4-2009

Psychometric Properties of a Short Version of the Maternal Behavior Q-sort: What You Need to Know Before Analyzing the Data

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The Maternal Behaviour Q-sort (MBQS; Pederson & Moran, 1995) is arguably the most effective measure for assessing maternal sensitivity. Meta-analytic findings have demonstrated strong associations between the traditional 90-item observer-completed q-sort and infant attachment security (Atkinson et al., 2005). Recently a 25-item version, the MBQS-mini, was developed: recent findings support its validity (Tarabulsy et al., 2009).

Little is known about the empirical properties of observer-completed q-sorts. Typically, observers sort the items into a forced distribution, creating ipsative data: placement of each item is dependent on the placement of others within the sort. Ipsative scores violate assumptions of classical psychometric analysis, raising concerns about the robustness of analytical results using q-sort data. Forced q-sorts with fewer than 30 items are considered particularly vulnerable to distorted psychometric properties (Baron, 1996). However, q-sort proponents assert that forced q-sorting encourages additional reflection and reduces the likelihood of positive or negative bias, theoretically improving data quality.

To assess the empirical properties of the MBQS-mini, we trained coders observed videorecordings of 116 mothers and their infants (average age: 2 months) interacting in a variety of contexts. They completed forced and unforced assessments using the MBQS-mini. These data represent a partial sample from the Kids, Families and Places study (Jenkins & Boyle, 2004. Transactional processes in emotional and behavioral regulation: Individuals in Context).

**SENSITIVITY SCORES:**

Traditionally, sensitivity scores have been calculated by correlating each mother’s q-sort profile with the profile of a prototypically sensitive mother. Sensitivity scores based on forced and unforced distributions were virtually identical: \( r = .99 \).

Forced sorts: \( M = .32, SD = .59, \text{range} - .88 \text{ to } .95 \)

Unforced sorts: \( M = .33, SD = .59, \text{range} - .87 \text{ to } .92 \)

**CONCLUSIONS:**

Results support the use of forced q-sort data, even for the MBQS-mini with only 25-items:

The process of correlating with a prototypical sort resulted in a strikingly similar distribution of sensitivity scores.

For behavioral domains, alpha’s were high overall, and average forced/unforced domain scores were highly similar. The teaching domain was the exception: when calculated from forced data, internal consistency was substantially lower, as were correlations with sensitivity and with the unforced teaching domain scores. These domain-specific problems likely resulted from sorters prioritizing attachment-related items over teaching items when forcing the sort.

**OVERVIEW**

- \( N = 116 \) mother-infant dyads (2 months old)
- Coders completed the MBQS-mini 2 ways—forced vs. unforced q-sort distributions—to determine whether psychometric properties differed.

**SENSITIVITY SCORES:**

- were virtually identical: \( r = .99 \).

**BEHAVIORAL DOMAINS:**

- Attachment related domains: Responsiveness, Non-Interference, Affective Communication.
- For all 3 (but not the Teaching domain) forced and unforced were highly correlated, and high internal consistency.

**CONCLUSIONS:**

- Results support the use of forced q-sort data, but show no benefits associated with using forced over unforced distributions. Internal consistency was higher for the unforced teaching domain.

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>alpha</th>
<th>( r ) with Sensitivity</th>
<th>( r ) between forced and unforced domains</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>forced</td>
</tr>
<tr>
<td>Synchrony (7 items)</td>
<td>( .29 )</td>
<td>( .36 )</td>
<td>(.94 )</td>
</tr>
<tr>
<td>Awareness (5 items)</td>
<td>( .71 )</td>
<td>( .75 )</td>
<td>( .92 )</td>
</tr>
<tr>
<td>Positive Communication (6 items)</td>
<td>( .82 )</td>
<td>( .83 )</td>
<td>( .80 )</td>
</tr>
<tr>
<td>Teaching (4 items)</td>
<td>( .18 )</td>
<td>( .38 )</td>
<td>( .55 )</td>
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</tbody>
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