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Standardization is a core issue in psychological research, fundamental to establishing inter-rater and test-retest reliability and validity, the correspondence between an assessment and its underlying construct and predictive outcomes. Standardization refers to the formal rules of application and interpretation of a measure and to the principle that assessment decisions are based on data obtained under essentially identical conditions. Psychometric properties, including standardization, enable one to interpret research findings, to distinguish results that are robust and genuine extensions of past research from those that call into question existing theory. The significance of a second investigator failing to replicate a previous finding or producing a contradictory finding lies in the knowledge that scores or classifications are derived comparably (Carlson & Sroufe, 1995). Of course, modifications may be made to assessment and classification procedures for specific purposes. Deviations from standard practice, however, must be made clear and interpretations of scores based on modified practices not made in terms of normative data.

Ainsworth's laboratory assessment of attachment, the Strange Situation (Ainsworth & Wittig, 1969), illustrates the critical importance of research standardization. The attachment assessment is widely used because it is brief and validated on criterial home observations. To insure that the underlying construct (the secure base phenomenon of attachment/ exploration) is tapped and to rely on Ainsworth's validation data to make this claim, however, the assessment must be administered and cases scored using methods comparable to those used by Ainsworth. The issue is critical in attachment research because the majority of current studies are conducted by persons not trained directly by Ainsworth and because the quality of multigenerational training is not controlled. Moreover, attachment behavioral scoring and classification procedures are complex. Qualitative aspects of behavior are assessed, and, unlike frequency counts of behavior, the coding requires considerable judgment on the part of the scorer. The classification scheme and descriptions of interactive rating scales in many cases can be only guidelines; judges must build upon experience with cases involving a range of behaviors (Ainsworth et al., 1978). Because judgment is involved in coding, elimination of procedural variables that may complicate the rating and classification process is critical. Currently, Ainsworth's original procedural instructions are difficult to obtain, and research assistance is often sought in conjunction with classification training after many assessments have been completed. For these reasons, we are outlining Ainsworth's procedural description and instructions as well as supplementary guidelines formulated for videotaped versus narrative recording.

Strange Situation Procedure

The strange situation is a laboratory assessment of infant caregiver attachment conducted when the infant is 12-18 months old. The assessment requires the participation of the primary caregiver (usually the mother, M) and infant (C), an unfamiliar adult or "stranger" (S), and a videographer/examiner (E). The procedure is conducted in a small room (at least approximately 10' by 12') with videotape camera access. Ideally, videotaping is conducted from a second room/hallway with camera lens access through a curtained opening in a permanent or temporary wall preferably at child level. Placement of the camera should insure a clear view of the child whether the child is exploring the

room or searching or greeting the caregiver at the door/entrance to the room. Videotaping through glass or from ceiling locations is not recommended because both methods obscure the image of the child and make coding difficult. Two chairs for the mother and stranger are positioned opposite the camera with the stranger's chair closest to the door. A set of age-appropriate toys is placed in the center floor. Magazines are placed on the adult chairs.

The attachment assessment consists of eight episodes presented in a standard order (Ainsworth et al., 1978).

Episode 1. This is a brief, introductory episode. The mother and child are introduced to the experimental room, and the mother is instructed where she is to place the child and where she is to sit after having put the child down.

Episode 2. Mother and Child (3 minutes). The mother places the child on the floor between the chairs and introduces the toys. The mother then goes to her chair and reads or pretends to read a magazine. It is expected that the child will explore the room and manipulate the objects in it, especially the toys. The mother has been instructed not to initiate interaction with the child, however, if the child initiates interaction, the mother may respond in whatever way she considers appropriate.

The focus of the observation is on the amount and nature of the child's exploration of the strange situation and on the amount and nature of his orientation to the mother.

Episode 3. Mother, Child, and Stranger (3 minutes). The stranger (who has never met the child before) enters, greets the mother, and immediately seats herself in the stranger's chair and remains silent for 1 minute. She may watch the child, but should not stare at him if the child seems apprehensive of her. After 1 minute, the stranger begins a conversation with the mother. At the end of another minute, the stranger is signaled to initiate interaction with the child. At the end of 3 minutes, the examiner/videographer knocks to signal the mother to leave the room.

The focus of the observation in this episode is on the amount and quality of attention the child pays to the stranger, in comparison with the attention paid to the mother and to exploration.

Episode 4. Stranger and Child (3 minutes). The episode begins as soon as the mother leaves the room and lasts 3 minutes (if the child can tolerate the stress). As soon as the mother has gone, the stranger begins to reduce interaction with the child, so that the child has a chance to notice that the mother has gone, if he has not already noticed. If the child resumes exploring, the stranger retreats to her chair and sits quietly as the mother did previously, although she is to respond to advances the child may make.

If the child cries, the stranger will intervene, trying to distract the child with a toy; if this fails to calm the child, the stranger will attempt to comfort the child by picking him up if he permits and or by talking to him. If the stranger is successful in comforting the child, she then puts him down, attempts to engage his interest in the toys, and retreats to her chair.

Three minutes are allowed for this episode, although it may be curtailed should the child become highly distressed and unresponsive to the stranger efforts to distract or comfort him. Just before 3 minutes, or sooner if the episode is to be curtailed, the examiner cues the mother to return to the experimental room.

In this episode, we are interested in the child's response to the mother's departure (e.g., crying, search behavior, any acute distress), the amount and nature of the child exploration in contrast with earlier episodes, and the child's response to the stranger (e.g., response to being picked up and put down, and any clinging).

Episode 5. Mother and Child (3 minutes). The mother approaches the closed door, knocks, and calls the child's loudly enough that the child can hear her voice. She opens the door and pauses a moment to allow the child to mobilize a response to her. The mother is instructed to make the baby comfortable, finally settling him on the floor, and interesting him in the toys. Meanwhile the stranger leaves unobtrusively. After 3 minutes, the mother is signaled to leave.

In general in this episode we are interested in observing the child's response to the mother after her absence and their interaction after her return.

Episode 6. Child alone (3 minutes). When the mother leaves, 3 minutes are allowed for the child to explore the room while he is alone. If he cries when the mother departs, he is given a chance to recover in the hope that he may do some exploring, but if he becomes acutely distressed the episode is curtailed.

We are interested both in the child exploratory play (if any) when he is left alone in an unfamiliar situation and in his reaction to his mother's departure (e.g., crying, search behavior, vocalizations, tension movements).

Episode 7. Stranger and Child (3 minutes). The stranger returns. If the child is crying, the stranger will first attempt to soothe him, picking him up if he will permit it. When and if he calms, the stranger will put him down and attempt to engage him in play. If he becomes interested in the toys and begins to play, the stranger will gradually retreat to her chair. If the child is not distressed at the time the stranger enters, she may greet the child or aid the child in initiating play, and retreat to her chair. In either case, if the child signals that he wants interaction or contact with the stranger, she will respond, gearing her behavior to the child's behavior, and retreating to her chair when possible.

In this episode we are interested primarily in the child's response to the stranger—whether he seeks or accepts contact, whether he will interact with her in play—and in how this response compares with the child response to the mother in the reunion episodes.

Episode 8. Mother and Child (3 minutes). The mother returns. As in episode 5, the mother approaches the closed door, knocks, calls the child's name, then opens the door and pauses a moment before greeting the child, giving him an opportunity to respond spontaneously. She then may talk to the child, pick up the child, or respond in any manner she considers appropriate.

Attachment Assessment Guidelines

I. General Instructions.

A. Scheduling. If possible, the assessment should be scheduled when the infant is fed and rested (e.g., not during regular naptime or mealtime) and rescheduled if the child is ill. Keep records of infant illness, fatigue, and teething at the time of the assessment, as these conditions may influence classification (i.e., increase fussiness, contact-seeking, and resistance). Schedule the Strange Situation procedure as the first assessment in the battery (no prior assessments).

B. Stranger. Do not introduce caregiver or child to the stranger or room prior to the assessment. The stranger presence is meant to be a novel experience for the child.

C. Videography. The videographer should keep the infant on camera at all times (especially in reunions).

II. Timing. Episodes are 3 minutes (except for stressful separations).

A. Preseparation. In episode 3, the stranger should enter and sit quietly for 1 minute, converse with the mother for 1 minute; then attempt to engage the infant in play for 1 minute while the mother remains in the room. Then the mother leaves.

B. Separations. Episodes 4, 6, and 7 may be cut short if the infant is highly distressed and does not appear to be settling (1 minute of continuous crying, 30" of hard crying).

C. Reunions. Reunions should never be cut short. This is particularly important in episode 8 (i.e., whether or not the child settles in the 3 minutes may determine secure/insecure classification).

III. Instructions to the Caregiver/Mother.

A. Instructions. The caregiver or mother is oriented in advance to the purpose and procedures of the strange situation and about the role she is to play. Adequate advance briefing is important, so that the mother does not feel anxious or uncertain about her role in the procedure. The instructions are minimal and, if necessary, the stranger can signal or "talk" the mother through the procedure. Instructions are intended to guide the mother's behavior, especially in the pre-separation episodes in which we are interested in what the baby will do spontaneously and without undue intervention from his mother. Little effort to control maternal behavior is exerted by the instructions covering the reunion episodes. It is recognized that maternal behavior will be affected by individual differences in infant behavior, and that mothers will tend to behave in their own characteristic ways in reunion.

B. Bottles and Pacifiers. Request that the parent refrain from offering the child a bottle, pacifier, or food during the assessment. If the caregiver has a bottle available, suggest that the bottle or bag containing the bottle be left outside the room.

IV. Instructions to the Stranger.

A. The Stranger Role. The role of the stranger is a difficult one and requires training. On the one hand, she is expected to refrain from undue intervention in order to permit the baby to play, search for his mother, or even display distress spontaneously. On the other hand, she is instructed to approach the baby and to attract his attention away

from the mother and to the toys in pre-separation, and in the separation episodes to distract or comfort the baby if he is distressed. Stranger training should include the review of videotaped attachment assessments and an orientation to the coding scheme.

B. Pre-separation.

1. In general, the stranger should position herself so that she doesn't walk between the camera and mother, camera and baby, or mother and baby. The stranger should not sit in the mother's chair.

2. Demonstrate ways the stranger may engage the infant in play or elaborate on play (e.g., rolling a ball toward child, handing block to put in container). In playing with the baby, the stranger should take her cue from the baby.

3. Demonstrate ways the stranger may console a distressed infant especially when the child resists contact (holding the child on her lap with minimal contact, patting/rubbing the back of the child lying prone on the floor).

C. Separations (Episodes 4 and 7)

1. If the child is not distressed, the stranger should greet the child when she returns, set up an activity for the child if the child is not engaged in play (e.g., blocks to put in container, music box), then take her seat.

2. If the child is distressed, the stranger should soothe the child (not try to distract the child with toys), then slowly ease away from the child on the floor. In this case, the stranger may want to stay near or be seated and stay attentive. The child should be settled but not so comfortable that he won't respond when the mother returns. If the baby is so upset that the stranger has not been able to put him down, the stranger should hold the baby facing the baby towards the door, allowing the mother or baby to initiate signals or pick up.

3. At the end of episodes 4 and 7, the stranger should not be playing or interacting with the baby, distracting the child when the mother returns.

D. Reunions (Episodes 5 and 8)

1. The stranger should be careful not to interfere with the infant-caregiver reunion (i.e., say nothing to mother or baby, do not move between them, leave quietly).

2. The stranger should wait to leave until after the physical reunion (e.g., child seeks proximity and contact) or the "psychological" reunion (e.g., the child greets the mother, turns away, etc.). Stranger leaving-taking in the middle of this process is distracting to the child (especially when the stranger has been engaged in interaction) making classification distinctions difficult.

Questions or concerns about specific applications of the procedure should be addressed to the authors at the Institute of Child Development, 51 East River, Road, Minneapolis, MN 55455. To be certain, that laboratory procedures meet Ainsworth's criteria and that the assessment will be codable, send a videotaped pilot assessment for review (no charge).

References

Ainsworth, M., Blehar, M., Waters, E., & Wall, S. (1978). Patterns of attachment. Hillsdale, NJ: Erlbaum.

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