CHILDHOOD AUTISM RATING SCALE

The Childhood Autism Rating Scale (CARS)

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W-231B

WPS

XI. VERBAL COMMUNICATION

Normal verbal communication, age and situation appropriate.

Mildly abnormal verbal communication • Speech shows overall retardation. Most speech is meaningful; however, some echolalia or pronoun reversal may occur. Some peculiar words or jargon may be used occasionally.

Moderately abnormal verbal communication • Speech may be absent. When present, verbal communication may be a mixture of some meaningful speech and some peculiar speech such as jargon, echolalia, or pronoun reversal. Peculiarities in meaningful speech include excessive questioning or preoccupation with particular topics.

Severely abnormal verbal communication • Meaningful speech is not used. The child may make infantile squeals, weird or animal-like sounds, complex noises approximating speech, or may show persistent, bizarre use of some recognizable words or phrases.

Observations:

XII. NONVERBAL COMMUNICATION

Normal use of nonverbal communication, age and situation appropriate.

Mildly abnormal use of nonverbal communication • Immature use of nonverbal communication; may only point vaguely, or reach for what he or she wants, in situations where same-age child may point or gesture more specifically to indicate what he or she wants.

Moderately abnormal use of nonverbal communication • The child is generally unable to express needs or desires nonverbally, and cannot understand the nonverbal communication of others.

Severely abnormal use of nonverbal communication • The child only uses bizarre or peculiar gestures which have no apparent meaning, and shows no awareness of the meanings associated with the gestures or facial expressions of others.

Observations:

XIII. ACTIVITY LEVEL

1 **Normal activity level for age and circumstances** • The child is neither more active nor less active than a normal child of the same age in a similar situation.

1.5

2 **Mildly abnormal activity level** • The child may either be mildly restless or somewhat "lazy" and slow moving at times. The child's activity level interferes only slightly with his or her performance.

2.5

3 **Moderately abnormal activity level** • The child may be quite active and difficult to restrain. He or she may have boundless energy and may not go to sleep readily at night. Conversely, the child may be quite lethargic, and need a great deal of prodding to get him or her to move about.

3.5

4 **Severely abnormal activity level** • The child exhibits extremes of activity or inactivity and may even shift from one extreme to the other.

Observations:

XIV. LEVEL AND CONSISTENCY OF INTELLECTUAL RESPONSE

1 **Intelligence is normal and reasonably consistent across various areas** • The child is as intelligent as typical children of the same age and does not have any unusual intellectual skills or problems.

1.5

2 **Mildly abnormal intellectual functioning** • The child is not as smart as typical children of the same age; skills appear fairly evenly retarded across all areas.

2.5

3 **Moderately abnormal intellectual functioning** • In general, the child is not as smart as typical children of the same age; however, the child may function nearly normally in one or more intellectual areas.

3.5

4 **Severely abnormal intellectual functioning** • While the child generally is not as smart as the typical child of his age, he or she may function even better than the normal child of the same age in one or more areas.

Observations:

XV. GENERAL IMPRESSIONS

1 **No autism** • The child shows none of the symptoms characteristic of autism.

1.5

2 **Mild autism** • The child shows only a few symptoms or only a mild degree of autism.

2.5

3 **Moderate autism** • The child shows a number of symptoms or a moderate degree of autism.

3.5

4 **Severe autism** • The child shows many symptoms or an extreme degree of autism.

Observations:

of the cases. Coefficient kappa, which corrects the percent agreement figure for chance, was .63. These data suggest that valid CARS ratings and diagnostic screenings can be made based on a review of behavioral information contained in client charts.

Validity of CARS ratings made by professionals in other disciplines. The CARS was initially developed and used by professionals with extensive experience in the field of autism; however, this scale is also intended for use by professionals in other fields who may have only limited experience with autism, but who would find the scale useful in screening children to determine those requiring further assessment and treatment by experts in the field. In order to test the validity of CARS ratings made by professionals in related fields, those visiting the diagnostic clinic to observe diagnostic sessions were given brief introductions to the CARS and asked to make ratings based on their observations of behavior during PEP administrations. One hour prior to observing the diagnostic sessions, visitors were asked to read the CARS Manual and, when time permitted, to view a 30-minute training tape. Ratings made by these visitors were compared with the criterion ratings made by clinical directors observing the same diagnostic sessions. The 18 visitors participating in this study included medical students, pediatric residents and interns, special educators, school psychologists, speech pathologists, and audiologists. The mean of the CARS ratings made by the visiting professionals was not significantly different from the mean of the CARS ratings made by the expert clinical directors observing the same diagnostic sessions (visitor $\chi = 32.46$; clinical director $\chi = 33.15$, $t = 0.92$, $p > .10$). The CARS scores obtained by the visitors showed a high significant correlation with those obtained by the clinical directors ($r = .83$, $p < .01$). Similarly, diagnostic screening categorizations resulting from CARS ratings of the two groups showed 92% agreement. Coefficient kappa, which corrects the percent agreement figure for chance, was .81. These data indicate that valid CARS ratings and diagnostic screenings can be made by professionals from related fields who have had little training or experience in the field of autism.

INTENDED USERS AND USES OF THE CARS

In addition to evaluating the CARS used in different settings, we also assessed its validity as a screening tool when used by a variety of well-informed individuals who are not necessarily psychodiagnosticians. Trials in Division TEACCH indicate that professionals such as physicians, special educators, school psychologists, speech pathologists, and audiologists, who have had only minimal exposure to or training about autism, can be trained through brief written and/or videotaped instructions to administer the CARS. These videotapes are available from the Distribution Department, Health Sciences Consortium, 201 Silver Cedar Court, Chapel Hill, North Carolina 27514. Even though CARS ratings can be made during diverse conditions such as a parent interview, a classroom observation, or a case history review, it is important to keep in mind that this instrument does not produce a total diagnosis. Other factors, including the individual's behavior problems, medical symptoms, and unique characteristics, must be evaluated by additional instruments such as the Psychoeducational Profile (PEP) (Schopler & Reichler, 1979) and special diagnostic procedures.

HOW TO MAKE OBSERVATIONS AND RATINGS

The CARS ratings can be made from such different sources of observations as during psychological testing or classroom participation, from parent reports, and from history records. Any of these sources can be used *as long as they include the information required for rating all the scales.* While obtaining the necessary observational data, brief notes concerning relevant behaviors should be made on the CARS Rating Sheet in the space provided for each of the 15 items. Actual ratings should *not* be made until the data collection has been completed. The rater should be familiar with the descriptions and scoring criteria of all 15 items *before* making observations. Information on the worksheet is meant to serve only as a cue and not as a substitute for careful study of item descriptions and scoring criteria which follow this section.

In making observations, the child's behavior should be compared with that of a normal child of the same age. When behaviors are observed which are not normal for a child of the same age, the *peculiarity, frequency, intensity,* and *duration* of these behaviors should be considered. The purpose of the scale is to rate behavior without recourse to causal explanations. Since some of the behaviors resulting from childhood autism are similar to behaviors caused by other childhood disorders, it is important simply to rate the degree to which the child's behavior deviates from normal without making judgments about whether the behavior may be explained away as being caused by such disorders as brain damage or mental retardation. The total score and the pattern of the impairments will distinguish an autistic child from other developmentally disordered children.

Once the observation period has been completed, the rater should use the worksheet notes to assist in making the actual CARS ratings. Actual ratings are made on the CARS Rating Sheet. Before deciding on scores, the rater will find it helpful to read all of the behavior descriptions

for each item. To score the CARS, each of the 15 items is given a rating from 1 to 4. A rating of *1* indicates that a child's behavior is *within normal limits* for a child of that age. A *2* means that the child's behavior is *mildly abnormal* compared with children of the same age. A *3* indicates that the child's behavior is *moderately abnormal* for that age. A *4* indicates that the child's behavior is *severely abnormal* for a child of that age. In addition to these four ratings, the midpoints between them (1.5, 2.5, 3.5) are to be used when the behavior appears to fall between two categories. For example, if a behavior is mildly-to-moderately abnormal, it should be rated 2.5. Thus, the seven allowable ratings for each item are as follows:

1	Within normal limits for that age
1.5	Very mildly abnormal for that age
2	Mildly abnormal for that age
2.5	Mildly-to-moderately abnormal for that age
3	Moderately abnormal for that age
3.5	Moderately-to-severely abnormal for that age
4	Severely abnormal for that age

Remember that in determining the degree of abnormality, the rater must take into consideration not only the child's chronological age, but also the *peculiarity*, *frequency*, *intensity*, and *duration* of the behavior. The greater the degree to which a child differs along these dimensions from a normal child of the same age, the more abnormal his or her behavior would be, and the higher the score that would be assigned.

In the following section each of the 15 items is defined. This is followed by a description of the behavior to be observed, and also the conditions to which the child may be responding. These considerations are followed by the four ratings and illustrations for the basis on which the observations are assigned a specific rating.

(I) Relating to People

Definition. This is a rating of how the child behaves in a variety of situations involving interaction with other people.

Considerations. Consider both structured and unstructured situations where the child has a chance to interact with an adult, sibling, or peer. Also consider how the child reacts to behavior ranging from persistent, intensive attempts at making the child respond, to the allowance of complete freedom. In particular, note how persistent or forceful the adult must be to get the child's attention. Note the child's reaction to physical contact, to physical signs of affection, such as hugging or stroking, and also in response to praise and criticism or punishment. Consider the degree to which the child clings to parents or others. Note whether or not the child initiates interactions with others. Also consider responsiveness, aloofness, shyness, and awareness of strangers.

Scoring:

1. **No evidence of difficulty or abnormality in relating to people.** The child's behavior is appropriate for his age. Some shyness, fussiness, or annoyance at being told what to do may be observed, but not to a greater degree than is typical for children of the same age.
2. **Mildly abnormal relationships.** The child may avoid looking the adult in the eye, may avoid the adult or become fussy if interaction is forced, may be excessively shy, may not be as responsive to the adult as a typical child of the same age, or may cling to parents somewhat more than most children of the same age.
3. **Moderately abnormal relationships.** The child shows aloofness (seems unaware of adult) at times. Persistent and forceful attempts are necessary to get the child's attention at times. Minimal contact is initiated by the child; contact may have an impersonal quality.
4. **Severely abnormal relationships.** The child is consistently aloof or unaware of what the adult is doing. He or she almost never responds to the adult or initiates contact with the adult. Only the most persistent attempts to get the child's attention have any effect.

(II) Imitation

Definition. This rating is based on how the child imitates both verbal and nonverbal acts. *Behavior to be imitated should clearly be within the child's abilities.* Remember that this scale is intended to be an assessment of ability to imitate, not ability to perform specific tasks or behaviors. Often it is advantageous to request imitation of behaviors to skills the child has already demonstrated spontaneously.

Considerations. Verbal imitation might involve repeating simple sounds, or repeating long sentences. Physical imitation might involve imitating hand movements or movements of the whole body, cutting with scissors, copying shapes with a pencil, or playing with toys. Make sure the child understands that he or she is supposed to imitate, as part of a game. For example, note how the child returns a bye-bye wave, imitates clapping pat-a-cake, or copies nursery rhymes or songs. Notice how the child imitates both simple and complex sounds and movements. Try to recognize whether the child is unwilling to imitate, unable to understand that the adult wants him or her to imitate, or unable to make the sound, say the word, or do the movement that would be necessary to imitate the adult. Try to note a wide range of

situations where the child is asked to imitate. In particular, notice whether imitation occurs fairly immediately or whether it occurs after a considerable delay.

Scoring:

1. **Appropriate imitation.** The child can imitate sounds, words, and movements which are appropriate for his or her skill level.
2. **Mildly abnormal imitation.** The child imitates simple behaviors such as clapping or single verbal sounds most of the time. Occasionally, he or she may imitate only after prodding or after a delay.
3. **Moderately abnormal imitation.** The child imitates only part of the time and requires a great deal of persistence and help from the adult. He or she may frequently imitate only after a delay.
4. **Severely abnormal imitation.** The child rarely or never imitates sounds, words, or movements even with prodding and assistance from the adult.

(III) Emotional Response

Definition. This is a rating of how the child reacts to both pleasant and unpleasant situations. It involves a determination of whether or not the child's emotions or feelings seem appropriate to the situation. This item is concerned with the appropriateness of both the *type* of response and the *intensity* of the response.

Considerations. Evaluate how the child responds to pleasant stimuli such as a show of affection or praise, a mild tickle, a favorite toy or food, a pleasant game of roughhouse. Also evaluate how the child responds to unpleasant stimuli such as scolding or criticism, the removal of a favorite toy or food, difficult work demands, punishment, or painful procedures. Inappropriate *type* of response may include such things as laughing when spanked or shifting mood unpredictably, without apparent reason. Inappropriate *degree* of response may include showing lack of emotion in situations where normal children of the same age would show some form of emotion, overreacting by tantrumming, or becoming highly agitated and excited in response to a minor event.

Scoring:

1. **Age-appropriate and situation-appropriate emotional responses.** The child shows the appropriate type and degree of emotional response as indicated by a change in facial expression, posture, and manner.
2. **Mildly abnormal emotional responses.** The child occasionally displays a somewhat inappropriate type or degree of emotional reactions. Reactions are sometimes unrelated to the objects or events surrounding them.
3. **Moderately abnormal emotional responses.** The child shows definite signs of inappropriate type and/or degree of emotional response. Reactions may be quite inhibited or quite excessive and may be unrelated to the situation. The child may grimace, laugh, or become rigid even though no apparent emotion-producing objects or events are present.
4. **Severely abnormal emotional responses.** Responses are seldom appropriate to the situation; once the child gets in a certain mood, it is very difficult to change the mood even though activities may be changed. Conversely, the child may show wildly different emotions during a short period of time when nothing has changed.

(IV) Body Use

Definition. This scale represents a rating of both coordination and appropriateness of body movements. It includes such deviations as posturing, spinning, tapping, and rocking, toe-walking, and self-directed aggression.

Considerations. Consider such activities as cutting with scissors, drawing, or putting together puzzles in addition to active physical games. Evaluate the frequency and intensity of bizarre body use. Reactions to attempts by the examiner to prohibit bizarre body use should be observed in order to determine the persistence of these behaviors.

Scoring:

1. **Age appropriate body use.** The child moves with the same ease, agility, and coordination of a normal child of the same age.
2. **Mildly abnormal body use.** Some minor peculiarities may be present, such as clumsiness, repetitive movements, poor coordination, or the rare appearance of the more unusual movements in *3*, below.
3. **Moderately abnormal body use.** Behaviors that are clearly strange or unusual for a child of this age are noted. These may include strange finger movements, peculiar finger or body posturing, staring or picking at the body, self-directed aggression, rocking, spinning, finger-wiggling, or toe-walking.
4. **Severely abnormal body use.** Intense or frequent movements of the type listed in *3*, above, are signs of severely abnormal body use. These behaviors may be persistent despite attempts to discourage them or involve the child in other activities.

(V) Object Use

Definition. This is a rating both of the child's interest in toys or other objects, and his uses of them.

Considerations. Consider how the child interacts with toys and other objects, particularly in unstructured

activities with a large variety of items available. These items should be appropriate to the child's skills and interests. Note the level of interest the child displays. Pay particular attention to the child's use of toys with parts that dangle or spin. For instance, note excessive preoccupation with spinning the wheels on a toy truck or car instead of rolling the toy. Note overly repetitious use of toys such as blocks. For instance, repeatedly lining up blocks in a row, rather than using them to build a variety of structures or patterns. Consider excessive interest in things which normally are of no interest to a child with similar skills. For example, does the child spend excessive time flushing and reflushing the toilet or watching water run in the sink? Does the child seem preoccupied with something such as a phone book, which has lists but no pictures? Finally, consider whether or not the child will use toys or objects in a more appropriate way or usual manner after being shown how.

Scoring:

1. **Appropriate use of, and interest in, toys and other objects.** The child shows normal interest in toys and other objects appropriate for his skill level and uses these toys in an appropriate manner.
2. **Mildly inappropriate interest in, or use of, toys and other objects.** The child may show less than the typical amount of interest in a toy or may play with it in an inappropriately childish way, such as banging or sucking on the toy or object, past the age where these behaviors are normal.
3. **Moderately inappropriate interest in, or use of, toys and other objects.** The child may show very little interest in toys or other objects, or he or she may be preoccupied with using an object or toy in some strange way. He or she may focus attention on some insignificant part of a toy, become fascinated with light reflecting off the object, repetitively move some part of the object, or play with one object to the exclusion of all others. This behavior may be at least partially or temporarily modifiable.
4. **Severely inappropriate interest in, or use of, toys or other objects.** The child may engage in the same behaviors as in *3*, above, but with greater frequency and intensity. The child is most difficult to distract when engaged in these inappropriate activities, and it is extremely difficult to modify the child's inappropriate use of the object.

(VI) Adaptation to Change

Definition. This scale concerns difficulties in changing established routines or patterns and difficulties in changing from one activity to another. These difficulties are often related to the repetitive behaviors and patterns rated on previous scales.

Considerations. Note the child's reaction to changing from one activity to another, particularly if the child was actively involved in the previous activity. Note the child's reaction to attempts at modifying patterned responses or behaviors. For example, if left alone the child may repeatedly stack blocks in a particular pattern. Note the child's reaction to adult attempts at changing the pattern. Consider how the child reacts to change in routine. For example, does the child show signs of distress when guests arrive unexpectedly causing a change in routine, when driven to school by a different route, when furniture is rearranged, when a substitute teacher or new child is introduced in the classroom? Does the child establish elaborate rituals around specific activities such as eating or going to bed? Does he or she insist on arranging certain objects "just so," or eating or drinking only with a specific utensil?

Scoring:

1. **Age appropriate response to change.** While the child may notice or comment on changes in routine, he or she accepts these changes without undue distress.
2. **Mildly abnormal adaptation to change.** When an adult tries to change tasks the child might continue to do the same activity or use the same materials, but the child can easily be distracted or shifted. For example, the child may initially fuss if taken to a different grocery store, or if driven to school via a new route, but is easily calmed.
3. **Moderately abnormal adaptation to change.** The child actively resists changes in routine. When a change of activity is attempted, the child tries to continue the old activity and is difficult to distract. For example, he or she may insist on trying to replace furniture that has been moved. He or she may become angry and unhappy when an established routine is altered.
4. **Severely abnormal adaptation to change.** When changes occur, the child shows severe reactions which are difficult to eliminate. If a change is forced on the child, he or she may become extremely angry or uncooperative and, perhaps, respond with tantrums.

(VII) Visual Response

Definition. This is a rating of unusual visual attention patterns found in many autistic children. This rating includes the child's response when he is required to look at objects or material.

Considerations. Consider whether the child uses his or her eyes normally when looking at objects or interacting with people. For example, does he or she look only

out of the corners of his or her eyes? When engaged in social interaction does the child look the other person in the eye or does he avoid eye contact? How often must the child be told to look when working on a task? Must the adult turn the child's head to obtain his or her attention? Rating of unusual visual response also includes observation of peculiar behaviors such as the child's gazing at his wiggling fingers or becoming absorbed in watching reflections or movement.

Scoring:

1. **Age appropriate visual response.** The child's visual behavior is normal and appropriate for a child of that age. Vision is used together with other senses, such as hearing or touch, as a way to explore a new object.
2. **Mildly abnormal visual response.** The child must be reminded, from time to time, to look at objects. The child may be more interested in looking at mirrors or lighting than most children of the same age, or he may occasionally stare off into space. The child may also avoid looking people in the eye.
3. **Moderately abnormal visual response.** The child must be reminded frequently to look at what he or she is doing. He or she may stare into space, avoid looking people in the eye, look at objects from an unusual angle, or holds objects very close to the eyes even though he or she can see them normally.
4. **Severely abnormal visual response.** The child consistently avoids looking at people or certain objects and may show extreme forms of other visual peculiarities described above.

(VIII) Listening Response

Definition. This is a rating of unusual listening behavior or unusual responses to sounds. It involves the child's reaction to both human voices and other types of sound. This item is also concerned with the child's *interest* in various sounds.

Considerations. Consider unusual preferences for, or fear of, certain everyday sounds such as those made by vacuum cleaners, washing machines, or passing trucks. Note whether the child reacts inappropriately to the loudness of sounds. For example, the child may appear not to hear very loud sounds such as sirens, while reacting to very soft sounds such as whispers. The child may even overreact to normal sounds, which others do not mind, by wincing or by placing his or her hands over his or her ears. Some children may appear to hear sounds only while unoccupied, while others may attend to unrelated sounds to the point of becoming distracted from their primary activity. Remember to consider the child's *interest* in sounds and to be sure that the child's response is to the sound rather than to the sight of the object producing the sound.

Scoring:

1. **Age appropriate listening response.** The child's listening behavior is normal and is appropriate for children of the child's age. Listening is used together with other senses, such as seeing or touching.
2. **Mildly abnormal listening response.** There may be some lack of response to certain sounds, or mild overreaction to certain sounds. At times, responses to sounds may be delayed, and sounds may occasionally need repetition to catch the attention of the child. The child may, at times, be distracted by extraneous sounds.
3. **Moderately abnormal listening response.** The child's responses to sounds may often vary. The child often ignores a sound the first few times it is made. The child may also be startled by some everyday sounds or cover his or her ears when these are heard.
4. **Severely abnormal listening response.** The child overreacts and/or underreacts to sounds to an extremely marked degree, regardless of the type of sound.

(IX) Taste, Smell, and Touch Response and Use

Definition. This is a rating of the child's response to stimulation of taste, smell, and touch senses (including pain). It is also a rating of whether or not the child makes appropriate use of these sense modalities. In contrast to the "distance" senses of audition and vision rated in the previous two scales, this is a rating of the "near" senses.

Considerations. Consider whether the child shows either excessive avoidance of or excessive interest in certain odors, foods, tastes, or textures. Is the child preoccupied with feeling certain surfaces such as the table top, or textures such as fur or sandpaper? Does the child smell ordinary objects such as toy blocks or puzzle pieces? Does he or she try to eat inedible things such as dirt, leaves, or wood? Distinguish the occasional, exploratory, infantile mouthing and touching in a younger child from the more frequent, peculiar, or intense type of behavior which appears to be unrelated to the specific objects. Does the child have unusual reactions to pain? Does he or she overreact or underreact to pain? For direct observation of the child's response to pain, it may be necessary to pinch the child.

Scoring:

1. **Normal use of, and response to, taste, smell, and touch.** The child explores new objects in an age appropriate manner, generally by feeling them and looking at them. Taste or smell may be used

when appropriate, such as when an object looks like it is supposed to be eaten. When reacting to minor, everyday pain resulting from such things as a bump, fall, or pinch, the child expresses discomfort but does not overreact.

2. **Mildly abnormal use of, and response to, taste, smell, and touch.** The child may persist in putting objects in his or her mouth even though most children of the same age have outgrown this. The child may smell or taste inedible objects from time to time. The child may ignore or overreact to a pinch or other mild pain that would be expressed as mild discomfort in a normal child.
3. **Moderately abnormal use of, and response to, taste, smell, and touch.** The child may be moderately preoccupied with touching, smelling, or tasting objects or people. The child may show a moderately unusual reaction to pain, either by reacting too much or too little.
4. **Severely abnormal use of, and response to, taste, smell, and touch.** The child is preoccupied with smelling, tasting, or feeling objects more for the sensation than for the normal exploration or use of the objects. The child may completely ignore pain or react very strongly to something that is only slightly uncomfortable.

(X) Fear or Nervousness

Definition. This is a rating of unusual or unexplainable fears. However, it also includes rating the absence of fear under conditions where a normal child at the same developmental level would be likely to show fear or nervousness.

Considerations. Fearful behavior may include such things as crying, screaming, hiding, or nervous giggling. When making this rating, consider the frequency, severity, and duration of the child's reaction. Do the fears appear reasonable or understandable? Also consider the pervasiveness of the response. Is it confined to a single type or class of situation, or is it widespread over many or all situations? Would same aged normal children react this way in similar situations? The intensity of the response may be assessed by how difficult it is to calm the child. This type of reaction may occur upon separation from parents, in response to physical closeness, or upon being lifted off the ground in physical contact play. Unusual responses may occur to specific items such as rain, a doll, a puppet, Play-Doh, etc. Another type of unusual fear response is the failure to show appropriate fear for such things as heavy traffic or strange dogs, to which normal children react. Remember to consider unusual nervousness. Is the child particularly jumpy, startling easily in response to normal sound or movement?

Scoring:

1. **Normal fear or nervousness.** The child's behavior is appropriate both to the situation and to his or her age.
2. **Mildly abnormal fear or nervousness.** The child occasionally shows fear or nervousness that is slightly inappropriate—either too much or too little—when compared to the reaction of a normal child of the same age in a similar situation.
3. **Moderately abnormal fear or nervousness.** The child shows either quite a bit more or quite a bit less fear than is typical even for a younger child in a similar situation. It may be difficult to understand what is triggering the fear response, and it is difficult to comfort the child.
4. **Severely abnormal fear or nervousness.** Fears persist even after repeated experience with harmless events or objects. In an evaluation session, the child may remain fearful without apparent reason throughout the entire session. It is extremely difficult to calm or comfort the child. The child may, conversely, fail to show appropriate regard for hazards, such as strange dogs or heavy traffic, which other children of the same age avoid.

(XI) Verbal Communication

Definition. This is a rating of all facets of the child's use of speech and language. Assess not only the presence or absence of speech but also the peculiarity, bizarreness, or inappropriateness of all elements of the child's utterances when speech is present. Thus, when speech of any sort is present, assess the child's *vocabulary* and *sentence structure;* the *tonal quality, volume or loudness,* and *rhythm* of utterances; and the situation appropriateness of the *content of meaning* of the child's speech.

Considerations. Consider the frequency, intensity, and extensiveness of peculiar, bizarre, or inappropriate utterances. Note how the child speaks, answers questions, and repeats words or sounds when asked to do so. Problems in verbal communication include muteness or lack of speech, delay in learning to talk, use of speech characteristics of a younger child, or use of words in a peculiar or meaningless way. Three specific types of language peculiarities to note, if observed past the age when they typically occur, are pronoun reversal, echolalia, and the use of jargon. Examples of pronoun reversal include the child saying, "*You* want a cookie," when he or she means "*I* want a cookie," or saying "*I* ate a cookie," when he or she is referring to the fact *you* just ate a cookie. Echolalia refers to repeating or echoing what has just been said. For instance, a child may repeat questions rather than answering them. The child may even repeat, at inappropriate times, things heard in the past. This is referred to as

delayed echolalia. Jargon refers to the use of strange or meaningless words with no intent to convey a message related to those words. For verbal children, remember to note the tonal quality, rhythm, and volume or loudness of the voice. Also note excessive repetition past an age where this is common.

Scoring:

1. **Normal verbal communication, age and situation appropriate.**
2. **Mildly abnormal verbal communication.** Speech shows overall retardation. Most speech is meaningful; however, some echolalia or pronoun reversal may occur occasionally in a child past the age when this normally occurs. Some peculiar words or jargon may be used very occasionally.
3. **Moderately abnormal verbal communication.** Speech may be absent. When present, verbal communication may be a mixture of some meaningful speech and some peculiar speech such as jargon, echolalia, or pronoun reversal. Some examples of peculiar speech may include speech mixed with phrases from television commercials, weather reports, baseball scores. When meaningful speech is used, peculiarities may include excessive questioning or preoccupation with particular topics.
4. **Severely abnormal verbal communication.** Meaningful speech is not used; rather, the child may make infantile squeals, weird or animal-like sounds, or complex noises approximating speech. The child may also show persistent, bizarre use of some recognizable words or phrases.

(XII) Nonverbal Communication

Definition. This is a rating of the child's nonverbal communication through the use of facial expression, posture, gesture, and body movement. It also includes the child's response to the nonverbal communication of others. If the child has reasonably good verbal communication skills, there may be less nonverbal communication; however, those with impairments of verbal communication may or may not have developed a nonverbal means of communication.

Considerations. Consider, particularly, the child's use of nonverbal communication at times when the child has a need or desire to communicate. Also note the child's response to nonverbal communication of others. Does the child use gestures or facial expressions, for instance, to indicate what he or she wants to eat or with what he or she wants to play, or does he or she try to use an adult's hand as an extension of his or her own? Does the child use gestures to indicate where he or she wants someone to go, or does he or she try to pull the person to lead them there?

Scoring:

1. **Normal use of nonverbal communication, age and situation appropriate.**
2. **Mildly abnormal use of nonverbal communication.** The child's use of nonverbal communication is immature. For instance, the child may only point vaguely, or reach for what he or she wants, in situations where a normal child of the same age may point or gesture more specifically to indicate what he or she wants.
3. **Moderately abnormal use of nonverbal communication.** The child is generally unable to express needs or desires nonverbally, and is generally unable to understand the nonverbal communication of others. He or she may take an adult's hand to lead the adult to a desired object, but is unable to indicate this desire by gesturing or pointing.
4. **Severely abnormal use of nonverbal communication.** The child only uses bizarre or peculiar gestures which have no apparent meaning, and he or she shows no awareness of the meanings associated with the gestures or facial expressions of others.

(XIII) Activity Level

Definition. This rating refers to how much the child moves about in both restricted and unrestricted situations. Either overactivity or lethargy are part of this rating.

Considerations. Consider both how much the child moves about in a free play situation and how he or she reacts when made to sit still. Consider the persistence of the child's activity level. If lethargic, can the child be encouraged to move about more? If excessively active, can the child be encouraged or reminded to calm down or sit still? In making this rating, factors such as the child's age, the distance he or she may have traveled to a testing site, the length of the testing situation, fatigue, and boredom should be taken into account. Consider, also, the influence of medications which may affect activity level.

Scoring:

1. **Normal activity level for age and circumstances.** The child is neither more active nor less active than a normal child of the same age in a similar situation.
2. **Mildly abnormal activity level.** The child may either be mildly restless or somewhat "lazy" and slow moving at times. The child's activity level interferes only slightly with his performance. Generally, it is possible to encourage the child to maintain the proper activity level.
3. **Moderately abnormal activity level.** The child

may be quite active and difficult to restrain. There may be a driven quality to the activity. He or she may appear to have boundless energy and may not go to sleep readily at night. Conversely, the child may be quite lethargic, and a great deal of prodding may be necessary to get him or her to move about. He or she may dislike games requiring physical activity, and may be thought to be "extremely lazy."

4. **Severely abnormal activity level.** The child exhibits extremes of activity or inactivity and may even shift from one extreme to the other. It may be very difficult to manage the child. Hyperactivity, when present, occurs in virtually every aspect of the child's life, and almost constant adult control is needed. If the child is lethargic, it is extremely difficult to engage his or her motivation for any activity, and adult encouragement is needed to initiate learning or task performance.

(XIV) Level and Consistency of Intellectual Response

Definition. This rating is concerned both with the general level of intellectual functioning and with the consistency or evenness of functioning from one type of skill to another. Some fluctuations in mental functioning occur in many normal or handicapped children. However, this scale is intended to identify the extremely unusual or "peak skills" characteristic of the Kanner definition of autism.

Considerations. Consider not only the child's use and understanding of language, numbers, and concepts, but also such things as how well the child remembers things he or she has seen or heard or how he or she explores the environment and figures out how things work. Particular attention should be paid to evaluating whether the child displays unusual skill in one or two areas relative to his or her general level of intellectual functioning. Does the child have special talent with numbers, rote memory, or music, for instance? Note concrete thinking or the tendency to take things literally past an age or functional level where this is appropriate.

Scoring:

1. **Intelligence is normal and reasonably consistent across various areas.** The child is as intelligent as typical children of his or her age and does not have any unusual intellectual skills or problems.
2. **Mildly abnormal intellectual functioning.** The child is not as smart as typical children of the same age, and his or her skills appear fairly evenly retarded across all areas.
3. **Moderately abnormal intellectual functioning.** In general, the child is not as smart as typical children of the same age; however, the child may function nearly normally in one or more intellectual areas.
4. **Severely abnormal intellectual functioning.** While the child generally is not as smart as the typical child of the same age, he or she functions even better than the normal child of the same age in one or more areas. He or she may have certain skills which are particularly unusual; for instance, he or she may have special artistic or musical talent or particular facility with numbers.

(XV) General Impressions

This is intended to be an overall rating of autism based on your subjective impression of the degree to which the child is autistic as defined by the other 14 items. This rating should be made *without* recourse to averaging the other ratings. In making this rating all available information concerning the child should be taken into account including information from such sources as the case history, parent interviews, or past records.

Scoring:

1. **No autism.** The child shows none of the symptoms characteristic of autism.
2. **Mild autism.** The child shows only a few symptoms or only a mild degree of autism.
3. **Moderate autism.** The child shows a number of symptoms or a moderate degree of autism.
4. **Severe autism.** The child shows many symptoms or an extreme degree of autism.

INTERPRETATION OF CARS SCORES

After the child has been rated on each of the 15 items, a total score is computed by summing the 15 individual ratings. The child's final classification is based on information from *all 15 items,* not just a select few. The total CARS score may range from a low of 15, obtained when the child's behavior is rated as falling within normal limits (1) on all 15 scales, to a high of 60, obtained when the child's behavior is rated as severely abnormal (4) on all 15 scales. A diagnostic categorization system, which aids in the interpretation of the total CARS score, has been established based on the comparison of CARS scores with the corresponding expert clinical assessments of over 1,500 children. This categorization system represents the adaptation of an earlier system in order to produce a simplified version for use by professionals outside the field of autism. Using this categorization system, children with scores below 30 are categorized as nonautistic while those with scores of 30 and above are categorized as autistic. In addition, scores falling in the autistic range (30–60) can be divided into two categories which have

been assigned descriptive labels indicating the severity of the autism. Scores ranging from 30 to 36.5 indicate mild to moderate autism while scores ranging from 37 to 60 indicate severe autism. This results in the scoring system summarized below:

Total CARS Score	Diagnostic Category	Descriptive Level	% of TEACCH Population
15–29.5	NonAutistic	(NonAutistic)	46%
30–36.5	Autistic	Mild to Moderate Autism	27%
37–60.0	Autistic	Severe Autism	27%

In our use of the CARS with over 1,500 children referred to our statewide program, we have found that approximately 46% (702) fall in the nonautistic category while 54% (818) fall in the autistic category. Of this 54% who are classified as autistic, approximately half (405) are labeled mildly to moderately autistic, while the other half (413) are labeled severely autistic using the categorization system discussed above.

The CARS was developed with the conception of autism as occurring along a continuum of disabilities (Wing & Gould, 1978). Accordingly, the CARS scores also represent a continuum. The lower the score, the fewer autistic behaviors the child exhibits; the higher the score, the more autistic behaviors the child exhibits. Thus, breaking the continuum of scores to produce diagnostic categories or classification labels is somewhat arbitrary. The CARS was developed primarily to meet the needs of the TEACCH program for both research and administrative classification of children. It was not intended to satisfy all diagnostic needs. As discussed above, the cutoffs were determined by comparing 1,520 CARS scores with corresponding expert clinical classifications to determine the percent of agreement, false positives, and false negatives. Using the autism cutoff score of 30, we obtained an overall agreement rate of 87%, with a false negative rate of 14.6% and a false positive rate of 10.7%. Using a *severe* autism cutoff score of 37 we obtained an overall agreement rate of 88.8%, with a false negative rate of 14.4% and a false positive rate of 10.3%.

These are not the only cutoff points possible for distinguishing these diagnostic groups. Just as there are valid differences in groupings according to diagnostic purpose (Schopler & Rutter, 1978), so could other cutoff points be used for the CARS. However, for identifying autistic children in a large statewide school system, the purpose for which the CARS was originally designed, the cutoff points previously described are optimal.

Finally, we should like to reemphasize that classification using the CARS is not intended as an endpoint in assessment. Instead, it is intended as the first step in diagnosis and grouping and should serve as the beginning point of a process to point the way for individualized assessment needed for understanding other aspects of the child's problems, be they in language, behavior, or biological functioning. Other instruments such as the PEP (Schopler & Reichler, 1979) are needed to complete this diagnostic process.

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C·A·R·S

The Childhood Autism Rating Scale

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Name: _____ Sex: _____

ID Number: _____

Test Date: Year _____ Month _____ Day _____

Birth Date: Year _____ Month _____ Day _____

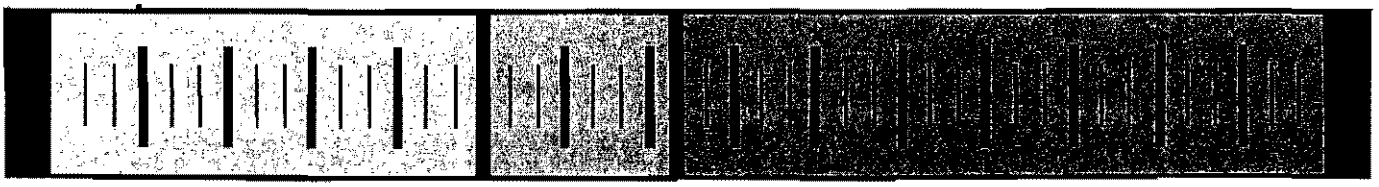
Chronological Age: Years _____ Months _____

Rater: _____

Category Rating Scores

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	Total Score

Total Score



15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60

Non-Autistic | Mildly-Moderately Autistic | Severely Autistic

W-231A

CARS Rating Sheet

Directions: For each category, use the space provided below each scale for taking notes concerning the behaviors relevant to each scale. After you have finished observing the child, rate the behaviors relevant to each item of the scale. For each item, circle the number which corresponds to the statement that best describes the child. You may indicate the child is between two descriptions by using ratings of 1.5, 2.5, or 3.5. Abbreviated rating criteria are presented for each scale. See chapter 2 of the Manual for detailed rating criteria.

I. RELATING TO PEOPLE

No evidence of difficulty or abnormality in relating to people • The child's behavior is appropriate for his or her age. Some shyness, fussiness, or annoyance at being told what to do may be observed, but not to an atypical degree.

Mildly abnormal relationships • The child may avoid looking the adult in the eye, avoid the adult or become fussy if interaction is forced, be excessively shy, not be as responsive to the adult as is typical, or cling to parents somewhat more than most children of the same age.

Moderately abnormal relationships • The child shows aloofness (seems unaware of adult) at times. Persistent and forceful attempts are necessary to get the child's attention at times. Minimal contact is initiated by the child.

Severely abnormal relationships • The child is consistently aloof or unaware of what the adult is doing. He or she almost never responds or initiates contact with the adult. Only the most persistent attempts to get the child's attention have any effect.

Observations:

II. IMITATION

Appropriate imitation • The child can imitate sounds, words, and movements which are appropriate for his or her skill level.

Mildly abnormal imitation • The child imitates simple behaviors such as clapping or single verbal sounds most of the time; occasionally, imitates only after prodding or after a delay.

Moderately abnormal imitation • The child imitates only part of the time and requires a great deal of persistence and help from the adult; frequently imitates only after a delay.

Severely abnormal imitation • The child rarely or never imitates sounds, words, or movements even with prodding and assistance from the adult.

Observations:

III. EMOTIONAL RESPONSE

1 **Age-appropriate and situation-appropriate emotional responses** • The child shows the appropriate type and degree of emotional response as indicated by a change in facial expression, posture, and manner.

1.5

2 **Mildly abnormal emotional responses** • The child occasionally displays a somewhat inappropriate type or degree of emotional reactions. Reactions are sometimes unrelated to the objects or events surrounding them.

2.5

3 **Moderately abnormal emotional responses** • The child shows definite signs of inappropriate type and/or degree of emotional response. Reactions may be quite inhibited or excessive and unrelated to the situation; may grimace, laugh, or become rigid even though no apparent emotion-producing objects or events are present.

3.5

4 **Severely abnormal emotional responses** • Responses are seldom appropriate to the situation: once the child gets in a certain mood, it is very difficult to change the mood. Conversely, the child may show wildly different emotions when nothing has changed.

Observations:

IV. BODY USE

1 **Age appropriate body use** • The child moves with the same ease, agility, and coordination of a normal child of the same age.

1.5

2 **Mildly abnormal body use** • Some minor peculiarities may be present, such as clumsiness, repetitive movements, poor coordination, or the rare appearance of more unusual movements.

2.5

3 **Moderately abnormal body use** • Behaviors that are clearly strange or unusual for a child of this age may include strange finger movements, peculiar finger or body posturing, staring or picking at the body, self-directed aggression, rocking, spinning, finger-wiggling, or toe-walking.

3.5

4 **Severely abnormal body use** • Intense or frequent movements of the type listed above are signs of severely abnormal body use. These behaviors may persist despite attempts to discourage them or involve the child in other activities.

Observations:

V. OBJECT USE

1 **Appropriate use of, and interest in, toys and other objects** • The child shows normal interest in toys and other objects appropriate for his or her skill level and uses these toys in an appropriate manner.

1.5

2 **Mildly inappropriate interest in, or use of, toys and other objects** • The child may show atypical interest in a toy or play with it in an inappropriately childish way (e.g., banging or sucking on the toy).

2.5

3 **Moderately inappropriate interest in, or use of, toys and other objects** • The child may show little interest in toys or other objects, or may be preoccupied with using an object or toy in some strange way. He or she may focus on some insignificant part of a toy, become fascinated with light reflecting off the object, repetitively move some part of the object, or play with one object exclusively.

3.5

4 **Severely inappropriate interest in, or use of, toys or other objects** • The child may engage in the same behaviors as above, with greater frequency and intensity. The child is difficult to distract when engaged in these inappropriate activities.

Observations:

VI. ADAPTATION TO CHANGE

1 **Age appropriate response to change** • While the child may notice or comment on changes in routine, he or she accepts these changes without undue distress.

1.5

2 **Mildly abnormal adaptation to change** • When an adult tries to change tasks the child may continue the same activity or use the same materials.

2.5

3 **Moderately abnormal adaptation to change** • The child actively resists changes in routine, tries to continue the old activity, and is difficult to distract. He or she may become angry and unhappy when an established routine is altered.

3.5

4 **Severely abnormal adaptation to change** • The child shows severe reactions to change. If a change is forced, he or she may become extremely angry or uncooperative and respond with tantrums.

Observations:

VII. VISUAL RESPONSE

1 **Age appropriate visual response** • The child's visual behavior is normal and appropriate for that age. Vision is used together with other senses as a way to explore a new object.

1.5

2 **Mildly abnormal visual response** • The child must be occasionally reminded to look at objects. The child may be more interested in looking at mirrors or lighting than peers, may occasionally stare off into space, or may also avoid looking people in the eye.

2.5

3 **Moderately abnormal visual response** • The child must be reminded frequently to look at what he or she is doing. He or she may stare into space, avoid looking people in the eye, look at objects from an unusual angle, or hold objects very close to the eyes.

3.5

4 **Severely abnormal visual response** • The child consistently avoids looking at people or certain objects and may show extreme forms of other visual peculiarities described above.

Observations:

VIII. LISTENING RESPONSE

1 **Age appropriate listening response** • The child's listening behavior is nor appropriate for age. Listening is used together with other senses.

1.5

2 **Mildly abnormal listening response** • There may be some lack of respons mild overreaction to certain sounds. Responses to sounds may be delayed, ar may need repetition to catch the child's attention. The child may be distract extraneous sounds.

2.5

3 **Moderately abnormal listening response** • The child's responses to soun often ignores a sound the first few times it is made; may be startled or cover e when hearing some everyday sounds.

3.5

4 **Severely abnormal listening response** • The child overreacts and/or und to sounds to an extremely marked degree, regardless of the type of sound.

Observations:

IX. TASTE, SMELL, AND TOUCH RESPON AND USE

1 **Normal use of, and response to, taste, smell, and touch** • The child ex new objects in an age appropriate manner, generally by feeling and looking. T smell may be used when appropriate. When reacting to minor, everyday pain child expresses discomfort but does not overreact.

1.5

2 **Mildly abnormal use of, and response to, taste, smell, and touch** • Th may persist in putting objects in his or her mouth; may smell or taste inedible may ignore or overreact to mild pain that a normal child would express as dis

2.5

3 **Moderately abnormal use of, and response to, taste, smell, and touch** child may be moderately preoccupied with touching, smelling, or tasting obje people. The child may either react too much or too little.

3.5

4 **Severely abnormal use of, and response to, taste, smell, and touch** • is preoccupied with smelling, tasting, or feeling objects more for the sensatio normal exploration or use of the objects. The child may completely ignore pa react very strongly to slight discomfort.

Observations:

X. FEAR OR NERVOUSNESS

1 **Normal fear or nervousness** • The child' s behavior is appropriate both to tion and to his or her age.

1.5

2 **Mildly abnormal fear or nervousness** • The child occasionally shows too too little fear or nervousness compared to the reaction of a normal child of th age in a similar situation.

2.5

3 **Moderately abnormal fear or nervousness** • The child shows either quit bit more or quite a bit less fear than is typical even for a younger child in a sim situation.

3.5

4 **Serverely abnormal fear or nervousness** • Fears persist even after repeat perience with harmless events or objects. It is extremely difficult to calm or co the child. The child may, conversely, fail to show appropriate regard for hazar other children of the same age avoid.

Observations:

XI. VERBAL COMMUNICATION

Normal verbal communication, age and situation appropriate.

Mildly abnormal verbal communication • Speech shows overall retardation. Most speech is meaningful; however, some echolalia or pronoun reversal may occur. Some peculiar words or jargon may be used occasionally.

Moderately abnormal verbal communication • Speech may be absent. When present, verbal communication may be a mixture of some meaningful speech and some peculiar speech such as jargon, echolalia, or pronoun reversal. Peculiarities in meaningful speech include excessive questioning or preoccupation with particular topics.

Severely abnormal verbal communication • Meaningful speech is not used. The child may make infantile squeals, weird or animal-like sounds, complex noises approximating speech, or may show persistent, bizarre use of some recognizable words or phrases.

Observations:

XII. NONVERBAL COMMUNICATION

Normal use of nonverbal communication, age and situation appropriate.

Mildly abnormal use of nonverbal communication • Immature use of nonverbal communication; may only point vaguely, or reach for what he or she wants, in situations where same-age child may point or gesture more specifically to indicate what he or she wants.

Moderately abnormal use of nonverbal communication • The child is generally unable to express needs or desires nonverbally, and cannot understand the nonverbal communication of others.

Severely abnormal use of nonverbal communication • The child only uses bizarre or peculiar gestures which have no apparent meaning, and shows no awareness of the meanings associated with the gestures or facial expressions of others.

Observations:

XIII. ACTIVITY LEVEL

1 **Normal activity level for age and circumstances** • The child is neither more active nor less active than a normal child of the same age in a similar situation.

1.5

2 **Mildly abnormal activity level** • The child may either be mildly restless or somewhat "lazy" and slow moving at times. The child's activity level interferes only slightly with his or her performance.

2.5

3 **Moderately abnormal activity level** • The child may be quite active and difficult to restrain. He or she may have boundless energy and may not go to sleep readily at night. Conversely, the child may be quite lethargic, and need a great deal of prodding to get him or her to move about.

3.5

4 **Severely abnormal activity level** • The child exhibits extremes of activity or inactivity and may even shift from one extreme to the other.

Observations:

XIV. LEVEL AND CONSISTENCY OF INTELLECTUAL RESPONSE

1 **Intelligence is normal and reasonably consistent across various areas** • The child is as intelligent as typical children of the same age and does not have any unusual intellectual skills or problems.

1.5

2 **Mildly abnormal intellectual functioning** • The child is not as smart as typical children of the same age; skills appear fairly evenly retarded across all areas.

2.5

3 **Moderately abnormal intellectual functioning** • In general, the child is not as smart as typical children of the same age; however, the child may function nearly normally in one or more intellectual areas.

3.5

4 **Severely abnormal intellectual functioning** • While the child generally is not as smart as the typical child of his age, he or she may function even better than the normal child of the same age in one or more areas.

Observations:

XV. GENERAL IMPRESSIONS

1 **No autism** • The child shows none of the symptoms characteristic of autism.

1.5

2 **Mild autism** • The child shows only a few symptoms or only a mild degree of autism.

2.5

3 **Moderate autism** • The child shows a number of symptoms or a moderate degree of autism.

3.5

4 **Severe autism** • The child shows many symptoms or an extreme degree of autism.

Observations: