility, anger, and resentment
- Possible disturbances in reality testing
- Delusions of persecution or grandeur
- Ideas of reference

Moderate range elevations (T scores ranging from 60 to 69) may be indicative of the following characteristics:

- Excessive interpersonal sensitivity
- Distrust and suspiciousness in relationships
- Tendencies toward argumentativeness
- Increased disagreements/conflicts with parents
- Difficulty in establishing a trusting relationship with a therapist

Scale 7 (Pt): Psychasthenia

The 48 items of scale 7 cover a variety of content areas, including concentration problems, obsessive thoughts, anxiety and tension, unhappiness and general emotional distress, and physical complaints. This scale was originally designed to measure symptoms of psychasthenia, more recently conceptualized as Obsessive-Compulsive Disorder. Adolescents who score high on scale 7 ($T \geq 60$) may exhibit the following characteristics:

- Perfectionistic and self-critical tendencies
- Tension, apprehension, and anxiety
- Feelings of inadequacy, inferiority, and insecurity
- Tendency to be introspective, ruminative, and lacking in self-confidence
- At marked elevations ($T \geq 70$), obsessive and ruminative thought patterns

Scale 8 (Sc): Schizophrenia

Scale 8 is the longest of the basic clinical scales (77 items) and covers a wide range of content areas relevant to symptoms of schizophrenia (e.g., bizarre thoughts, difficulties in concentration, socially deviant behaviors). Other factors may contribute to elevations on this scale as well, including drug use or experimentation. Elevations on scale 8 ($T \geq 60$) are associated with the following:

- Confused or disorganized thinking
- Withdrawn and seclusive behavior
- Feelings of inferiority, low self-esteem, and incompetence

- Feelings of unhappiness or frustration
- Social rejection and history of being teased by peers
- Vulnerability to stress and tendency to get upset easily
- Possible impairment of reality testing
- Perceived by peers as being odd, unconventional, and socially deviant

Scale 9 (Ma): Hypomania

The 46 items of scale 9 encompass content areas including grandiosity, flight of ideas, irritability, egocentricity, elevated mood, and cognitive and behavioral overactivity. Similar to the pattern found on scale 6, adolescents tend to show elevations on scale 9 more frequently than do adults. The following characteristics are associated with elevated scores ($T \geq 60$) on this scale:

- Talkative, energetic, and outgoing manner
- Rapid personal tempo and tendency to engage in excessive activity
- Preference for action rather than thought and reflection
- Restlessness, distractibility, and impulsiveness
- Grandiosity and unrealistic goal-setting
- Egocentric, self-centered, and self-indulgent actions
- Possibility of flight of ideas, grandiosity and euphoric mood

Scale 0 (Si): Social Introversion

The 62-item scale 0 was originally developed by identification of items that differentiated between introverted and extroverted college students. Like scale 5, scale 0 is considered a nonclinical scale that may measure traits or characteristics relatively independently of psychopathology. Adolescents who produce elevations on scale 0 ($T \geq 60$) may exhibit the following characteristics:

- Social introversion and social discomfort
- Low self-esteem
- Timid, withdrawn, and reserved presentation
- Decreased probability of delinquency or acting out
- Submissive, passive, and compliant demeanor
- Low self-confidence and high levels of insecurity

Adolescents with lower scores on scale 0 ($T \leq 40$) may demonstrate the following characteristics:

- Extroversion, gregariousness, and sociability
- Energetic, talkative, and active mode
- Confident, competent, and socially sensitive stance

CODE TYPE INTERPRETATION

Configural approaches to interpreting the MMPI have generally been viewed as the optimal method for obtaining diagnostic and descriptive information (Graham, 2000). Two-point

code types are typically referred to by the numbers of the two basic clinical scales that are most elevated in the profile, with the higher score designated first (e.g., if the highest *T*-score elevations are on scales 4 [*Pd*] and 9 [*Ma*], the profile is referred to as a 4–9 code type). However, most two-point code types are also generally considered to be interchangeable, in that the correlates of 4–9 code type, for example, would be largely equivalent to those of a 9–4 code type. A code type is considered well defined when there is at least a minimum difference of 5 *T*-score points between the second and third most elevated scales. However, the majority of adolescents do not produce well-defined code types. In such cases, code type descriptors can still be considered relevant but should be used more cautiously.

Among normal adolescents, MMPI–A profiles have an overall congruence rate with profiles generated from the original MMPI of 67.8% for boys and 55.8% for girls (Butcher et al., 1992). These congruences increase to 95.2% for boys and 81.8% for girls for code types defined by at least a 5-point difference between the second and third most elevated scales. Rates of congruence for adolescents in the clinical sample reported in the test manual are quite similar. These congruence estimates fall within the same range as congruence rates between the original MMPI and the MMPI–2 (Butcher et al., 1989). Archer (2005) and Archer and Krishnamurthy (2002) have argued that much of the MMPI research can be generalized to the MMPI–A. There is also a growing body of literature on code types and their associated features for the MMPI–A. For a sampling of the descriptors associated with the most common codetypes see Table 15.1, taken from Archer and Krishnamurthy (2002).

Factors Potentially Affecting Code Type Interpretation

Demographic variables such as ethnicity, gender, and age may have an impact on MMPI–A code type interpretation. Among the MMPI–A normative sample, differences are shown between Black, White, and Other respondents of about 3–5 *T*-score points on scales *L*, *F*, 4, 6, 7, 8, and 9 (Archer, 2005). Although these mean differences are relatively small, Archer and Krishnamurthy (2002) have cautioned that clinicians should be “appropriately conservative”

TABLE 15.1.
Key Features of Common MMPI–A Code Types

<i>Code type</i>	<i>Behavioral/emotional correlates</i>
1-3/3-1	Multiple physical complaints, attention-seeking actions, conformity, insecurity, poor insight
2-3/3-2	Emotional overcontrol, passivity, dependence, insecurity, poor peer relationships
2-4/4-2	Poor impulse control, substance abuse, depression, elopement risk
3-4/4-3	Somatic complaints, suicide risk, hostile/aggression, impulses, denial of emotional distress
4-6/6-4	Demands of attention, sympathy, resentment, suspiciousness, parent-child conflicts, hostility
4-8/8-4	Marginal social adjustment; seen as impulsive, odd, and peculiar by others; chaotic family lives and poor school adjustment
4-9/9-4	Defiance, disobedience, acting out, impulsivity, authority conflicts, drug abuse, truancy, running away from home
6-8/8-6	Serious psychopathology including paranoid symptoms, delusions, hallucinations, hostile outbursts, unpredictable behavior
7-8/8-7	Anxiety, depressions, social withdrawal, strong feelings of inadequacy and insecurity, possible thought disorder symptoms including hallucinations

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in interpreting profiles from non-White adolescents. Regarding gender, boys and girls respond significantly differently to the MMPI-A, thus requiring separate gender-based norms. The available research on this issue has predominantly been conducted with the original MMPI. In general, the overall gender pattern is for girls to more readily endorse psychological symptoms and complaints than boys. Some researchers have found little impact on code types once *T*-score conversions have been applied (e.g., Williams & Butcher 1989), although other researchers have found significant gender-related differences in correlate patterns for MMPI scales (e.g., Lachar & Wrobel, 1990; Wrobel and Lachar, 1992). Additional research is still needed to clarify this issue. Finally, in regard to age, although some studies have identified age differences in adult versus adolescent responding to the MMPI (e.g., Lachar, Klinge, & Grissell, 1976), research findings generally suggest that the accuracy of MMPI correlate statements remains relatively constant for profiles across the adolescent age span (e.g., Archer, 1987; Wimbish, 1984). On the whole, although some studies have found demographic differences related to variables such as ethnicity, gender, and age in MMPI and MMPI-A responding, Schinka, Elkins, and Archer (1998) have also recently found that these demographic variables accounted for a small amount of variance in MMPI-A validity, clinical, content, and supplementary scales.

CONTENT AND SUPPLEMENTARY SCALES

Content Scales

Because many of the MMPI basic clinical scales are heterogeneous in terms of content areas, a number of approaches have been taken to assist the evaluator in interpreting elevations on the basic clinical scales. In 1955, Harris and Lingo constructed subscales for six of the basic scales—2, 3, 4, 6, 8, and 9. Scales 1 and 7 were not included by Harris and Lingo because these scales are much more homogeneous in their item composition. Scales 5 and 0 were also not included because they were viewed as nonclinical scales. The Harris-Lingo subscales were carried over from the MMPI to the MMPI-2 and MMPI-A. They are used to narrow interpretations when basic clinical scales are elevated and are considered most useful when the elevation is in a moderate range (*T*-score ≥ 60 and ≤ 90). For example, a *T*-score elevation of 70 on the scale 8 could reflect social or emotional alienation, unusual perceptual experiences, dissociative symptoms, feelings of vulnerability, or unusual thought processes. The relative pattern of elevation on the Harris-Lingo subscales could indicate which areas of difficulty are of greatest concern. The MMPI-A Harris-Lingo subscales should only be interpreted when there is an elevation of at least *T*-score = 60 on the parent scale, and when the subscale itself is elevated to at least $T \geq 65$. The Harris-Lingo subscales are generally less helpful when elevations of *T*-score > 90 are interpreted, because at this level of elevation all content areas will probably have been endorsed. As noted above, Harris and Lingo did not develop subscales for several MMPI basic clinical scales, including scale 0 (*Si*). Ben-Porath, Hostetler, Butcher, and Graham (1989) developed *Si* subscales for the MMPI-2, which have been carried over to the MMPI-A and are included on the same profile sheet as the Harris-Lingo subscales. Archer (2005) provides a thorough review of Harris-Lingo and *Si* subscale correlates. See Table 15.2 for a list of the Harris-Lingo and *Si* subscales associated with each of the basic scales.

There is also a set of 15 content scales specifically developed for the MMPI-A and the content component subscales developed by Sherwood et al. (1997) for 13 of these scales to

TABLE 15.2.
MMPI–A Harris-Lingoes and Si Subscales

Harris-Lingoes subscales (28)

Scale 2 subscales	
<i>D</i> ₁	Subjective depression
<i>D</i> ₂	Psychomotor retardation
<i>D</i> ₃	Physical malfunctioning
<i>D</i> ₄	Mental dullness
<i>D</i> ₅	Brooding
Scale 3 subscales	
<i>Hy</i> ₁	Denial of social anxiety
<i>Hy</i> ₂	Need for affection
<i>Hy</i> ₃	Lassitude-malaise
<i>Hy</i> ₄	Somatic complaints
<i>Hy</i> ₅	Inhibition of aggression
Scale 4 subscales	
<i>Pd</i> ₁	Familial discord
<i>Pd</i> ₂	Authority problems
<i>Pd</i> ₃	Social imperturbability
<i>Pd</i> ₄	Social alienation
<i>Pd</i> ₅	Self-alienation
Scale 6 subscales	
<i>Pa</i> ₁	Persecutory
<i>Pa</i> ₂	Poignancy
<i>Pa</i> ₃	Naivete
Scale 8 subscales	
<i>Sc</i> ₁	Social alienation
<i>Sc</i> ₂	Emotional alienation
<i>Sc</i> ₃	Lack of ego mastery, cognitive
<i>Sc</i> ₄	Lack of ego mastery, conative
<i>Sc</i> ₅	Lack of ego mastery, defective inhibition
<i>Sc</i> ₆	Bizarre sensory experiences
Scale 9 subscales	
<i>Ma</i> ₁	Amorality
<i>Ma</i> ₂	Psychomotor acceleration
<i>Ma</i> ₃	Imperturbability
<i>Ma</i> ₄	Ego inflation
<i>Si subscales</i>	
<i>Si</i> ₁	Shyness/self-consciousness
<i>Si</i> ₂	Social avoidance
<i>Si</i> ₃	Alienation—self and others

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identify relevant content subdomains. The content scales for which component subscales were developed include Depression (*A-dep*), Health Concerns (*A-hea*), Alienation (*A-aln*), Bizarre Mentation (*A-biz*), Anger (*A-ang*), Cynicism (*A-cyn*), Conduct Problems (*A-con*), Low Self-Esteem (*A-lse*), Low Aspirations (*A-las*), Social Discomfort (*A-sod*), Family Problems (*A-fam*), School Problems (*A-sch*), and Negative Treatment Indicators (*A-trt*). Content

scales Anxiety (*A-anx*) and Obsessiveness (*A-obs*) measure relatively homogeneous content areas and therefore do not have component scales. Unlike the Harris-Lingoes subscales, the content scales are not tied to individual or basic clinical parent scales. Less empirical information is available regarding correlates of the MMPI-A content scales than the basic clinical scales, although content scale descriptors have been reported by Williams, Butcher, Ben-Porath, and Graham (1992) and Archer and Gordon (1991). Information about the development of the MMPI-A content scales is presented in Williams et al. (1992), and the relevant literature on these scales was recently reviewed by Archer (2005).

Supplementary Scales

The supplementary scales augment and refine the information obtained from the clinical scales and code types. All of the supplementary scales require that the complete set of test items be administered and thus cannot be scored when an abbreviated administration is given. A brief description of each of the supplementary scales is provided next.

MacAndrew Alcoholism Scale-Revised

This 49-item scale was created by contrasting the item responses of 300 male alcoholics with the responses of 300 male psychiatric patients and selecting the items that best differentiated the groups. The MacAndrew Alcoholism Scale-Revised (*MAC-R*) has been the subject of substantial research involving adolescents, and elevations on this scale appear to be related to an increased likelihood of substance abuse for adolescents in several settings, including public schools, hospital and residential psychiatric facilities, and substance abuse treatment programs. In addition, high *MAC-R* scores are related to the abuse of a variety of drugs besides alcohol. Personality and behavioral characteristics associated with *MAC-R* elevations include assertiveness, self-indulgence, impulsivity, and greater likelihood of conduct disorder diagnoses or law breaking.

Alcohol/Drug Problem Acknowledgment Scale

The 13-item Alcohol/Drug Problem Acknowledgment (*ACK*) scale assesses an adolescent's willingness to acknowledge symptoms, attitudes, or beliefs associated with alcohol or drug abuse. Elevations on this scale indicate the degree to which an adolescent admits alcohol and/or drug-related problems. Research indicates that the *ACK* scale is comparable in sensitivity to the *MAC-R* and *PRO* scales in its ability to identify the presence of substance abuse problems, but the *ACK* scale may prove to be a more specific measure than the other scales because it produces lower correlations with non-substance-abuse-related criteria (Gallucci, 1997).

Alcohol/Drug Problem Proneness Scale

The Alcohol/Drug Problem Proneness (*PRO*) scale consists of 36 items that differentiate between adolescents in alcohol and drug treatment programs, in contrast to adolescents receiving inpatient psychiatric treatment (Butcher et al., 1992). Items cover a wide range of content, including family and peer group characteristics, antisocial behaviors and beliefs, and academic interest and behaviors. *T*-score values of 65 or greater on this scale are associated with increased potential for the development of drug and alcohol problems.

Immaturity Scale

The 43-item Immaturity (*IMM*) scale assesses psychological maturation with the use of Loewinger's (1976) concept of ego development. A high *IMM* score suggests that an adolescent is easily frustrated; is impatient, loud, and boisterous; teases or bullies others; is untrustworthy, defiant, or resistant; is likely to have a history of academic and social difficulties; and/or is likely to have a lower than average verbal IQ and language ability.

Welsh's Anxiety and Repression Scales

Welsh's Anxiety (*A*) and (*R*) scales were originally developed to assess general maladjustment and inhibition, respectively, in response to factor analytic findings that these two dimensions account for a majority of variance on the basic scales (Graham, 2000). Correlates of Welsh's *A* include tension and anxiety; fearfulness and rumination; maladjustment and lack of effectiveness; self-criticism and guilt; and a feeling of being overwhelmed. High scorers on Welsh's *R* may be overcontrolled; show little feeling; be inhibited, constricted, pessimistic, and/or defeated.

INTERPRETIVE STRATEGIES

Steps in Profile Interpretation

A first consideration in interpreting the MMPI–A should be the setting in which the test was administered. The MMPI–A was developed to evaluate adolescent psychopathology in a variety of settings, including outpatient and inpatient psychiatric and alcohol/drug treatment settings, schools, and medical clinics and hospitals. In addition to these educational and/or clinical settings, the MMPI–A can also be given in a variety of forensic settings, including detention and correctional facilities. Each of these settings and contexts may give rise to specific interpretive issues and hypotheses. Similarly, the history and background of the adolescent are relevant for administering and interpreting the MMPI–A and should be taken into account, especially when such issues as motivation, cooperation, and cognitive ability are considered.

The third step in MMPI–A profile interpretation should be an evaluation of the validity of test results. In this regard, Greene (2000) has provided a useful conceptual model involving the use of sequential steps in evaluating profile consistency and accuracy based on validity scale results. After validity has been determined, the basic clinical scales should be examined and a relevant code type or single scale elevations noted. The higher a basic scale elevation, the more likely the individual is to display the symptoms or characteristics associated with the elevation or code type. In addition to basic scale elevations, it can be useful to review any low-range scores (i.e., $T \leq 40$), as some scales (particularly the basic clinical scales) have empirically derived descriptors for low scores.

Following a review of the basic clinical scales, the supplementary scales should be examined to support and refine basic scale interpretation. Welsh's *A* and *R* suggest the overall level of maladjustment and repression, and psychological maturity can be assessed with the *IMM* scale. The remaining three supplementary scales will provide information on alcohol/drug use acknowledgment or risk, and positive scores on these indices indicate the need for more comprehensive evaluation of substance abuse status and potential. The MMPI–A content

scales should be examined to further refine the interpretation of basic scales. The content scales may be meaningfully grouped into internalizing (A-anx, A-obs, A-dep, A-hea, A-aln, A-biz, A-lse), externalizing (A-ang, A-cyn, A-con, A-las), and other problem area (A-sod, A-fam, A-sch, A-trt) clusters to aid interpretation. Finally, the Harris-Lingoes subscales may also be used to interpret clinical scales that are elevated to clinical levels, in order to selectively identify the content areas that contribute to the elevation.

As a final stage of profile interpretation, the evaluator could use the MMPI-A Structural Summary form developed by Archer and Krishnamurthy (1994) to profile information. Scale and subscale level test data are organized on this form according to an eight-factor structure identified by Archer, Belevich, and Elkins (1994). The eight dimensions are General Maladjustment, Immaturity, Disinhibition/Excitatory Potential, Social Discomfort, Health Concerns, Naivete, Familial Alienation, and Psychoticism. The Structural Summary is designed to improve the utility of scale findings by reducing the redundancy of data across individual scales and identifying salient, overarching areas of concern. Use of the Structural Summary in case interpretation is illustrated by Archer, Krishnamurthy, and Jacobson (1994).

Computer-Based Interpretation Systems

The MMPI was the first psychological test for which a computer scoring and interpretation system was developed (Butcher, 1987). Computer-generated profile interpretations of the original MMPI for adolescents were introduced by Archer in 1987 and Marks and Lewak in 1991. In addition, an MMPI-A interpretive report developed by Archer was first released in 1992 and most recently revised in a third edition released in 2003, distributed by Psychological Assessment Resources. MMPI-A interpretive reports have also been developed by Butcher and Williams (1992; distributed by Pearson Assessments) and Marks and Lewak (1991; distributed by Western Psychological Services). The development of computer-generated interpretations has sparked debate, and it is important that the clinician using such programs be thoroughly familiar with the test and competent in its use. In addition, computer-generated interpretations should be used only in conjunction with other sources of data and good professional judgment.

CLINICAL APPLICATIONS OF MMPI-A ASSESSMENT

The MMPI-A is most often applied to obtain a comprehensive picture of personality and emotional/behavioral dysfunction of adolescents in outpatient and inpatient psychological treatment facilities. In these settings, the assessment aids in determining diagnosis and identifying favorable treatment directions. MMPI-A-based assessment may also be used as part of school evaluations to facilitate educational placement decisions for adolescents with emotional and behavioral disorders, in juvenile justice system proceedings, and in juvenile case reviews by social service agencies.

Although there are no defined MMPI-A profile patterns associated with specific psychological disorders, it may be noted that the profiles of substance-abusing adolescents often contain a scale 4 elevation, a 4-9 code type, and elevations on supplementary scales *MAC-R*, *ACK*, and *PRO*. Juvenile delinquents often produce elevations on scales 6 and *IMM* in addition to the aforementioned clinical and supplementary scales seen among substance abusers, as well as elevations on content scales *A-ang*, *A-cyn*, *A-sch*, *A-con*, and *A-sod*. Adolescents with eating disorders may show elevations on a number of internalizing scales, including *I*,

2, 3, 7, and 0, reflecting somatic, emotional, and interpersonal distress. Externalizing scales such as 4, 6, 8, and 9 may additionally be elevated among those with bulimia nervosa. Multiple scale elevations reflecting emotional and behavioral disruption may also be found among sexually abused adolescents, including elevations on *A-dep*, *A-ang*, *A-lse*, *A-sch*, and *A-fam* (Archer & Krishnamurthy, 2002).

Treatment planning can be usefully informed by MMPI-A results in a variety of ways. For example, indications of defensiveness and guardedness from the validity scales may sensitize the clinician to be patient, develop a strong and reliable interpersonal alliance, and demonstrate trustworthiness before undertaking any interventions. Furthermore, MMPI-A findings may indicate that the treatment plan should be focused, for example, on family interventions when scales 4, *A-fam*, and the *Familial Alienation* factor are salient in the profile, or on addressing thought disorder in cases of elevations across scales 8, 6, 6-8, and 8-9 code types, *A-biz*, and the *Psychoticism* factor (Archer & Krishnamurthy, 2002).

CLINICAL CASE EXAMPLE

Aaron B. is a 16-year-old Caucasian boy who is the only child of an inner city family of low socioeconomic status. His parents were never married. His mother is an alcoholic, and other family members have declined to care for Aaron because of his behavior problems. Aaron was previously evaluated when he was 14 years old. At that time, he had been removed from his mother's care about six months before the evaluation and placed with an aunt and uncle because of a substantiated case of neglect against his mother. However, he frequently ran away from the home of his aunt and uncle in order to stay with his mother. He had also been placed on probation after being charged with petty larceny and subsequently violated his probation by incurring a burglary charge. He was then placed in juvenile detention, and at that point his aunt and uncle relinquished custody of Aaron. He was briefly placed at a residential treatment center, and then in a therapeutic foster home, where he remained for about two months before again violating probation and being returned to juvenile detention.

While in the care of his aunt and uncle, Aaron attended school regularly but often did not come home after school. Previous records indicate that his intellectual ability was within the above-average range. However, his academic progress had been impeded by acting-out behaviors in school and suspensions for fighting. Before his first psychological evaluation, he was court-ordered to receive outpatient psychotherapy at the local community mental health center. He also received substance abuse treatment while at the residential treatment center to address his alcohol and cannabis abuse. Aaron had no history of being prescribed psychotropic medication. He did have a history of legal involvement at the time of his initial evaluation, including charges of petty larceny, burglary, and probation violation.

At the age of 14 Aaron was administered the MMPI-A at the community mental health center as part of a court-ordered evaluation. The evaluation included an extensive clinical interview, a collateral interview with his social worker, and a review of treatment records. Aaron's MMPI-A basic scale profile at the age of 14 can be seen in Figure 15-1.

The first step in the profile interpretation was the assessment of technical validity of this protocol with the use of the validity assessment model proposed by Greene (2000). Aaron produced no item omissions on the Cannot Say (?) scale, and his *T* scores on the *VRIN* ($T = 48$) and *TRIN* ($T = 54$) scales fell well within acceptable ranges provided in the MMPI-A manual (Butcher et al., 1992). Aaron's scores on the defensiveness scales *L* ($T = 50$) and *K* ($T = 51$) indicated a relatively candid and accurate self-report. His scores on scales *FI*



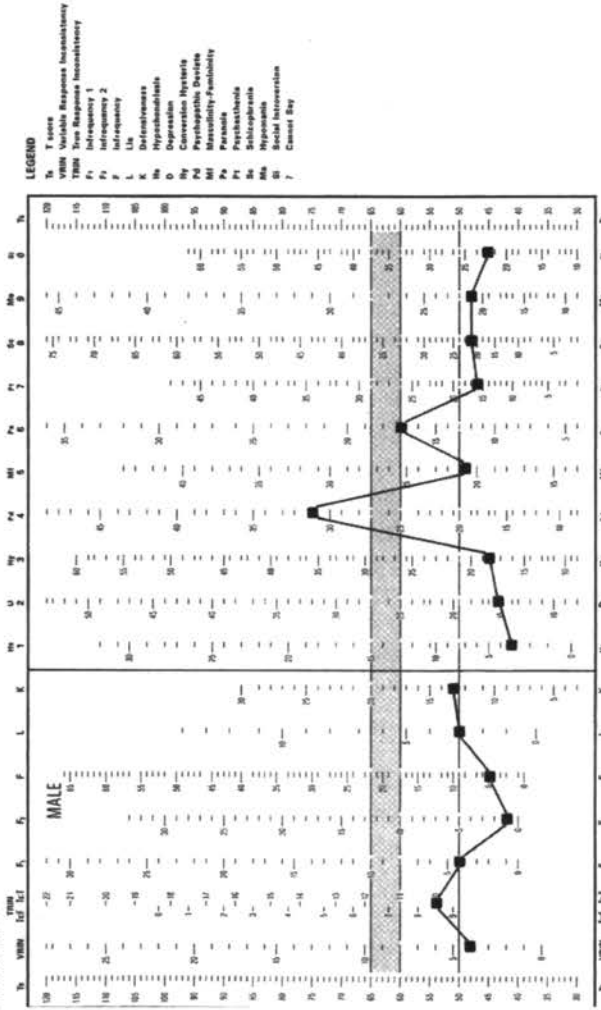
Profile for Basic Scales

Name A.B.
 Address _____
 Grade Level _____ Date Tested _____
 Setting _____ Age 14
 Referred By _____
 Scores' Initials _____

James F. Masterson, Chicago, Illinois; John B. Gibbon, Robert P. Archer, Alan H. Gibbon, David B. New, Thomas W. and Beverly G. Gibbon, S. R. Hershberg and J. C. Wittchen

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PEARSON
 Assessments
 Product Number
 25000

FIGURE 15-1. MMPI-A basic scale profile for Clinical Case Aaron (A.B.). MMPI-A profile sheet reprinted by permission. Copyright © 1992 by the Regents of the University of Minnesota.

($T = 50$) and $F2$ ($T = 42$) also suggested an accurate self-report without evidence of exaggerated or overreported symptoms. Thus, Aaron's validity scale configuration indicated that his responses were both consistent and accurate, and his profile was considered appropriate for meaningful interpretation.

Aaron's basic scale profile showed a single clinical range elevation on the MMPI-A basic scale 4 ($T = 75$), clarified by Harris-Lingoes subscale elevations of $T > 65$ on Pd_1 (Familial Discord) and Pd_2 (Authority Problems) that identified his negative view of family life and resentment of authority. All other basic clinical scales produced T -score values less than or equal to 60. Elevations on scale 4 are common in adolescents in criminal justice and psychiatric settings (Archer, 2005). Scores in this range are typically found for juveniles who are characterized as rebellious, hostile toward authority figures, and defiant. These adolescents often have histories of poor school adjustment and problems in school conduct, and higher elevations on scale 4 are often associated with a variety of overtly delinquent, criminal, and antisocial behaviors. Adolescents who produce scale 4 scores in ranges similar to Aaron's typically have difficulty delaying gratification and are described as impulsive, easily bored, and frustrated (Archer, 2005). The most common diagnosis for adolescents with MMPI-A profiles similar to Aaron's is Conduct Disorder. Their primary defense mechanisms involve acting out, and these acts are often not accompanied by feelings of guilt or remorse. These adolescents may create a good first impression and maintain a relatively extroverted interpersonal style, but they are often viewed by others as self-centered, egocentric, and selfish (Archer & Krishnamurthy, 2002). In detention or correctional facilities, these adolescents are more likely to commit institutional infractions and become involved in conflicts and altercations with other residents. In addition to his clinical range elevation on scale 4, other basic scale test results produced by Aaron indicate a notable lack of emotional distress (reflected in average range scores on scales 2 and 7).

Aaron's MMPI-A content and supplementary scale profiles from his first evaluation are shown in Figure 15-2. Aaron's content and supplementary scale profile features were relatively consistent with his basic scale profile in showing little evidence of emotional or affective distress (e.g., $A-anx$; $T = 45$; $A-dep$; $T = 47$). However, he did produce a clinical range elevation on the $MAC-R$ scale ($T = 67$), which is characteristic of adolescents who are at an increased risk for drug and alcohol problems. This level of elevation is also characteristic of adolescents who are impulsive, assertive, and likely to be involved in the criminal justice system (Archer & Krishnamurthy, 2002). In contrast, Aaron's scores on the PRO and ACK scales were well within normal limits. Mixed findings such as these warrant further assessment of substance abuse issues. A review of Aaron's MMPI-A Structural Summary findings revealed the Familial Alienation dimension to be most salient, with two of the four scales in this dimension being elevated at $T \geq 60$. This finding reflects his conflicts with parental figures as well as behaviors such as running away from home, disciplinary problems in school, and externalizing actions.

Aaron was evaluated again two years later, at the age of 16. In the intervening years, he lived in a variety of placements. He spent a brief period in foster care before attending a court-ordered boot camp and subsequently living in a residential treatment center and a group home. Aaron was then placed with his adult sister and had lived with her for about a year before the most recent evaluation. During that time, he was placed in special education classes for behaviorally and emotionally disordered adolescents, but incurred several more suspensions for fighting before being expelled from school. He then began attending an alternative school for behavior-disordered adolescents, where he is currently in the 10th grade. He has continued to incur legal charges, including additional probation violations and charges



Profile for Content and Supplementary Scales

Name A.B.
 Address _____
 Grade Level _____ Date Tested _____
 Setting _____ Age 14
 Referred By _____
 Scorer's Initials _____

James B. Richters, Charles L. Williams, John R. Graham, Robert P. Archer,
 Adam Tinsley, Ronald J. Ben-Porath, and Beverly Katsiyannis
 Minnesota Multiphasic Personality Inventory-Adolescent
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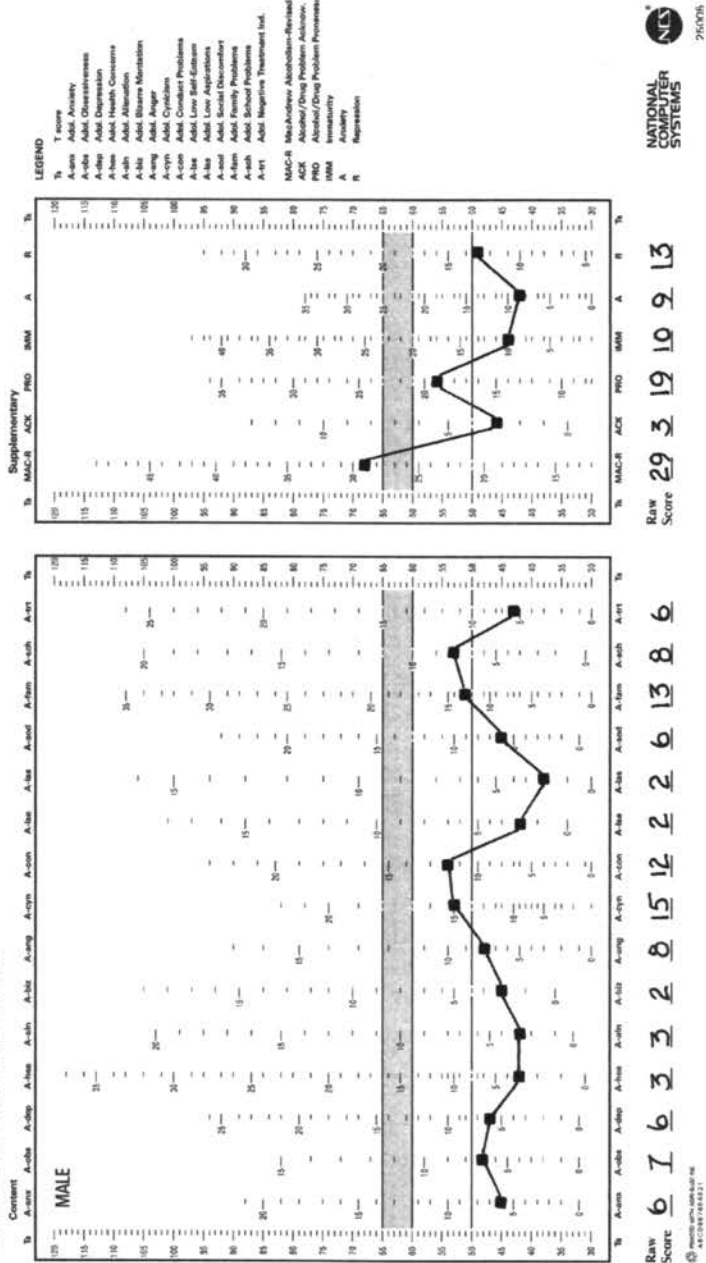


FIGURE 15-2. MMP-A content and supplementary scale profile for Clinical Case Aaron (A.B.). MMPI-A profile sheet reprinted by permission. Copyright © 1992 by the Regents of the University of Minnesota.

for possession of both marijuana and firearms. After the firearms charge, his sister gave notice to the Department of Social Services that she wanted him removed from her home, and an alternative placement is now being sought. Aaron was referred by the Department of Social Services to the community mental health center for a psychological evaluation to obtain a comprehensive view of his current adjustment and secure recommendations for treatment and placement needs.

In the current evaluation, Aaron was again administered the MMPI-A, and the evaluation included the Achenbach Youth Self-Report (YSR; Achenbach, 1991), a clinical interview with him, a collateral interview with his sister, and a review of treatment records. His YSR responses acknowledged a borderline elevation in the area of Delinquent Behavior, and his MMPI-A profile was congruent with this finding. Aaron's MMPI-A basic scale profile at the age of 16 can be seen in Figure 15-3.

The validity assessment model proposed by Greene (2000) is again the first step in interpretation. Aaron produced no item omissions on the Cannot Say (?) scale, and his *T* scores on the *VRIN* ($T = 57$) and *TRIN* ($T = 57$) scales fell well within acceptable ranges. Aaron's scores on the defensiveness scales *L* ($T = 50$) and *K* ($T = 53$) were quite similar to his scores on these scales in his first evaluation and indicated a relatively open and honest self-report. His scores on scales *FI* ($T = 55$) and *F2* ($T = 42$) suggested an accurate self-report without evidence of overreported symptoms. Thus, Aaron's validity scale configuration indicated that his responses were both consistent and accurate, and his profile is considered valid for further interpretation.

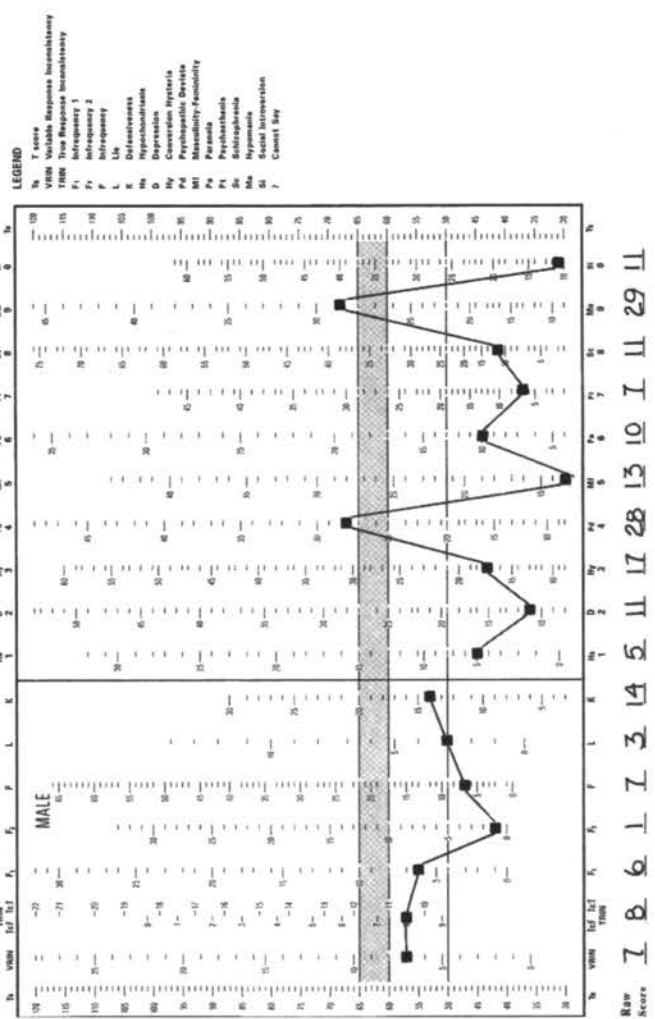
In this second evaluation, Aaron's basic scale profile showed a clinical range elevation on MMPI-A clinical scale 2 ($T = 67$), but this time it also showed a clinical elevation on scale 9 ($T = 68$), creating a 4-9 code type. This is a frequently occurring code type among adolescent boys in psychiatric settings (Archer, 2005). Adolescents who endorse this pattern of responses generally have a disregard for social standards and often act out impulsively. Their interpersonal relationships are often shallow, as they often use relationships for manipulative or self-serving reasons without forming meaningful interpersonal connections (Archer & Krishnamurthy, 2002). Adolescents with this code type often receive conduct disorder diagnoses and are described by therapists as narcissistic, impatient, and demanding. In addition, a large proportion of youths with this code type report a history of drug abuse (Marks et al., 1974), consistent with the high-risk, sensation-seeking orientation of this profile type. Among adults this code type has been associated with antisocial personality disorder and a poor prognosis for change, but adolescents with this code type are likely to show more capacity for change and are thus more likely to benefit from treatment than adults (Archer, 2005). Aaron's elevated scores on scales 4 and 9 were elaborated by Harris-Lingoes subscale elevations, once again on *Pd*₂ (Authority Problems), but also on *Ma*₁ (Amorality) and *Ma*₂ (Psychomotor Acceleration), reflecting his heightened disregard of social norms, increased activity and risk-taking tendencies, and overall increase in behavioral dyscontrol relative to the earlier assessment. It may also be noted that Aaron's clinical scale profile again showed a lack of emotional distress (low scores of $T < 40$ on scales 2 and 7). Furthermore, the low scale 0 score reflects an energized and extroverted presentation, and the low scale 5 score reveals an overly masculine identification with an exaggerated "tough" demeanor.

Aaron's MMPI-A content and supplementary scale profiles from his second evaluation are shown in Figure 15-4. Aaron's content and supplementary scale profile features in this second administration are markedly different from those seen in his first evaluation two years ago. He is now acknowledging some internal experiences of distress, including marginal levels of anxiety (*A-anx*; $T = 63$) and depression (*A-dep*; $T = 62$). This also contrasts with the

Name A.B.
 Address _____
 Grade Level _____ Date Tested _____
 Setting _____ Age 16
 Referred By _____
 Scorer's Initials _____

MMPI-A
 Minnesota Multiphasic
 Personality Inventory—ADOLESCENT™
 Profile for Basic Scales

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FIGURE 15-3. MMP-A basic scale profile for Clinical Case Aaron (A.B.). MMPI-A profile sheet reprinted by permission. Copyright © 1992 by the Regents of the University of Minnesota.

MMPI-A

Minnesota Multiphasic
Personality Inventory — ADOLESCENT™

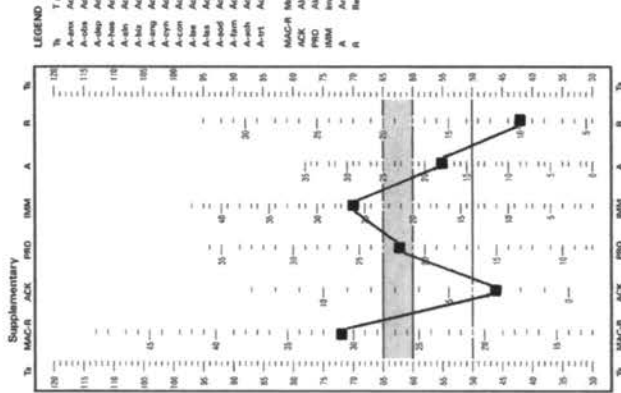
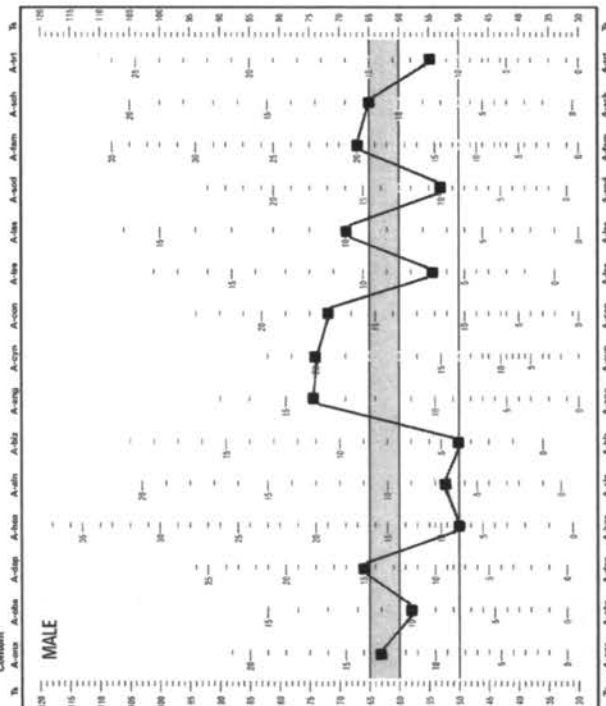
Profile for Content and Supplementary Scales

Name A.B.
 Address _____
 Grade Level _____ Date Tested _____
 Setting _____ Age 16
 Referred By _____
 Scorer's Initials _____

James H. Barkley, Carolyn L. Williams, John R. Swanson, Robert F. Ashkin,
 Adam Henggeler, Ronald B. Fox, Patricia and Beverly Swanson

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Content



- LEGEND**
- T T scores
 - A-ans Adult Anxiety
 - A-obs Adult Obsessiveness
 - A-dep Adult Depression
 - A-iso Adult Health Concerns
 - A-wth Adult Alienation
 - A-iso Adult Blame Meritization
 - A-ang Adult Anger
 - A-cyn Adult Cynicism
 - A-con Adult Conduct Problems
 - A-les Adult Low Self-Esteem
 - A-les Adult Low Aspirations
 - A-wo Adult Social Discomfort
 - A-fer Adult Family Problems
 - A-wth Adult School Problems
 - A-wt Adult Negative Treatment Incl.
- MAC-R** Mac-Anxiety Alcoholism-Behavior
ACK Alcohol/Drug Problem Acknow
PRO Alcohol/Drug Problem Promiss
MM Immaturity
A Anxiety
R Regression



Raw Score 31 3 22 26 18 10

FIGURE 15-4. MMP-A content and supplementary scale profile for Clinical Case Aaron (A.B.). MMPI-A profile sheet reprinted by permission. Copyright © 1992 by the Regents of the University of Minnesota.

current clinical scale profile, but can be understood in terms of the more direct and obvious content scale items being more amenable to endorsement of difficulty. Consistent with the poor behavioral controls and interpersonal manipulateness suggested by his 4-9 code type, Aaron also produced content scale elevations on scales assessing anger (*A-ang*; $T = 75$) and cynicism (*A-cyn*; $T = 74$). Furthermore, Aaron acknowledged a greater number of problems than he did in his first evaluation two years ago, in both school and family life (*A-sch*; $T = 65$ and *A-fam*; $T = 66$), as well as conduct problems (*A-con*; $T = 72$). In addition, his responses are now more indicative of a lack of goal orientation and achievement motivation (*A-las*; $T = 74$). As in his first MMPI-A profile, Aaron again produced a moderate clinical range elevation ($T = 62$) on the *MAC-R* scale ($T = 72$), and this time he also produced a marginal elevation on *PRO*, suggesting that substance abuse emerges more clearly than before as a significant area of concern for him. An elevation on the *IMM* scale ($T = 70$) underscores the acting-out components of this profile by revealing characteristics of egocentricity, externalization, defiance, and resistance.

Aaron's MMPI-A Structural Summary results were illuminating in revealing the continuities and changes between the first and second assessment. Similarly to the first profile, Familial Alienation emerged as the most salient factor, this time with 75% (vs. the previous 50%) of its scales elevated. In addition, the Disinhibition/Excitatory Potential dimension was significant, with 50% of its member scales elevated at $T \geq 60$, reflecting considerable impulsivity, disciplinary problems, conflicts with adult figures and peers, and wide-ranging acting out. Some increases in the Immaturity dimension (33% vs. the previous 13%) and General Maladjustment (13% vs. the previous 4%) are noteworthy in denoting increased interpersonal and emotional struggles, although these latter dimensions are not prominent enough to define the profile description.

CASE SUMMARY

The MMPI-A findings presented here are consistent with a conduct-disordered adolescent exhibiting worsening behavior problems. Antisocial attitudes evident in his first administration persisted in his second profile and are now accompanied by a greater tendency to act out in an impulsive manner. Coupled with his history of substance abuse and delinquency, these characteristics suggest that Aaron is at very high risk for continuing behavior problems and involvement with the criminal justice system. There are some signs in his current profile, however, that provide guidance on how to approach this adolescent in treatment. Aaron is now more apt to acknowledge his school, family, and conduct problems, making these issues more accessible for therapeutic intervention. In addition, he is now showing some signs of emotional distress (albeit marginally), which may increase the likelihood that he will be motivated to engage in the therapeutic intervention effort. Given his age and lack of family willing to take custody of Aaron, it is recommended that he be placed in a therapeutic foster home and referred for individual psychotherapy. Aaron is still under court supervision under his probation agreement, and he should be held to strict behavioral standards in school and at home, to include regular random drug testing. Aaron may also benefit from mentoring services, preferably from an older male figure who can form a stable relationship with him and encourage him in his schoolwork and interpersonal functioning.

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