Reactive attachment disorder is described in both DSM-IV (American Psychiatric Association [APA], 1994) and ICD-10 (World Health Organization [WHO], 1992) as comprising two clinical patterns: an emotionally withdrawn, unresponsive pattern in which absence of attachment behaviors predominates (inhibited subtype), and another pattern in which attachment behaviors are evident but are directed nonselectively or indiscriminately, even at relative or complete strangers (disinhibited subtype). Each pattern has been described both in children in institutions (Tizard and Hodges, 1978; Tizard and Rees, 1975) and in maltreated children (Albus and Dozier, 1999; Boris et al., 1998, 2000; Zeanah et al., 1993, 2000, 2001).

Indiscriminate behavior has been one of the most persistent social abnormalities in studies of children adopted out of institutions. Chisholm and her colleagues, for example, studied young children adopted into Canada out of Romanian institutions (Chisholm, 1998; Chisholm et al., 1995). She identified indiscriminate “friendliness” in a number of children at a median of both 11 and 39 months after adoption. Similarly, O’Connor and colleagues (1999, 2000) identified indiscriminate behavior in a number of children adopted from Romanian institutions into the United Kingdom who were assessed at 4 and 6 years of age.

It is interesting that measures of indiscriminate friendliness have not mapped well onto measures of security of attachment in studies of young children adopted out of institutions. Chisholm (1998) found that although security of attachment (measured by parent report) between these children and their adoptive mothers increased significantly between 11 and 39 months after adoption, levels of indiscriminate friendliness did not diminish, at least in the group adopted after 8 months of age. In addition, Marvin and O’Connor (1999) found that at age 6 years, a number of young children adopted out of Romanian institutions were both securely attached...
(in a home-based version of the Strange Situation) and indiscriminately social (reported by parents in structured interviews). This co-occurrence of secure attachment, on the one hand, and indiscriminate sociability, on the other, in young children adopted out of Romanian institutions poses challenges for the *DSM-IV* and *ICD-10* conceptualizations of attachment disorders.

Chisholm (1998) concluded from her findings that indiscriminate behavior is not a sign of disordered attachment. Instead, she suggested that it may well be an adaptive behavior in the institutional setting and selectively reinforced after adoption. In any case, she noted that it was of little concern to most adoptive parents in her sample (Chisholm, 1998). The same finding of children who appear securely attached and indiscriminately social, however, led the O’Connor group to suggest that the persistence of indiscriminate behavior means that the putatively secure attachment in these children actually is abnormal (Marvin and O’Connor, 1999). They have emphasized indiscriminate behavior as a manifestation of social boundary problems (O’Connor et al., 2000).

The longest follow-up studies to date of indiscriminate behavior are those of Hodges and Tizard (1989), who monitored 65 children who had been institutionalized in residential nurseries in London for the first 2 years of their lives and compared them with a group of never-institutionalized children. Between ages 2 and 4 years, 26 children remained in the institution, 15 children were returned to the parents who had placed them, and 24 children were adopted (Tizard and Rees, 1975). The investigators assessed the children at ages 4, 8, and 16 years and found the highest levels of indiscriminately social behavior in the long-term institutionalized group. Furthermore, the only variable that distinguished the adopted children from the comparison group (never-institutionalized) was indiscriminate sociability or overly friendly behavior, which persisted in a minority of adopted children but was not reported in comparison children.

At age 16 years, “overfriendly” behavior in the formerly institutionalized group had attenuated markedly, although significant peer relational problems still were evident (Hodges and Tizard, 1989). Problems included being adult-oriented, having more difficulties in peer relations, not having a best friend, not turning to peers for support, and being less selective in choosing friends. The findings were strong enough in individual children to suggest a kind of ex-institutional “syndrome” of problematic peer relatedness. These findings of peer relational difficulties are similar to difficulties associated with insecure attachment in never-institutionalized groups of children (Zeanah and Emde, 1994). These findings are in keeping with the speculations of O’Connor et al. (2000) about indiscriminate behavior indicating psychopathology, but the database from which to draw conclusions remains quite limited.

Zeanah (2000) summarized findings from longitudinal studies of formerly institutionalized children and raised the question of whether indiscriminate sociability is a sign of disordered attachment or instead an independent problem that arises in the context of emotional neglect. That is, he agreed with O’Connor et al. (2000) that indiscriminate behavior was a clinically significant problem, but he also agreed with Chisholm that it might not represent a disorder of attachment.

Clearly implicit in both *DSM-IV* (APA, 1994) and *ICD-10* (WHO, 1992) criteria is that the indiscriminate pattern is apparent when the child has no preferred attachment figure, and yet, follow-up studies indicate that children with high levels of indiscriminate behavior are attached to their adoptive parents. One purpose of the current investigation is to examine children who are living within an institution and to determine the relationship between indiscriminate behavior and having a preferred attachment figure in that setting. Presumably, the opportunities to form selective attachments in institutions are likely to be reduced because the staff work rotating, 8-hour shifts. The only previous investigation to examine this question was that of Tizard and Rees (1975), who found that 8 of the 26 four-year-old children who had been placed in institutions at birth had an identifiable attachment to a caregiver in the residential nursery. These children were clearly distinguishable from 10 of the 26 institutionalized children who exhibited indiscriminate behavior. These findings were obtained without systematic measures of either attachment or indiscriminate behavior, however.

Furthermore, given that Chisholm conceptualized indiscriminate behavior as “friendliness” and suggested it is not a disorder of attachment, whereas O’Connor and colleagues described it as a sign of disinhibited attachment, it seems reasonable to ask whether or not they are measuring the same behaviors. Convergence among different measures of indiscriminate behavior used by these different investigative groups would suggest that the measures are tapping the same phenomena but the groups are interpreting results differently, whereas divergence would suggest that they are actually capturing different behaviors. Therefore, a second purpose of the current
study is to examine convergence of different measures of indiscriminate behavior in institutionalized children.

Finally, because aggression also has been described as a frequent problem in institutionalized and formerly institutionalized children (Zeanah, 2000), we decided to examine the relationship between aggressive behavior and indiscriminate behavior. The rationale for this comparison is that much of the aggressive behavior we observed appeared to be impulsive. Remembering that lesions of the temporal lobe in humans, the so-called Kluver-Bucy syndrome (Kluver and Bucy, 1939), and more specifically, amygdala lesions in rhesus macaques (Emery and Amaral, 2000), are known to be associated with impulsivity and a generalized social, exploratory, and aggressive disinhibition, we wondered whether institutionalized children might exhibit similar behavioral patterns. We reasoned that substantial convergence of indiscriminate social behavior and aggression in institutionalized children would suggest that they might be demonstrating a generalized disinhibition or impulsivity, whereas divergence would suggest that these were independent problems arising in the complex high-risk environment of institutions for young children. A third purpose of this study is to assess the relationship between indiscriminate behavior and aggressive behavior in young, institutionalized children.

METHOD

Participants

After obtaining institutional review board approval, we identified participants as 61 young children living in a large "leagan," or institution for young children in Bucharest, Romania (see Smyke et al., 2002, for details). The children were 35 boys and 26 girls who were judged to be cognitively capable of having an attachment figure (i.e., at least 10 months of age developmentally, determined by clinical estimation). The majority of these children had been placed at the institution in the first few months of life, for reasons described in their records as “social.” This category included general risk factors such as poverty, as well as more specific risk factors such as family violence and substance abuse.

Children in the study lived on two different units in the leagan. Thirty-two children lived on a standard unit (n = 32). They ranged in age from 11 months to 68 months (mean = 32.93, SD = 11.38). The unit is described in detail by Smyke et al. (2002). Briefly, the children were cared for by multiple caregivers assigned to work day, evening, and night shifts. Caregivers worked all three shifts on a rotating basis.

The second institutionalized group consisted of children from a "pilot" unit that aimed to provide a more consistent caregiving environment (n = 29). The children in this group ranged in age from 18 to 70 months (mean = 39.72, SD = 11.20). This unit also is described by Smyke et al. (2002). Each set of 10 to 11 children was cared for by individuals drawn from a pool of only four caregivers. Generally, only caregivers from this group provided care during the children's waking hours.

Measures

Semistructured interviews with leagan caregivers were conducted by two interviewers. Most interviews were conducted in Romanian through an interpreter. About 20% of the interviews were conducted in English and were interpreter-assisted. Caregivers were asked to provide information only about children with whom they worked regularly and knew well. Caregivers were interviewed about children from two different units at the leagan. A total of 14 caregivers were interviewed on the standard unit. They reported on between one and six children each. On the pilot unit, a total of 11 caregivers were interviewed. They reported on between one and four children each.

Interviews focused on attachment behaviors and signs of disordered attachment in children. Specifically, they included general probes and specific follow-up assessments that made it possible to code emotionally withdrawn disordered attachment and indiscriminate behavior as defined by Smyke et al. (2002), by O’Connor et al. (1999), and by Chisholm et al. (1995). This same interview has been used with maltreated children to identify reliably those exhibiting signs of reactive attachment disorder (Zeanah et al., 2001).

Each rating we obtained was based on multiple questions and follow-up probes sufficient to yield a rating. For example, the item about whether or not the child had a preferred attachment figure was based on probes designed to determine whether the child had a pattern of turning selectively and preferentially to a preferred caregiver for comfort, support, and nurturance.

We defined indiscriminate behavior as a pattern of wandering off without checking back, failing to exhibit expectable reticence with unfamiliar adults, and being willing to go off with a stranger. In addition, we noted whether children had a preferred attachment figure to whom they turned for comfort, support, and nurturance. This yielded two measures of indiscriminate behavior: (1) Indiscriminate Behavior, which did not include absence of a preferred attachment figure; and (2) Indiscriminate Behavior Without a Preferred Attachment Figure, which required that the child have no preferred attachment figure as part of the definition.

For purposes of coding the O’Connor et al. (1999) measure of Disinhibited Attachment, we coded the child’s differentiation among adults, wandering off without checking back, and being willing to go off with a stranger. For purposes of coding Chisholm’s two measures of Indiscriminate Friendliness, we coded friendliness with new adults, lack of shyness, willingness to approach new adults, willingness to go home with new adults, and wandering off without distress. Chisholm’s five-item measure is derived from scores on all of these items, and her two-item measure is derived exclusively from scores on the latter two items (Table 1).

In addition, caregivers were queried about the frequency and severity of children’s aggressive behavior. We inquired about whether aggressive behavior was present, and if present, whether it was provoked or unprovoked, as well as whether it was directed at peers and/or caregivers. On the basis of the responses to these queries, which were supplemented by specific examples, we coded the overall level of the child’s aggressive behavior, as noted below.

Interview responses were coded on a 3-point scale, anchored as follows: 0 = rarely/never, 1 = sometimes/moderate, and 2 = often/severe for the signs of attachment disorder and for aggressive behavior. Interrater reliability was computed for 20% of the interview ratings and was more than adequate (k = 0.88).

Procedures

Leagan caregivers were interviewed after permission was given by the director of the institution and by the physician director of each of the two units. We reviewed institution records to determine the num-
ber of children on the unit, their ages, and the presence of any handicapping conditions. Caregivers were approached on the playground or on the unit and asked which children they worked with regularly enough to answer questions about the child’s typical behavior. A total of 14 caregivers were interviewed on the standard unit. They reported on between one and six children each. On the pilot unit, a total of 11 caregivers were interviewed. They reported on between one and four children each. In the standard care group, 3 of 32 children were not known well by any of the caregivers during the period of data collection, but caregivers described their behavior as best they could. Two of these children were reportedly new to the unit, but the other child had lived on the unit for 2 years. On the pilot unit, caregivers provided information regarding all of the 29 children on the unit.

RESULTS

Preliminary Analyses

Neither age nor gender of child was related to any measures of indiscriminate behavior.

Indiscriminate Behavior and a Preferred Attachment Figure

A majority of children from the standard care unit (69%) but a minority of children on the pilot unit (34%) were reported to exhibit high levels of indiscriminate behavior (defined as a score of greater than 2 on the Indiscriminate Behavior scale; 10 is a maximum score). Furthermore, it is clear in Figure 1 that having a preferred caregiver did not preclude exhibiting high levels of indiscriminate behavior. In fact, on the standard care unit, a majority of the children who had a preferred caregiver also exhibited high levels of indiscriminate behavior.

Convergence of Different Measures of Indiscriminate Behavior

We were interested in the convergence among the different measures of indiscriminate behavior. Item similarities and differences of the three different approaches

| TABLE 1 |
| Three Measures of Indiscriminate Behavior: Item Convergence and Divergence |
| Chisholm | O’Connor/Rutter | Current Investigation |
| Wanders off without distress among adults | Lack of differentiation | No preferred adult |
| Goes off with stranger with stranger | Readily goes off stranger | Willing to go with stranger |
| Friendly with new adults back with parent | Lack of checking back with parent | Failure to check back with parent |
| Never shy with new adults | Lack of reticence with strangers | |

Note: First two Chisholm items comprise the Chisholm two-item measure of Indiscriminate Friendliness; first item of current investigation is excluded in the measure of Indiscriminate Behavior without regard for whether or not child has an attachment figure.
are presented in Table 1. Results comparing the three different measures of indiscriminate behavior are presented in Table 2. They indicate substantial convergence among all of the contemporary approaches to indiscriminate behavior, with intercorrelations ranging from $r = 0.64$ to $r = 0.97$ (mean and median $r = 0.82$).

Results in Table 3 concern the internal reliability of the different measures of indiscriminate behavior. Our measure of Indiscriminate Behavior had an internal consistency of 0.84. Of interest, if the item about not having a preferred attachment figure were included, that is, Indiscriminate Behavior Without a Preferred Attachment Figure, the internal consistency dropped to 0.78, despite the increase in the number of items. Similarly, the O’Connor et al. (1999) measure, Disinhibited Attachment (which also included lack of a preferred attachment figure), had an internal consistency of only 0.64. The Chisholm five-item scale of Indiscriminate Friendliness, which included no assessment of the child’s having a preferred attachment figure, had an internal consistency of 0.83.

The item-total correlations listed in Table 4 are also compatible with scales that are internally consistent (i.e., the items cohesively measure a specific concept), with the exception of the item regarding having no preferred attachment figure, which is a clear outlier in terms of the internal consistency of the scale.

**Indiscriminate Behavior and Aggression**

We examined the relationship between overall ratings of the children’s aggressive behaviors and all of the measures of indiscriminate behavior. Aggression was unrelated to our measure of Indiscriminate Behavior ($r = 0.19$, not significant [NS]), Indiscriminate Behavior Without a Preferred Attachment Figure ($r = 0.18$, NS), the O’Connor et al. (1999) measure of Disinhibited Attachment ($r = 0.17$, NS), the Chisholm five-item measure of Indiscriminate Friendliness ($r = 0.26$, NS), and the Chisholm two-item measure of Indiscriminate Friendliness ($r = 0.25$, NS).

**DISCUSSION**

One of the most prominently described features of socially aberrant behavior in children adopted out of institutions is indiscriminate behavior. One contribution of this investigation is documentation that this indiscriminate behavior may be reliably identified in children living in institutions. In fact, we found that a majority of children in this study, all of whom lived in an institution for young children, exhibited high levels of indiscriminate behavior. This is in contrast to similar-aged Romanian

### TABLE 2

Convergence Among Different Measures of Indiscriminate Behavior

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Indiscriminate Behavior w/o Preferred Attachment</td>
<td>0.95</td>
<td>0.89</td>
<td>0.83</td>
<td>0.82</td>
</tr>
<tr>
<td>Indiscriminate Behavior w/o Preferred Attachment</td>
<td>0.97</td>
<td>0.76</td>
<td>0.79</td>
<td>0.79</td>
</tr>
<tr>
<td>O’Connor et al. (1999) Disinhibited</td>
<td>0.64</td>
<td>0.74</td>
<td></td>
<td>0.85</td>
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<tr>
<td>Chisholm et al. (1995) 5-item</td>
<td></td>
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</tbody>
</table>

### TABLE 3

Reliability Analysis of the Measures of Indiscriminate Behavior

<table>
<thead>
<tr>
<th>Measure</th>
<th>Internal Consistency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chisholm et al., 1995 Indiscriminate Friendliness</td>
<td>0.83</td>
</tr>
<tr>
<td>O’Connor et al., 1999 Disinhibited Attachment</td>
<td>0.64</td>
</tr>
<tr>
<td>Current investigation Indiscriminate Behavior Without Preferred Attachment Figure</td>
<td>0.78</td>
</tr>
<tr>
<td>Current investigation Indiscriminate Behavior</td>
<td>0.84</td>
</tr>
</tbody>
</table>

### TABLE 4

Reliability Analysis of Indiscriminate Behavior Scale

<table>
<thead>
<tr>
<th>Item</th>
<th>Corrected Item-Tot Correlation</th>
<th>$\alpha$ if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>No preferred attachment figure</td>
<td>0.28</td>
<td>.84</td>
</tr>
<tr>
<td>Wandering off without checking back</td>
<td>0.58</td>
<td>.69</td>
</tr>
<tr>
<td>No reticence with unfamiliar adults</td>
<td>0.68</td>
<td>.64</td>
</tr>
<tr>
<td>Willing to go off with a stranger</td>
<td>0.75</td>
<td>.59</td>
</tr>
</tbody>
</table>

Note: $\alpha = .7624$. 

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children who had never lived in institutions, 12% \( (n = 4) \) of whom had high levels of indiscriminate behavior (see Smyke et al., 2002). These findings add to previous research documenting indiscriminate behavior in children adopted out of Romanian institutions (Chisholm, 1998; Chisholm et al., 1995; O’Connor et al., 1999, 2000).

We found clear evidence that indiscriminate behavior may be observed in children with and without an attachment figure. This result is in keeping with findings from follow-up studies of children adopted out of institutions indicating that indiscriminate behavior persists even after children have formed attachments to their adoptive parents (Chisholm, 1998; Chisholm et al., 1995; O’Connor et al., 1999, 2000).

An alternative explanation is that our measure of having an attachment figure was not valid. The problem with this suggestion is that there is no way to prove or disprove it definitively, and the preponderance of evidence, in our view, goes against it. Our measure of whether or not the child had a preferred attachment figure was based on a reliable rating of a number of probes designed to determine whether the child had a pattern of turning selectively and preferentially to a preferred caregiver. There is, of course, no gold standard measure of attachment disorder. Attachment disorders, as defined in DSM-IV, describe children who often lack attachment to any caregiver. Measures from developmental attachment research, such as the Strange Situation Procedure and the Attachment Q-set, make an assumption that the child is attached to the caregiver with whom the procedure is conducted and that the measure tells us about the qualitative type of attachment, in the case of the Strange Situation Procedure, or the security of attachment in the case of the Q-sort, but not about attachment disorder. Furthermore, no structured psychiatric interview has ever published validity data about reactive attachment disorder. Our measure of attachment disorder both converges with and also diverges from the O’Connor and Rutter measure, at least in terms of items rated, but their measure has no more established validity than ours.

Despite the clear implications of DSM-IV (APA, 1994) and ICD-10 (WHO, 1992) that the indiscriminate pattern of disordered attachment means that the child has no discriminated attachment figure, having a discriminated attachment figure is common in children with high levels of indiscriminate behavior. The internal consistency data strongly suggest that having a preferred attachment figure is not linked empirically with indiscriminate behavior. At least, this calls into question the criteria used to define the indiscriminate pattern of attachment disorders in standard nosologies.

A separate but related question concerns whether indiscriminate behavior should be conceptualized as disordered attachment. Another contribution of this investigation was the examination of three different approaches to indiscriminate behavior in the same sample of children. We found substantial intercorrelations among our approach, the Chisholm approach, and the approach of O’Connor and colleagues. No doubt some of this is due to shared method variance, that is, similar interview probes collected during a single interview were used to code all three approaches. Still, given the magnitude of the convergence we demonstrated, it is reasonable to conclude that the three different conceptualizations of indiscriminate behavior derive from different interpretations of the same findings rather than from different findings in different investigations.

The final contribution of the current investigation was to examine whether indiscriminate behavior derives from a general level of impulsivity or is a more specific abnormality. The fact that there was almost no convergence between aggression and various measures of indiscriminate behavior in young children is compatible with the idea that these are relatively independent problems, although both are common in young children in institutions (Zeanah, 2000).

**Limitations**

Although this is the first investigation to apply systematic measures of indiscriminate behavior to young children living in institutions, it has several limitations. Chief among these is the reliance on a single informant to report on the behavior of young children at a single point in time. Although structured interviews and ensuring that reporters knew the child well reduced some bias, measurement of social behavior and psychopathology in young children is difficult because of informant bias and inaccuracies in observers (Zeanah et al., 1997). This difficulty may be addressed to some degree by multiple informants, but multimethod approaches probably offer the best protection against informant bias. Unfortunately, there are no validated observational measures of indiscriminate sociability.

It would also be helpful to know how indiscriminate behavior relates to other indices of child behavioral and psychological adaptation. The single measure of aggression we used should be expanded to include a fuller sampling of social behavior in order to determine how these
relate to indiscriminate behavior. The functional significance of indiscriminate behavior is another area that should be explored in future research. Longitudinal designs of children who were formerly institutionalized may facilitate such investigations.

Clinical Implications

The problem for clinicians is how to determine the clinical significance of indiscriminate behavior in early childhood. Chisholm's data suggest that parents may not be concerned about this behavior, but Hodges and Tizard's (1989) links between indiscriminate behavior and serious peer relational problems in adolescence suggest that concern may be warranted. In particular, the question of social cognitive abnormalities that might underlie both the indiscriminate behavior and peer relational problems in adolescence should be explored. It is possible that what will be most evident to clinicians is abnormalities in social behavior across a range of relationships in affected individuals.

Intervention to reduce indiscriminate behavior is another area in need of exploration. When and how to attempt to reduce indiscriminate behavior are questions that have important implications for clinicians and about which we have little information at present. Will reducing indiscriminate behavior enhance possible underlying social cognitive abnormalities, or will the latter have to be changed in order to reduce indiscriminate behavior? These and related questions await further exploration.

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ATTACHMENT DISTURBANCES, II

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