

Child-Focused Versus School-Focused Sociometrics: A Challenge for the Applied Researcher

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We explored the feasibility and usefulness of collecting peer sociometric data on a sample of children from across southeastern New England who were being followed in a community-based longitudinal study. Applying what has typically been a school-focused research methodology to this child-focused follow-up highlighted challenges faced by applied researchers wanting to make use of this powerful method for assessing social adjustment in their school-aged participants. It also allowed us to conduct a “real-world” test of the 1998 sociometric sampling study by Terry et al., who concluded that valid sociometric data can be obtained from a small pool of classroom peers. Through presentation of our efforts to obtain sociometric data on 57 target children and the results of these child-focused sociometrics, we illustrate and discuss the methodological and pragmatic issues surrounding the use of child-focused (in contrast to the more typical school-focused) approach to sociometrics. School consent for child-focused sociometrics was the most formidable challenge to successful data collection in this study. In our discussion we present new data from a child-focused sociometric assessment of psychiatrically hospitalized children that demonstrate how emphasizing the clinical relevance of these data can help clinicians and applied researchers better address this particular challenge.

Peer sociometric methods were originally developed in response to questions posed by applied research interests (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Roff, 1960, 1961). Subsequently, efforts to standardize the assessment of children’s

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peer relationships and use these assessments prospectively to understand social competence and predict adjustment problems resulted in the development of the peer sociometric interview and its subsequent application in hundreds of developmental studies (see Coie, Dodge, & Copotelli, 1982 for a popular example). The methodological development and refinement of the peer sociometric interview procedure has, however, created formidable data collection obstacles for applied researchers who wish to study the peer relations of their identified individual participants in this systematic way. As a result, few modern studies of clinically identified children make use of this powerful technique for assessing social competence and developmental risk. The obstacles rest in translating what has become a school-focused technology to child-focused studies of adjustment and individual differences.

The importance of childhood peer social status as a measure of child social competence and as a potential predictor of later adjustment problems, however, suggests that it would be worth trying to overcome these obstacles (Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987). Furthermore, recent research on modified approaches to collecting peer sociometric data has made obstacles to using this technology somewhat less daunting. In this report, we discuss the use of sociometric methods to assess peer social status in a sample of children whose identification was based on clinical characteristics of their mothers, concentrating on the methodological issues raised when extending the use of these methods to samples identified through sources other than schools.

The School-Focused Approach to Sociometric Assessment

Peer sociometric data is collected to obtain information about social acceptance and rejection by peers; child social behaviors such as aggression, withdrawal, and leadership; and other child characteristics such as mood and peer group experiences (e.g., loneliness and victimization). Such information is useful because it conveys important features of social competence and psychological risk (Coie, Dodge, & Kupersmidt, 1990; Kupersmidt et al., 1990; Newcomb, Bukowski, & Pattee, 1993; Parker & Asher, 1987). The sociometric method that has become well established over the past 20 years involves asking 70 to 80% of classroom peers to nominate children in response to several items such as: "Who do you like most?", "Who do you like least?", "Who starts fights, picks on other kids, or teases them?", "Who looks sad and seems unhappy?", and "Who gets called names by other children?" Nominations are tallied over all voters for each child in the class, resulting in group composite scores that consider the opinions of multiple persons and are based on numerous interactions across a variety of settings in the school context. As such, these measures are rich indicators of social competence and social adjustment for the school-aged child, particularly as manifest in the variables of social acceptance and social rejection. These methods are unique in their ability to tap into the insights that childhood peers have about one another.

If this information is so useful, why is it collected so infrequently in applied studies of children thought to be at risk for problems with social adjustment or psychopathology? To answer this, it will be helpful to examine the steps involved in conducting a traditional developmental study involving peer sociometrics. Typi-

cally, a normative developmental study of peer sociometrics involves data collection in only one school or school district to maximize the efficiency of data collection. Researchers develop working relationships with specific schools or school systems over a number of years and rely on these relationships to help facilitate the permission and interview phases of data collection. Such alliances are beneficial because individuals in the community (school personnel and parents) who are not familiar with the use of sociometric methods are sometimes concerned about the negative implications of asking school children who they like and do not like in their classrooms (see Bell-Dolan, Foster, & Sikora, 1989) and who may attempt to limit the use of these methods in school settings. With a focused effort in one school or school district, a trusted collaborator can personally address concerns about peer sociometric items. In addition to allaying concerns about the research, school-focused recruitment efforts can be easily centralized, and research staff can make multiple visits to classrooms to help generate enthusiasm for child participation. All of these factors make it possible for large school-focused sociometric studies to achieve a 75% permission rate, making it relatively easy, for example, to collect interview data in a large school system from 600 children about all 800 children in a given grade. Note that even for students who do not explicitly participate, their social position is obtained during the interviews of children who provide data in the protocol. Thus using a school-based approach, data collection involving a majority *subsample* of the children in a given school or school district yields data on *all* children in that setting.

A Child-Focused Approach to Sociometric Assessment

With samples of children recruited through sources other than schools, however, sociometric data collection presents substantial practical problems because children, not classrooms, are the basic sampling identifiers. The identified participants are not likely to attend the same school or even be in the same school system. Thus data collection involves negotiations with multiple teachers, principals, and administrators, all of whom have their own personal experiences and philosophies about peer sociometric data collection that need to be addressed. Because it is unlikely that a researcher has worked with more than a few of these schools, most of these negotiations take place without the benefit of positive past collaborative experiences.

A child-focused sociometric assessment also involves peer recruitment in multiple schools located near and far from the researcher's laboratory, making multiple visits and personalized recruiting quite difficult and expensive. Thus for a study of 30 such research participants, potentially 30 superintendents and 30 principals must be approached for permission, 750 (30 participants \times 25 classroom peers) permissions must be solicited and collected from classroom peers, 30 interview days must be scheduled with 30 teachers, and interview teams must be sent to each child's school to conduct the interviews (563 for 75%). Each of these steps offers new opportunities for restrictions on permission rates and consequent reductions in the participant and peer participant pool.

As soon as parent, school, and peer consent are obtained, child-focused and school-focused sociometric methodology are more similar, at least until the data

are harvested. For example, as soon as peer parent permission is obtained, the number of peers participating in the sociometric assessment need not differ across the two approaches. However, when the data are collected, child-focused sociometric assessments extract data on only their target participants, which could be as few as one child in a classroom. In sum, the efficiency of data collection is vastly different in the school- and child-focused approaches. With a child-focused approach, many peers must be interviewed for each child being studied. That is, for normative studies, conducting 20 interviews in a classroom of 25 students may provide useful sociometric data for 25 children, whereas 20 interviews in a similar classroom of 25 for the benefit of one identified research participant yields useful information for only *one* child in the study.

Alternatives to Peer Sociometric Nominations

Because of the obstacles outlined above, many applied researchers choose to collect alternative measures of social competence, including self-report, parent-report, or laboratory observations. Although these methods are useful, they cannot replace the ecological validity of school-focused assessments of social competence in the school-age years. Further, they do not tap into the unique fund of information held only by classroom peers. Researchers examining teacher knowledge of peer social preferences have found teacher ratings and peer nominations to correlate moderately (.50) with social status indices (Cillessen, Terry, Coie, & Lochman, 1992; Terry, Coie, Lochman, & Cillessen, 1998). Even school-based observers can only report on what they see, and they are privy to only a portion of the social interactions that reveal a child's social status. To approximate the database that peers have when asked to make sociometric nominations, teachers and observers would need to engage in several hours of focal-child observation inside and outside the classroom for each child they were interested in assessing. For teachers, this is not feasible given their other responsibilities, and for observers it is an expensive and time-consuming proposition.

Recent Developments: Improving the Efficiency of Peer Sociometric Assessment

Researchers studying peer group phenomena have been investigating more efficient ways of obtaining peer data. This work has focused on using the same sociometric measures with smaller groups of peer informants (e.g., social status [Terry et al., 1998]), using different measures with smaller groups of peer informants (e.g., collecting child assessments of peer network structures, rather than interviewing many children about their own peer group affiliations and combining these nominations to reveal the peer network structure [Cairns, Cairns, Neckerman, & Garipey, 1988]), and evaluating the consequences of conducting peer research with smaller than usual groups of participants (Noll, Zeller, Vannatta, Bukowski, & Davies, 1997). We focus on the work of Terry et al. (1998) because it most directly addresses the challenges faced by applied researchers interested in collecting infor-

mation about their identified child's social *acceptance* and *rejection*. We return to some of this other research in the discussion section.

Through multiple random samplings from a large, school-based, sociometric dataset, Terry et al. (1998) suggested that when asked about their own social preferences, a randomly selected group of 10 children can provide social acceptance and rejection scores for a sample of 100 pupils that correlate .61 with acceptance and rejection scores derived from the entire sample. Scores from a sample of 15 correlate .71, and scores from a sample of 25 correlate .80. Similarly, five teacher-selected child judges (children whom teachers believe would have sociometric preferences that are representative of the preferences of their classroom peers) provide acceptance and rejection scores that correlate .50 with scores derived from the entire sample, and 15 teacher-selected judges provide scores that correlate .77 with scores from the entire sample.

It thus appears that subsamples of 25% (or even lower if teacher selection is used) can approximate the sociometric information provided by the more typical 75% subsamples obtained in school-focused studies. These findings have direct and promising implications for a child-focused approach to peer sociometric data collection, in which a smaller pool of peer participants than is typically used in school-focused studies is likely to be available for the reasons discussed above.

Child-Focused Sociometrics and a Real-World Test of Small Subsample Sociometrics

In this study we applied the principle suggested by Terry et al. (1998), that a limited pool of participants can provide useful information about peer social preference, to research on the social competence of an identified sample of children attending schools across the region. Our sample was composed of children identified at an earlier age for a related study investigating maternal psychopathology. Given the many obstacles to successful peer recruitment inherent in this approach, we expected to recruit fewer than the 75% of classroom pupils used in typical sociometric studies, but more than the number suggested as necessary by Terry et al. (as few as 10% for a correlation of .61 or 25% for a correlation of .80). The key difference between the research of Terry et al. and our "real-world" application of their work is that we were unable to select peer participants randomly because of low peer consent rates and had to work with the peer samples we are able to recruit. Thus our goals in this study were to demonstrate the challenges of collecting peer social acceptance and social rejection data under the suboptimal conditions created by the constraints of this child-focused approach to sociometric data collection and test the validity of the data after it was obtained. First, we assessed the attrition in our target sample resulting from the challenges of obtaining consent in a child-focused sociometric study. Second, we assessed the quality of the sociometric data obtained on the remaining target participants focusing on (1) peer participant sample quality, (2) correlations of the sociometric data with peer-rated social behavior and self-reports of loneliness, and (3) correlations of the sociometric data with observer-rated peer interaction, social competence, and psychological risk variables.

METHOD

Participants

The sociometric study described here was a pilot ancillary project of a larger high-risk study. A total of 57 children involved in the Providence Family Study, a longitudinal study of the impact of maternal mental illness and family functioning on child development, were eligible to participate in this study. The children involved in this study were selected on the basis of maternal characteristics. For more details on the Providence Family Study sample and its recruitment, the reader is referred to Seifer, Sameroff, Dickstein, Keitner, Miller, Rasmussen, and Hayden (1996). To be eligible for the present study, a child from the larger study needed to be in either the first, second, or third grade.

To obtain sociometric data, three consent procedures were necessary, including parent permission to contact schools, school permission to conduct sociometric interviews, and permission from the parents of classroom peers for their child to participate in the interviews. These procedures will be described in more detail below (see Results) along with the impact of each stage of consent on the original sample size. After obtaining these consents, sociometric data were collected for 17 (54% female, 46% male; mean age = 8.0 years; $SD = .89$; 89% white, 11% minority) of our target children based on interviews with 128 classroom peers (55% female, 45% male). Because the interview participants provided nominations for all peers in the classroom, sociometric data were collected on a total of 358 children. This larger data set ($n = 358$) is used in validation analyses based on peer-rated behavior. The smaller sample ($n = 17$) is used in validation analyses based on observer ratings.

Procedure

Research assistants trained in the administration of the sociometric assessment individually interviewed target participants and classroom peers for 20 minutes during the last third of the school year. Interview participants were asked to answer several social preference and social behavior questions by indicating their peer nomination choices on a complete class roster. All class rosters included the name of the target participant(s) in that classroom, and, as in all sociometric assessments, peers had the opportunity to nominate our target participants for each sociometric item. Before administering the peer nomination items, the interviewer completed two practice items with the children to familiarize them with the interview format and to review the names on the class roster. For the practice items, the interviewer read the class roster aloud and asked the child to indicate which of the peers he or she would like to select. For the study items, children looked at the roster with the interviewer when making their choices, but the names were not read aloud.

Measures

Peer Status and Social Behavior. The peer nomination items were as follows: "Who do you like the most?" and "Who do you like the least?" (*acceptance and rejection* [Coie et al., 1982]); "Who do you hang around with?" (*network* [Coie, Terry,

Zakriski, & Lockman, 1995)]; “Who gets picked on by other kids?”, “Who gets called names by others kids?”, and “Who gets hit or pushed by other kids?” (*victim-general*, *victim-verbal*, and *victim-physical* [Perry, Kusel, & Perry, 1988; Wiggins & Winder, 1961]); “Name three children who are leaders and good to have in charge” (*leads* [Coie et al., 1982]); “Name three children who would rather play alone than with other kids” (*withdrawn* [Masten, Morison, & Pellegrini, 1985]); “Name three children who are very shy” (*shy* [Masten et al., 1985]); “Name three children who share with others” (*shares* [Coie et al., 1982]); “Name three children who start fights, pick on other kids, or tease them” (*aggressive* [Coie et al., 1982]). In the individual interviews, interview participants were also asked to answer the four highest loading items of the Loneliness and Social Dissatisfaction Questionnaire (Asher & Wheeler, 1985). These items were answered on a 5-point scale ranging from not true at all to always true.

Peer nomination items were scored by summing the number of nominations a child received and then standardizing within the classroom. This corrected for voting trends within the classroom, as well as different classroom sizes and different voter pool sizes. To create an overall *social preference* score, standardized social rejection scores were subtracted from standardized social acceptance scores, and the result was then restandardized within the classroom (Coie et al., 1982).

Observer Ratings. Observational data were collected on the 17 target participants. Because peer sociometric status reflects peers’ *preferences* (i.e., liking and disliking) for one another that may or may not be directly reflected in their behavior toward one another (e.g., a child who fears retaliation may not directly express his disliking of a bully, or a shy child who fears their social overtures may not be reciprocated may not directly express their liking of a popular peer), we chose to observe and rate several correlates of peer social status. Some of these correlates primarily reflect the behavior of the peer group toward our target participants, some assess qualities of our target participants related to social competence, and one assesses psychological risk. These observations of target participants’ peer interactions likely reflect, but certainly cannot directly tap, children’s actual social status. These data are presented as sources of external validation for the child-focused sociometric procedure. To obtain stable estimates of peer interaction variables, social competence variables, and psychological risk over settings (classroom or playground) and observers, ratings were averaged over the two 45-minute periods in which participants were observed.

After each observation, raters responded to the following five questions using 5-point rating scales: (1) Overall, how positive/negative were this child’s peer interactions? (Peer Interaction *Quality*: rated from 1 (almost entirely negative) to 5 (almost entirely positive)); (2) compared with other children in the class, how much time did this child spend in peer interaction? (Peer Interaction *Frequency*: rated from 1 (much less than other children) to 5 (much more than other children)); (3) did this child have periods with no peer interactions when peer contact was appropriate and social interaction would be expected? (Peer Interaction *Isolation*: rated from 1 (not at all) to 5 (almost the whole time)); (4) when interacting with other children, this child’s behavior (score of 1) seemed totally out of context to (score of 5) seemed

to fit well with the behavior of the other child, be coordinated and synchronous (Social Competence: *Behavioral Reciprocity*); (5) when interacting with another child, this child's affect (score of 1) seemed totally out of context to (score of 5) seemed to fit well with the behavior of the other child, be coordinated and synchronous (Social Competence: *Affective Reciprocity*).

Because social status is not only a reflection of peer relationship quality and social competence, but is also thought to be an index of psychological risk, observers also completed the Psychological Impairment Rating Scale (PIRS) (Baldwin, Baldwin, Kasser, Zax, Sameroff, & Seifer, 1993). The items were rated on a 5-point scale and assessed: social engagement, openness, cooperativeness, likability (to the rater), clear expression of feelings, reasoning ability, intelligence, attractiveness, overall social assets, and overall assessment of psychological risk. The total risk score (sum over all 10 items) from this measure was used as an indicator of psychological risk.

RESULTS

Target Participant Attrition and Sample Comparisons

To evaluate the impact of child-focused sociometric consent procedures on the size of our target sample, we first examined parental and school consent rates for sociometrics. Schools were more resistant to cooperating with the child-focused sociometrics than were parents. Of the 57 parents contacted, 42 (74%) agreed to let us approach their child's school about conducting sociometrics. Families who declined permission stated either that they did not want to burden their child's school with data collection, did not want their child stigmatized, or had concerns about the confidentiality of family information in the school setting. For these 42 children, school permission was sought in 36 different schools across 24 different school districts. School principals and teachers were asked for permission to complete teacher questionnaires (teacher data are not included in this report), allow observers to rate target children's peer interactions, and to allow sociometrics to be conducted in their classrooms. These three different measures represented increasing levels of intrusion into the classroom and generated increasing concerns about confidentiality and liability. Forty-two schools consented to teacher ratings, 28 schools consented to teacher ratings and observations, and 17 schools consented to teacher ratings, observations, and sociometrics. The 17 children for whom we obtained sociometric consent represented 40% of the children with parent consent and 30% of the original sample. Schools that declined permission most often did so because of concerns about the negative items on the sociometric interview. Three declined because the school had already committed to its maximum number of research projects for the school year.

Peer Participation Rates and Sample Comparisons

To assess the impact of a child-focused approach to sociometric data collection on peer participant sample size, we next examined parental consent for classroom

peers' participation in the sociometrics. The 17 target participants attended 17 different classrooms across 15 different schools in 11 school districts. Peer permission slips to participate in sociometrics were mailed to each classroom teacher and sent home with all children in their class. One hundred seventy-eight responses were received (50%); 132 of those were positive (74%), and 128 children were eventually interviewed. The average number of peers interviewed per classroom was 6.6 ($SD = 3.1$), and the average class size was 21.0 ($SD = 2.9$). Thus our peer informant group comprised 31% of the classroom on average (ranging from 24% to 44%), which was comparable with the peer group subsample sizes used in Terry et al. (1998).

Although similar in size to Terry et al.'s (1998) peer participant samples, our peer participant sample was comprised of children who returned their permission slips with minimal prompting and support, and therefore were not randomly selected. Because of this difference, we were interested in understanding whether the peers we recruited differed in important ways from the peers we were unable to recruit as participants. Participants did not differ from nonparticipants on social acceptance, victimization, sharing, withdrawal, aggression, social network size, or shyness. This was true regardless of whether self-voting was included in a child's total score. Participants and nonparticipants did differ, however, on leadership and social rejection, with participants being more often nominated by their peers as leaders ($t(355) = 1.38; p < .05$) and less often nominated as someone they liked least ($t(355) = 1.41; p < .05$) than were nonparticipants.¹

Validation of Child-Focused Sociometrics: Peer-Nominated Behavioral Correlates of Social Status

Our first set of validity analyses examined the relationships between social status indices and behavioral nominations from this child-focused sociometric procedure. Recall that peers in our interview sample provided these nominations for all of the children in each target child's class. This allowed us to examine these relations on a large sample of 358, rather than our final target sample of 17. Social preference, social rejection, and social acceptance scores were correlated with behavioral nomination items from the peer sociometrics to assess the impact of using a small, nonrandom peer participant sample on typical social status and social behavior relationships (see Table 1). Social acceptance was positively related to size of social network, leadership, and sharing and was negatively related to being victimized, withdrawn, or aggressive. Social rejection was positively related to victimization, withdrawal, and aggression and was negatively related to size of social network, leadership, shyness, and sharing. Self-report data on loneliness also support the validity of our child-focused sociometric procedure. Loneliness was a significant negative correlate of social status indices. A multiple regression examining the joint prediction of social preference by peer-nominated behaviors suggested that together, leadership, sharing, and shyness (beta-weights = .21, .25, .14, respectively) positively predicted social preference and that withdrawal, aggression, and victimization (beta-weights = -.12, -.17, -.20, respectively) were negatively predictive ($R^2 = .34; F(10, 327) = 17.06; p < .001$).

Table 1. Correlations Among Social Preference, Acceptance, and Rejection Scores, Behavioral Nominations from Peers, and Self-Reported Loneliness

	<i>Network</i>	<i>Victim-G</i>	<i>Victim-V</i>	<i>Victim-P</i>	<i>Shy</i>	<i>Withdrawn</i>	<i>Aggressive</i>	<i>Shares</i>	<i>Leads</i>	<i>Lonely</i>
Preference	.45**	-.20**	-.19**	-.30**	.18**	-.18**	-.26**	.41**	.39**	-.28**
Acceptance	.50**	-.16**	-.17**	-.27**	.10*	-.18**	-.15**	.39**	.36**	-.24**
Rejection	-.32**	.21**	.18**	.29**	-.21**	.15**	.31**	-.34**	-.33**	.26**

n = 358; * $p < .05$, ** $p < .01$.

Table 2. Correlations Among Social Preference, Acceptance, and Rejection Scores and Ratings of Peer Interactions

	<i>Quality</i>	<i>Frequency</i>	<i>Isolation</i>	<i>Aff-Recip.</i>	<i>Beh-Recip.</i>	<i>PIRS</i>
Preference	.62*	.54*	-.52*	.34	.50*	-.58*
Acceptance	.71*	.59*	-.59*	.42 ⁺	.55*	-.58*
Rejection	-.44	-.39	.37	-.23	-.41 ⁺⁺	.49*

$n = 17$; $++ p < .10$. $+ p < .08$. $* p < .05$. $** p < .01$.

Validation of Child-Focused Sociometrics: Observed Correlates of Social Status

Our second set of validity analyses further examined the behavioral correlates of our child-focused sociometrics through the use of classroom and playground behavioral observations. Because the observational data were only collected on target children, the sample size for these validity analyses was restricted to 17. We examined correlations between social status variables and characteristics of peer interactions, indicators of social competence, and psychological risk.

Peer Interaction Variables. We first attempted to validate the child-focused sociometrics by comparing them with observations of peer interaction quality, frequency, and isolation, all of which were likely to be related to sociometric status through their reflection of peer behavior toward the target participants. Social preference and acceptance were significantly related to observer-rated quality, frequency, and isolation in peer interactions (see Table 2). Social rejection was marginally related to peer relationship quality.

Social Competence Indicators. In our next validity assessment, we correlated the social competence indicators with the child-focused sociometric scores and found that social preference and acceptance were significantly related to behavioral reciprocity (see Table 2). Social acceptance was also marginally related to affective reciprocity. As with the other validation variables, observed indicators of social competence were not significantly related to social rejection, although a trend was evident in the correlation between behavioral reciprocity and rejection.

Psychological Risk. In the final validity assessment, we tested the relationship between our child-focused sociometric scores and the Psychological Impairment Rating Scale summary score and found significant correlations with social preference, acceptance and rejection. Our child-focused sociometrics, including social rejection, appeared to measure meaningful variance in children's psychological risk (see Table 2).

DISCUSSION

Child-focused sociometric data collection presents significant challenges to the applied researcher and significant risks to preserving sample size. In this study, sociometric data were collected on only 17 of 57 (30%) original target participants (40% of the participants with parent permission) because of school consent problems.

Significant reduction in peer participant sample size was also observed (24–44% of peers participated per classroom versus the typical school-focused sociometric consent rate of 75–80%). However, this research demonstrates that child-focused peer sociometric research on identified samples can provide valid information about a child's social status in elementary school. Measures of peer status assessed via child-focused peer sociometrics were linked to peer-reported social behaviors and observations of social relationships in ways which reflect the larger, school-focused literature on peer social status (see Coie et al., 1990 and Vitaro, Tremblay, Gagnon, & Boivin, 1992 for a review). Given the power of social status measures as indices of elementary-school social adjustment and predictors of future risk, we dedicate the discussion to clarifying the implications of these findings for applied researchers interested in the social adjustment of identified children, and to outlining suggestions for future improvements in this type of research. In our discussion of future research, we briefly present new data from an applied, child-focused sociometric assessment of psychiatrically hospitalized children that address the main challenge identified in the present study: low rates of school consent for child-focused sociometrics.

School-Focused Versus Child-Focused Associations Between Status, Behavior, Adjustment, and Risk

One way to evaluate the usefulness of the child-focused sociometric method in this sample is to compare our results with findings from school-focused sociometric studies. The school-focused study with the most directly comparable sociometric items included third-, fifth-, and eighth-grade participants (Coie et al., 1982). Unfortunately, correlations between social acceptance/rejection and peer-reported social behaviors are reported for all grades together, and on average the Coie et al. sample is much older than ours. Given their finding that older children were more differentiated and less stereotyped in their perceptions of the correlates of social preference, direct comparisons of Coie et al.'s correlations with ours from first, second, and third graders are less than ideal. Indeed, the correlations in Coie et al. (1982) were stronger on average than those found in the present study. However, even with our younger sample, a similar pattern of associations between social behavior and social status emerged.

Coie et al. (1982) found the major behavioral correlates of social acceptance to be network size, prosocial behavior, and leadership. Aggression, disruptive behavior, and snobbishness were the strongest correlates of social rejection. These correlations were in the .41 to .75 range. Network size, prosocial behavior, and leadership were also the strongest correlates of social acceptance in our sample, even though details of the protocol were different. Further, aggression was our strongest positive correlate of social rejection. The correlations in our sample ranged from .35 to .50. The children who had experienced rejection in our sample were also unlikely to be viewed as prosocial, which was true for Coie et al. (1982) with correlations of approximately the same magnitude.

Comparisons of our results with other studies using similarly aged participants reflect even more similar findings, despite substantial differences in item wording.

Peer-reported prosocial behavior (cooperates and friendly approach) in preschool and kindergarten correlates positively with social preference, with correlations ranging from .24 to .58 (Moore, 1967; Wasik, 1987), whereas our correlation of sharing with social preference was .41. Peer-reported leadership in kindergarten correlates with social preference between .32 and .48, depending on the timing of the assessment in the school year (Wasik, 1987), whereas our correlation with leadership was .39. Peer-reported aggression and social preference correlate at the single-item level in preschool and kindergarten, with correlations ranging from $-.29$ to $-.78$ (Wasik, 1987; Moore, 1967), and in second through fourth grade using the aggressive-disruptive factor of the Revised Class Play (Masten et al., 1985), with correlations ranging from $-.32$ to $-.49$ (Hymel, Freigang, Franke, Both, Bream, & Borys, 1983). Our single-item correlation of aggression with social preference was $-.26$. Loneliness, typically measured using the 16-item Loneliness Scale (Asher & Wheeler, 1985), correlates approximately .30 with social preference in third- through sixth-grade children (Asher & Wheeler, 1985) and .20 with kindergarten and first-grade children (Cassidy & Asher, 1992). We found correlations of approximately .25 with social status indices for a subset of four items from the Loneliness Scale.

Overall, as in the school-focused sociometric literature, social preference was jointly predicted by prosocial behaviors and negatively predicted by more deviant behaviors (aggression and withdrawal) and victimization. Shyness was an unexpected joint predictor of social preference with prosocial behavior, suggesting that shyness, in combination with other positive features, may be an admired quality in the more compliant, organized, and eager students who returned their permission slips on time.

Comparisons of child-focused status indices with observations of peer relationships revealed support for child-focused sociometric indices also being related to psychological risk and adjustment. Peer social preference, acceptance, and rejection were significantly related to the Psychological Impairment Rating Scale summary index of psychological risk. Observer-rated features of peer interaction quality and social competence were more strongly related to social acceptance and social preference scores than to social rejection scores. Social preference and social acceptance were significantly correlated with observer-rated behavioral reciprocity, quality, frequency, and isolation in peer relationships, whereas these variables were at best marginally related to social rejection. The finding that peer rejection was not as strongly related to our observer-rated peer interactions may be more related to difficulties observing infrequent rejection-related behaviors than it is to the validity of the rejection score from the child-focused sociometrics. However, the relative validity of social acceptance and social rejection in child-focused sociometrics deserves further study. Rejection was significantly related to a summary score from our 10-item, observer judgment of psychological risk, which may have captured an accumulation of rejection-related observations.

Participant Bias and Other Sampling Issues

We have described our study as a real-world test of Terry et al.'s conclusions regarding sociometric sampling because, in situations where researchers would be

interested in alternatives such as ours to school-focused sociometrics, researchers often do not have the luxury of randomly selecting their peer participants, as was done in Terry et al. (1998). That is, when conducting child-focused sociometrics across multiple school districts, permission rates will often not allow for random selection of peer participants. As other researchers have found using larger samples of participants in school-focused sociometric research (Noll et al., 1997), there were measurable differences between our peer participants and nonparticipants. Our peer participants differed from their classroom peers on two characteristics of the many examined: leadership and social rejection. These differences mirror participant/nonparticipant differences in Noll et al. and were similarly modest in size. The somewhat biased nature of our peer sample, however, did not appear to affect the validity of our sociometric data substantially. As noted earlier, the predictive relationship between shyness and social preference may have been influenced by the qualities of our nonrandom nominator pool. Noll et al. comment that all school-based studies with less than perfect permission rates suffer from similar participant/nonparticipant differences, which lead to minor variations in nominating patterns and behavior/status relationships. More research is needed on the effects of different numbers and types of peer participants on the quality of peer nominations and the relationships between peer-nominated behaviors and social status.

The main contrast between the school-focused approach to sociometrics and the child-focused approach used here is in the method of sampling. Although individual children are the unit of analysis and of interest in the school-focused approach, the data obtained across individuals in such studies derives from a single, or small number of, sampling units (the classroom). Thus inferences about individual children in the context of larger samples benefit from features common to all children in the classrooms. In contrast, when identifying children in a clinical study, the sampling potentially includes far more diversity because the classroom is now no longer the sampling unit, but merely a good place to obtain data from knowledgeable peers. It is rare that more than one child in a clinical study will be found in the same classroom. As a result, when inferences are made based on this different form of sampling, comparisons across children are subject to many more confounds than is typical in the normative design. Rather than being compared with classroom and school system peers (as in school-focused studies), children from the child-focused studies are compared with those outside their classrooms and school systems. Such differences in research strategy raise conceptual issues about interpreting data across school-focused and child-focused studies that require further empirical work and theoretical insights.

Suggestions for Improving School and Peer Consent

Our experience with recruitment for this study has provided us with lessons that may increase success in future attempts to collect child-focused peer sociometric data. The biggest limitation in our real-world application of child-focused sociometrics was the school consent rate for sociometrics (40%). Our experiences with school-focused peer sociometrics suggest that there are several ways to improve this rate that were not used in the current study because of limitations on time and

resources. Personal contacts with superintendents and principals at the recruiting phase would be especially useful. We did most of our recruiting through the mail and over the phone, which most likely limited our success. Having a school liaison on the research staff who has worked in or with the school departments of interest would also be useful (Rogosch, Cicchetti, & Aber, 1995). Another practice that has served to increase administrative approval in the past, particularly when administrators are concerned about the negative impact of the sociometrics, is to offer workshops for students or teachers on improving peer relationships in school that would be conducted after the administration of the sociometric analysis. Approaching schools during the summer or at the beginning of the year for a spring sociometric assessment is also recommended. We were denied access to three large school systems because they had already committed to their internally imposed maximum number of research projects for the year.

Another suggestion for greater success in school recruitment would be to consider using alternative sociometric approaches. One described by Asher and Dodge (1986) uses rating scale responses to the item "How much do you like to play with (peer)?" to form social acceptance scores, and ratings of 1 (the lowest scale point indicating "not at all") as a substitute for social rejection nominations. The elimination of the social rejection nomination item would address the primary objection made by school administrators, principals, and teachers to the sociometric measure we proposed. This procedure provides reasonable overlap with the Coie et al. (1982) method on categorization of children into sociometric status groups ($\kappa = .51$) and substantial overlap on categorization of rejected/nonrejected groups ($\kappa = .86$). Additionally, the rejection score derived from this measure correlates highly ($r = .80$) with the rejection score derived from the more popular measure. However, although the choice of this alternative method may result in higher school consent rates, the compounded impact of an alternative peer participant group (a small, nonrandom, peer participant group) and an alternative measure (Asher & Dodge, 1986) on the validity of child-focused sociometric scores is unknown and in need of further study. Another approach would be to adapt Cairns et al.'s (1988) technique for assessing social networks and use a small group of peers to report on who is liked and not liked by the peer group, rather than collecting individual peer nominations such as "Who do you like/not like?" This could involve small groups of peer participants and may be more acceptable to schools because children are being asked to report on their observations of the peer group, rather than their own social preferences. This approach would also require further study.

Although school consent was a more formidable obstacle, other thoughts for improving the quality of child-focused sociometric data revolve around peer consent procedures. Our peer permission rates were acceptable (50%), but a higher rate would allow for either a larger pool of participants or random selection of participants, both of which would be beneficial. Passive consent for peer participation would help with this goal, but it is difficult to obtain approval for this in most school systems given current attitudes about consent and liability. Offering classroom incentives if 70 to 80% of the students return their consent forms has also been a useful way of increasing peer permission rates in the past, although we did not do this for the current study. Also, visiting classrooms in the recruiting phase and

giving classroom peers a brief description of the study in person helps generate enthusiasm for the study and can have a positive impact on consent form return rates. Obviously, researchers will be limited in the number of these recruitment techniques they can implement. Selecting a random sample before soliciting consent and focusing recruitment on the random sample may serve both to improve the quality of the sociometric scores and to reduce the scope of recruitment.

New Data From an Applied Clinical Trial of Child-Focused Sociometrics. One final suggestion for addressing the obstacle of low school consent rates for child-focused sociometrics comes from our recent application of this work in clinical practice. We were interested in obtaining school-based sociometric assessments of psychiatrically hospitalized children to compare with their unit-based social functioning and as an indicator of their psychosocial risk after discharge. Cognizant of the low school consent rates (40%) we achieved in our main study, we decided to emphasize the clinical relevance of these data rather than their historical research significance when we approached our patients' schools with the goal of improving the school consent rate. This emphasis was consistent with our beliefs about sociometric assessment and consistent with our intention to use the child-focused sociometric results in our clinical evaluations of the children.

To accomplish this goal, we used the technique described in Strauss, Lahey, Frick, Frame, & Hynd (1988), who conducted a school-based follow-up assessment of children treated in an anxiety clinic. This involved requesting a slightly modified peer sociometric directly from teachers as part of our clinical assessment battery for children admitted to our psychiatric inpatient unit. The key difference between Strauss et al.'s sociometric procedure and standard sociometric procedure is that the teacher conducts the sociometric rather than an outside person (clinician or applied researcher), and that only data on the target child is tabulated and communicated to the outside person. It is quite common for teachers to be asked to participate in a clinical evaluation of one of their students when parents have provided consent, although it is less common for teachers to be asked to collect information about the child's social status as part of such an assessment. We informed each child's teacher that the child's parents had provided consent for these assessment data, including the sociometric assessment. We also informed the teacher that the parents had consented to the data being used most immediately for clinical purposes, but also for research purposes.

Thus in addition to completing other standard questionnaires, we asked teachers to have children nominate on paper the three children they liked the most and the three children they liked the least, then collect and tally the nominations for the target child in question. Teachers sent us these tallies, along with the number of peers participating, when they returned their other materials. All teacher information was incorporated into case conceptualizations and clinical reports written on these children. Because we only collected sociometric information on the target child for whom we had parent permission, peer parent permission was not collected. The ethical issue involved in this decision was whether the confidentiality of classroom peers would be violated in any way. We decided that it would not, because we would never know who participated in the sociometric assessment or who these

children nominated. Our hospital institutional review board made a similar evaluation of this ethical issue, as did the school personnel we approached. Classroom peer confidentiality was never raised as an issue in our negotiations with schools.

Using this technique, 83% of the teachers agreed to participate in the sociometric portion of our inpatient assessment. This is a significant improvement over the 40% school consent rate we describe in the main body of this paper, where research rather than clinical follow-up was emphasized during both the consent request process and data analysis and application. We attribute the enhanced school cooperation with sociometric assessment to the clinical focus of this sociometric, its simplicity, and the confidentiality it provides for the target child's classmates. It is important to note, however, that despite this success, when teachers/schools did not agree to complete this measure their objections were at times strong. Two teachers indicated their nonconsent by returning the sociometric form blank along with the other completed forms. One teacher explained that her classroom of four students was too small for the measure to be effectively and sensitively used. The other four nonconsenting teachers strongly objected to asking their students to report the names of children they do not like. Thus although this approach generated more teacher and school consent, it is important for researchers and clinicians seeking this kind of information to be prepared for strong negative reactions from school personnel, particularly if rejection nominations are used.

Despite the success of the Strauss et al. (1988) method, it is also important to note that this measure of social status is somewhat less informative than the one presented in the main body of this paper, specifically because it does not allow the researcher/clinician to examine the social standing of the identified participant/patient relative to others in the classroom. However, when interested only in a rough sociometric status indicator for a clinically referred child, this method may be more preferable than the other, for which peer permission is required. Preliminary analyses with these new data for 35 children suggest that school social status scores from this method are related to social status in the psychiatric hospital with new peers, as well as to adult ratings of social skills and symptomatology both at school and in the hospital. Particularly for clinicians and others working with children outside of a peer context, this school sociometric information can help provide unique and treatment-relevant information about how their clients' symptoms may be interacting with their social functioning in school.

SUMMARY

In conclusion, our aim in this report was to examine the feasibility and value of applying sociometric research methods to identified samples through what we have called child-focused sociometric assessment. The greatest challenge in this type of research is reduction of the initial target sample as a result of school nonconsent, and we underscore that it is a major challenge. Peer consent rates for sociometrics were also lower, but our results suggest that a limited pool of participants can provide valid information about peer social status. We found that the recruitment limitations inherent in a child-focused approach to sociometric data collection resulted in a nonrandom sample of participants who were more likely to be nominated

as leaders and less likely to be nominated as liked least. Despite this bias, the social status indices collected in this study were correlated with similar child characteristics, with similar strength, as social status indices are typically correlated when a school-focused approach to sociometric assessment is adopted. In short, we have tested the feasibility and demonstrated the challenges of collecting valid sociometric data in an applied study of identified children. With a second data set, we attempted to tackle the school consent challenge, learning from our experience and slightly modifying our approach to child-focused sociometric data collection. Overall, we hope to have offered evidence that child-focused sociometric research efforts are valuable, and to have provided useful suggestions and preliminary data addressing the issue of enhancing the success of child-focused sociometrics.

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NOTE

1. Because children were allowed to vote for themselves on the behavioral nomination items, including leadership, we investigated whether biased self-nomination on leadership might have been responsible for the difference observed between participants and nonparticipants. In contrast, children were not allowed to vote for themselves on the social preference items, including social rejection. First, participants' leadership scores were recalculated to eliminate self-nomination. Then the group of participants was divided into a group who voted for themselves and a group who did not vote for themselves. Finally, the leadership scores that participants received from other children were compared between the two groups, revealing that participants who had voted for themselves were actually voted for more frequently as leaders by other children than were participants who did not vote for themselves ($t(125) = 2.61; p < .001$). Thus it seems that the participant/nonparticipant difference in leadership is a consensus among many children, and not merely an artifact resulting from biased self-nomination.

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