



# Sociometric status of child inpatients in clinical and normative peer groups

## Is peer status in a clinical setting a useful measure of adjustment?

Audrey L. Zakriski<sup>a,\*</sup>, Mitchell J. Prinstein<sup>b</sup>

<sup>a</sup>*Department of Psychology, Connecticut College, 270 Mohegan Avenue, New London, CT 06320, USA*

<sup>b</sup>*Yale University, New Haven, CT, USA*

---

### Abstract

This research examined whether peer sociometric status, a powerful indicator of social maladjustment and psychological risk in normative peer groups, is a meaningful indicator of adjustment when assessed in clinical settings. In Study 1, 92 child psychiatric inpatients participated in unit-based sociometric assessments. Depression, anxiety, hopelessness, self-esteem, and behavioral disturbance were also assessed. Overall, inpatient peer status was related to concurrent adjustment and contributed to increased maladjustment in the hospital setting over time. Study 2 evaluated the extent to which inpatient peer status is related to more traditional assessments of peer status using a smaller sample. Children's social status on the unit with inpatient peers was compared to their social status at school with school peers at the time of admission. Inpatient peer status was significantly related to school peer status and to teacher-rated adjustment in school. The value of collecting peer sociometric data in treatment settings as an indicator of concurrent adjustment and as a window into adjustment in other contexts is discussed. © 2001 Elsevier Science Inc. All rights reserved.

*Keywords:* Peer sociometric status; Peer rejection; Child inpatients; Assessment

---

### 1. Introduction

Within the normative literature, substantial evidence has accumulated suggesting that children's peer relationships, particularly peer rejection experiences in elementary school,

---

\* Corresponding author. Tel.: +1-860-439-5134.

E-mail address: alzak@conncoll.edu (A.L. Zakriski).

are related to concurrent and future psychological adjustment, including major psychiatric problems in childhood and adolescence (see Kupersmidt, Coie, & Dodge, 1990; Parker & Asher, 1987 for reviews). This research demonstrates that sociometric assessments of children's peer status in their normative school environments can yield important information regarding psychological adjustment. In contrast, it is not clear whether peer sociometric status within clinical settings is also a useful indicator of psychological adjustment, as few researchers have investigated children's peer relations in alternate peer contexts. Indeed, it may be that peer status is only psychologically meaningful when assessed in a typical peer group.

When sociometric assessments are conducted in school settings, sociometric status and social behavior nominations elicit comparisons of each child to all classroom peers who generally function within the normal range. Thus, children who are identified as rejected in this context are likely to exhibit numerous social and psychological difficulties. Likewise, children who are identified as popular are likely to possess social and psychological strengths. Accordingly, research has demonstrated that children who are rejected are more aggressive, depressed, anxious, and lower in self-esteem than are popular children (see Newcomb, Bukowski, & Pattee, 1993).

In a clinical peer group of children with severe social and behavioral problems, however, most children may experience significant peer difficulties. In fact, impairment in peer functioning is a characteristic of many childhood disorders (American Psychiatric Association, 1994; Dodge, 1989). Nevertheless, the nature of sociometric assessment, whereby children indicate peer preferences from those peers available to them, makes it possible to identify popular and rejected children in any context, including a clinical setting. Peer status, therefore, is a relative construct, as the results of sociometric assessment are indicators of relative acceptance or rejection compared to the available peer group and thus may be inconsequential when this peer group exclusively includes other children with social and behavioral difficulties.

Although we are not aware of prior research that has directly examined whether peer social status in a clinical setting is related to psychological adjustment, some investigations have examined predictors of peer acceptance within clinical groups. For instance, Asarnow (1988) examined the relationship between psychiatric diagnosis and peer acceptance/rejection among 6–13-year-old children during 2–3 months of inpatient hospitalization. Results indicated that children with comorbid conduct disorder and depression were less accepted by peers than children with conduct disorder only, and children with conduct disorder only were less accepted than children with depression only. In sum, peer status in a clinical setting distinguished between children with different types of clinical disorder. From the limited information available, therefore, it appears that there may be some value in measuring peer status in clinical peer groups. Other peer status research in a clinical setting suggests that the specific behavioral predictors of peer status may vary as a function of the behavioral norms of the clinical peer group (Wright, Giammarino, & Parad, 1986). However, this does not rule out the possibility that peer status, even if related to different behaviors, might still be related to psychological adjustment.

Other prior research on the peer status of children in psychiatric treatment has involved school peers rather than clinical peers. One study suggests that children in outpatient clinical treatment for anxiety disorders are more likely to have lower peer sociometric status at school than nonreferred children (Strauss, Lahey, Frick, Frame, & Hynd, 1988). This research underscores

the difficulties faced by children with clinical disorders in their everyday peer relationships but does not address how these difficulties would manifest themselves in clinical settings. These findings also do not address whether assessments of peer status in clinical settings would reveal anything meaningful about the social adaptation and psychological functioning of these children in the school setting. In fact, we are aware of no studies that examine the peer relationships of children with clinical disorders in both their treatment and school settings.

The present paper extends this previous research by directly addressing whether peer status in an atypical peer group is related to psychological adjustment. In two studies, we measured peer social status during inpatient hospitalization. In the first study, we assessed the extent to which inpatient peer status was related to social and psychological functioning during hospitalization. Assessing the relationship between peer status and adjustment in the hospital would be a first step in determining the meaning of peer status in clinical settings. Assessing the power of peer status assessments in the hospital to describe adjustment in other settings would be a crucial next step. Therefore, in a second smaller study, we examined the extent to which children's inpatient peer status, as assessed by inpatient peers, was concurrently related to their school peer status, as assessed by school peers, and teacher-rated social adjustment.

The nature of sociometric assessment makes it possible to identify peer-accepted and rejected children in any setting. However, whether being liked or disliked in a clinical setting, where all available peers have significant emotional and behavioral problems, will yield information related to psychological adjustment is unclear. If peer status is only meaningful when assessed in a normative peer group, our assessments of peer status in a clinical peer group will be unrelated to indicators of psychological adjustment on the unit, not related to the same social behaviors as in school settings, and not representative of social functioning in the school setting. However, if peer status is meaningful because it provides an index of relative psychological risk and adjustment problems even in atypical peer contexts, our assessments of peer status in a clinical setting will be related to adjustment problems on the unit (e.g., acting out, anxiety, and depression), will be related to at least some of the social behaviors that are typically related to peer status (e.g., acceptance related to prosocial behavior), and may even be related to relative social functioning outside of the treatment setting (e.g., relative social status at school).

## 2. Study 1

### 2.1. Method

#### 2.1.1. Participants

Participants were 92 children consecutively admitted to the children's inpatient unit at a children's psychiatric hospital who were in the first grade or older. All children were indicated to have at least low-average intelligence in either their admission interview or clinical assessment. Participants ranged in age from 6 to 13 years old ( $M=9.16$ ,  $S.D.=2.03$ ). The ethnic distribution of the sample reflected hospital admission rates and roughly reflected local demographics: 82.8% were Caucasian, 12.9% were African American, and 4.3% were of other ethnic backgrounds. Gender distribution of the sample also reflected admission rates for

the children's inpatient unit: 81.5% ( $n=75$ ) of the children were male and 18.5% ( $n=17$ ) were female. All children were admitted for severe oppositional behavior, suicidal ideation/behavior, and/or aggressive behavior, and were determined to be at risk for endangering themselves or others.

Although diagnosis was not the focus of the present study, diagnostic data are presented in order to provide a tentative estimate of the diagnostic distribution of the sample for descriptive purposes. The majority (62.0%) of the children was diagnosed at the time of discharge by the multidisciplinary treatment team with comorbid internalizing (i.e., anxiety or depression) and externalizing disorders. Specifically, of children's first three discharge diagnoses, 79.3% had a depression diagnosis (e.g., Major Depressive Disorder and Dysthymic Disorder), 46.7% had an anxiety disorder diagnosis (e.g., PTSD), 68.5% had a behavior disorder diagnosis (e.g., ODD, Conduct Disorder, and ADHD), and an additional 29.3% had a diagnosis of Adjustment Disorder with Mixed Disturbance of Mood and Conduct.

### 2.1.2. Procedure

Sociometric and behavioral nominations were collected in weekly individual interviews with all school-aged children on the unit. Peer nominations for each week were collected for all children who had been on the unit for at least 3 full days of social interaction in structured and unstructured daily activities. During these 3 days, all participants were engaged in mostly group activities (e.g., community meeting, swim, sports, group therapy, cash-in time, meals, and class time), which ensured that children had ample time to become acquainted with one another. Children who did not meet the 3-day residency criterion were not included in the peer sociometric assessment until the following week. Some participants were assessed in multiple weeks; however, only the nominations from their first week are used in this study. Rolling admissions and variable lengths of stay, although quite common in inpatient settings, made it impossible to assess stable peer groups. Median length of stay on the inpatient unit was 14 days ( $M=27.03$ ;  $S.D.=35.68$ ). Our focus on peer relations in the first week of hospitalization is consistent with prior work examining initial peer status within groups of previously unfamiliar peers (Coie & Kupersmidt, 1983; Joiner, Katz, & Lew, 1997).

Peer sociometric assessments and child self-reports of psychological functioning were conducted as part of the standard clinical assessment for all children during their first week of hospitalization. The self-reports were administered to the children in a random order by an interviewer who was blind to the participants' sociometric status. Results of sociometrics were made available to staff via a notebook stored in the main office, and information from these assessments and from self-reports were incorporated into clinical assessment documents when appropriate. Consistent with the policies of the hospital's institutional review board, additional informed consent was not obtained for these assessments beyond the consent for treatment that was signed on admission for all children. The assessments were described to participants as tools that help staff understand what children think about each other and themselves.

### 2.1.3. Measures

**2.1.3.1. Peer acceptance and sociometric status.** Sociometrics were conducted through 20-minute individual interviews using a picture nomination procedure developed for use with

children as young as preschool-aged (Asher, Singleton, Tinsley, & Hymel, 1979; Wright et al., 1986; Wright, Zakriski, & Fisher, 1996). Confidential identification numbers on the back of the photographs were used to record each participant's responses. For measures of social preference, children were asked to nominate an unlimited number of peers (Terry & Coie, 1991; Wright et al., 1986) for the following items: "Who do you really like as a good friend?" (*Social acceptance*) and "Who do you really not like?" (*Social rejection*). The wording of these items was chosen because it has been shown to be more useful in small groups than the more typical "Who do you like most?" and "Who do you like least?" questions used in classroom groups of 20 or more children, with the latter wording resulting in less-selective voting in small groups (see Wright et al., 1996). Our average group size was 7.71 (S.D. = 2.01).

Raw scores for peer acceptance and peer rejection were divided by the number of nominators to account for week to week variations in group size. These proportion scores were then standardized over all participants. A social preference score was computed for each participant as a standardized difference between the standardized peer acceptance and peer rejection scores (Coie, Dodge, & Coppotelli, 1982). Because there was a significant correlation between social acceptance and social rejection in the current sample ( $r = -.52, p < .001$ ), which is often the case in the assessment of small groups (Wright et al., 1986), Popular and Rejected subgroups were created using Social Preference scores (i.e., Popular = Social Preference  $> .5, n = 22$ ; Rejected = Social Preference  $< -.5, n = 28$ ; Hymel, Bowker, & Woody, 1993).

*2.1.3.2. Peer behavior.* Nine domains of social behavior were assessed as part of the sociometric interview. Children were asked to nominate up to three peers in response to each question. The peer behavior domains assessed included: *Aggression* ("Who starts fights, picks on other kids, and teases them?"; Coie et al., 1982), *Withdrawal* ("Who stays by themselves and away from other children?"; Masten, Morison, & Pellegrini, 1985), *Leadership* ("Who is a good leader and good to have in charge?"; Coie et al., 1982), *Sharing* ("Who is really good at sharing?"; Coie et al., 1982), *Shyness* ("Who is really shy?"; Masten et al., 1985), *Sadness* ("Who looks sad and seems unhappy?"; Masten et al., 1985), and *Victimization* ("Who gets picked on by other children?"; Perry, Kusel, & Perry, 1988). Raw scores were standardized for each behavior.<sup>1</sup>

*2.1.3.3. Self-report measures of internalizing symptoms.* Self-reports of psychological symptoms were collected during individual interviews to assess four aspects of emotional

---

<sup>1</sup> As noted above, several researchers have previously conducted peer nominations of behavior and status within groups of children in clinical treatment (Asarnow, 1988; Joiner et al., 1997; Wright et al., 1986). Nevertheless, we provide some evidence for the validity of this assessment. In a related dataset, we have found peer-rated peer rejection to be significantly related to adult staff-ratings of friendship problems ( $r = .50, p < .05$ ) and staff-rated peer rejection ( $r = .38, p < .05$ ). Similarly, peer-rated peer acceptance was significantly associated with staff-rated friendship problems ( $r = -.49, p < .05$ ). With regard to peer behaviors, peer-rated shyness was related to staff-rated withdrawal scores on the CBCL ( $r = .34, p < .05$ ); peer-rated aggression was related to staff-rated aggression CBCL scores ( $r = .54, p < .001$ ) and peer-rated sharing with staff-reported sharing ( $r = .48, p < .05$ ).

functioning, including depression, self-esteem, hopelessness, and anxiety. To control for individual differences in reading ability, all measures were read to the subjects.

The Children's Depression Inventory (CDI; Kovacs, 1982) is a 27-item measure designed to assess cognitive and behavioral symptoms of depression. For each item, children choose from three statements, scored 0–2, which one best describes their level of depressive symptoms in the last 2 weeks. Total raw scores were computed and converted to *T*-scores based on gender and age norms (Kovacs, 1982); higher scores reflect more depressive symptoms. Good psychometric properties have been reported for the CDI as a reliable and valid index of depressive symptoms (Saylor, Finch, Spirito, & Bennett, 1984). Self-reported depressive symptoms of children as young as 6 years of age have been found to be stable and predictive of later depressive symptoms and maladjustment (Ialongo, Edelsohn, Werthamer-Larsson, & Crockett, 1993).

Children's self-esteem was measured using the Piers–Harris Children's Self-Concept Scale (Piers, 1984). This 80-item instrument assesses six dimensions of self-concept, including behavior, intellectual status, physical appearance, anxiety, popularity, and satisfaction. A Total *T*-score was computed for this measure, with greater scores indicating higher self-concept. Piers (1984) provides extensive psychometric support for this measure and for the Total score as the most reliable index of self-concept.

The Hopelessness Scale for Children (HSC; Kazdin, Rodgers, & Colbus, 1986) is a 17-item scale on which respondents can answer true or false to a variety of statements that assess cognitive characteristics of hopelessness. A total raw score may be derived from this measure, with higher scores reflecting greater feelings of hopelessness. Kazdin et al. (1986) have reported high internal consistency ( $\alpha=0.97$ ) and adequate test–retest reliability ( $r=.52$ ) over a 6-week period using this measure with children.

Anxiety symptoms were assessed using the Revised Child Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985). The RCMAS is a 37-item scale measuring symptoms of anxiety. Respondents use a yes/no format, and raw scores can be converted to *T*-scores based on gender and age (Reynolds & Richmond, 1985), with higher scores reflecting greater levels of anxiety. The authors report high internal consistency ( $\alpha=0.80$ ).

*2.1.3.4. Behavior disturbance/Time Out frequency.* Behavioral disturbance on the inpatient unit was assessed as the number of times participants were placed in Time Out by milieu staff. A "Time Out" episode on the inpatient unit is defined as a discrete instance in which a child is escorted away from other children (i.e., into a hallway or quiet room) by a staff member who remains with the child for the length of the Time Out. Antecedents for receiving a Time out include not following directions, provoking peers, verbal aggression, and physical aggression. The ratio of milieu staff to children was one to two children per adult. Thus, staff members have extremely close contact with individual children and are in a unique position to accurately record Time Out episodes.<sup>2</sup> Total number of Time Out episodes was

---

<sup>2</sup> In a separate dataset from the same site, Time Out frequencies and CBCL data were compared to assess the validity of Time Out frequency as an index of behavioral disturbance. Time Out frequencies were significantly correlated with Externalizing scores ( $r=.43$ ,  $n=63$ ,  $p<.001$ ), providing some psychometric support for the measurement of behavioral disturbance using this procedure.

recorded at the end of each shift by the staff member responsible for that child during that time period. A first week Time Out frequency score was calculated for the first full week of hospitalization. Time Out during the latter weeks of hospitalization was also totaled for all children hospitalized for at least 2 weeks ( $n=47$ ) and was used in the prospective analysis. The total number of Time Outs after the first week was totaled and divided by the remaining number of days of hospitalization.

*2.1.3.5. Length of hospitalization.* As an additional indicator of adjustment, we computed a score for the total number of days each participant was in the hospital. Although other factors contribute to length of stay, adjustment on the unit remains an important determinant.

## 2.2. Results

### 2.2.1. Preliminary analyses

Preliminary analyses were conducted to examine gender differences on the main variables of interest (i.e., peer status, social behaviors, and emotional/behavioral functioning). Two significant gender differences were revealed. Girls were more likely than boys to be rated by peers as leaders [ $t(90)=3.41$ ,  $p<.01$ ; Boys'  $M=0.01$ , S.D.=0.13; Girls'  $M=0.22$ , S.D.=0.18] and shy [ $t(90)=2.75$ ,  $p<.01$ ; Boys'  $M=0.01$ , S.D.=0.11; Girls'  $M=0.18$ , S.D.=0.14]. There was also a trend for boys to have higher frequencies of Time Out during their first week of hospitalization [ $t(73)=1.76$ ,  $p=.08$ ; Boys'  $M=11.48$ , S.D.=13.11; Girls'  $M=5.20$ , S.D.=8.58]. No other gender differences were revealed, and gender effects were not further examined in the main analyses of Study 1 due to small sample size.

### 2.2.2. Peer status differences in behavioral disturbance and self-reported internalizing symptoms

The first goal of this study was to examine associations between peer status in this context and psychological adjustment. Popular and Rejected Children were compared to assess for differences in behavioral disturbance (e.g., Time Out) and self-reported internalizing symptoms.<sup>3</sup>

*2.2.2.1. Rates of behavioral disturbance.* Peer status differences in behavioral disturbance were examined using an ANOVA, with the frequency of Time Out during the first week of hospitalization as a dependent variable. Twelve children were missing Time Out data due to clerical problems: the data were either misfiled or accidentally discarded at the time of discharge. Comparisons of children with and without Time Out data revealed no differences for social status or social behavior variables. An ANOVA on Time Out frequency revealed a significant effect for sociometric status, suggesting that Rejected children received more Time Outs than Popular children [ $F(1,36)=4.60$ ,  $p<.05$ ; see Table 1].

---

<sup>3</sup> We also conducted popular and rejected comparisons on groups defined based on both social preference and social impact, as in Coie et al. (1982). The results replicated those presented using the univariately defined status groups.

Table 1

Mean (and standard deviation) of behavioral disturbance and self-reported internalizing symptoms by peer status groups

	Peer status groups			
	Rejected		Popular	
	<i>M</i> (S.D.)	<i>n</i>	<i>M</i> (S.D.)	<i>n</i>
Behavioral disturbance				
Time Out	14.20 (15.45)	15	6.09 (7.79)	23
Internalizing symptoms ( <i>T</i> -scores)				
Depression	59.63 (12.35)	19	49.13 (9.03)	23
Anxiety	54.39 (12.36)	17	50.77 (11.69)	22
Self-esteem	46.47 (12.50)	19	54.55 (15.27)	22
Hopelessness (raw)	6.29 (4.04)	18	3.86 (3.45)	22

*2.2.2.2. Internalizing symptoms.* Peer status group differences on four domains of internalizing symptoms were next investigated. Due to time constraints in this busy clinical setting, only three of these four constructs were assessed during inpatient hospitalization for some of the children in the study. In order to maximize the number of subjects in these analyses, four separate ANOVAs were conducted corresponding to the four domains of symptoms. *T*-scores on the CDI, Piers–Harris, RCMAS, and raw scores on the Hopelessness scale were used for these four analyses. Significant peer status group differences suggested that Rejected children reported more depression [ $F(1,40) = 10.12, p < .01$ ] and hopelessness [ $F(1,37) = 4.09, p < .05$ ] than Popular children. In addition, there was a trend suggesting that Rejected children reported lower self-esteem than did Popular children [ $F(1,39) = 3.36, p = .07$ ; see Table 1].

### *2.2.3. Peer status and length of hospitalization*

To examine whether length of hospitalization was related to peer social status, we formed two groups: Those who were discharged before 2 weeks ( $n = 45$ ) and those who remained in the hospital for longer than 2 weeks ( $n = 47$ ). Children who were discharged in less than 2 weeks did not significantly differ from the other group on peer rejection, but they had significantly higher peer acceptance scores ( $M = 0.45$ ; S.D. = 0.18) than did those who stayed in the hospital longer [ $M = 0.34$ ; S.D. = 0.19;  $t(73) = 2.49, p < .05$ ]. These two groups did not differ on measures of internalizing symptoms, behavioral disturbance, or peer-rated social behavior.

### *2.2.4. Prospective effects of peer status on behavioral disturbance*

To examine the effects of peer status on behavioral disturbance over time, a regression analysis predicting behavioral disturbance in the latter weeks of hospitalization from peer status during the first week was conducted for all children who were hospitalized for longer than 2 weeks. To control for prior behavioral disturbance, Time Out frequency during the first week of hospitalization was entered as a first step in the regression model (Total  $r^2 = .55, p < .0001$ ). On a second step, social acceptance and rejection scores from the first week of hospitalization were entered. The set of peer status variables added a marginally signifi-



cant proportion of unique variance to the regression model [ $\Delta r^2=.06$ ,  $p=.056$ ; Final  $F(3,44)=22.08$ ,  $p<.0001$ ] or 13% of the remaining unexplained variance. In addition to the shared variance, social rejection scores accounted for a significant proportion of unique variance ( $\beta = -0.24$ ,  $p<.05$ ), suggesting that children who were disliked by peers during the first week had higher rates of behavioral disturbance in later weeks of hospitalization.

### 2.2.5. Peer-rated social behavior and peer sociometric status

Finally, we investigated whether children's peer status would be related to the same types of social behaviors on an inpatient unit as has been shown in prior research with normal and at-risk populations. Two multiple regressions were conducted to consider the shared and unique relationships of all social behaviors on social acceptance and rejection. The regression models for social acceptance (Total  $r^2=.39$ ,  $p<.001$ ) and social rejection (Total  $r^2=.36$ ,  $p<.001$ ) were significant, suggesting that social behaviors as a block were related to both peer status variables. In addition to this shared variance, greater Leadership ( $\beta=0.44$ ,  $p<.001$ ) and Sharing ( $\beta=0.28$ ,  $p<.01$ ) scores were related to higher social acceptance. Higher Aggression ( $\beta=0.27$ ,  $p<.01$ ) and higher levels of Victimization ( $\beta=0.27$ ,  $p<.05$ ) were related to higher social rejection.<sup>4</sup>

## 2.3. Discussion

Our test of whether peer sociometrics are meaningful in a clinical setting revealed that social status in a group of children with significant emotional and behavioral problems, including peer relations problems, is indeed related to social adaptation and psychological adjustment in the inpatient setting. Children who were relatively accepted by their peers possessed relative psychological strengths, whereas those who were disliked experienced adjustment problems. While this overall pattern is commonly found in studies of normative peer groups, its replication in this clinical setting is noteworthy because in normative research, rejected children are disliked relative to peers who primarily function within the normal range, whereas in this setting, sociometric nominations are made through comparisons of maladjusted children to one another.

Inpatients who were relatively more disliked were more likely to report depression and hopelessness and were more likely to exhibit severe behavioral disturbance warranting "Time Outs" than were inpatients who were relatively more popular. Other analyses revealed that children who were more socially accepted compared to their inpatient peers in the first week of hospitalization were more likely to be discharged in less than 2 weeks, suggesting that peer social acceptance in clinical settings can serve as an indicator of relative competence. More importantly, peer social status during the first week of hospitalization contributed to the

---

<sup>4</sup> These analyses were repeated controlling for children's age. Partial correlations were computed between peer behaviors and peer status, and age was entered on a first step of the multiple regression analyses. The inclusion of age did not affect the magnitude or significance of any of the observed relationships, with the exception of the associations between sharing ( $r = -.15$ , NS) and leadership ( $r = -.18$ , NS) with social acceptance scores. The results of the multiple regression analyses were virtually unchanged.

prediction of behavioral disturbance in later weeks of hospitalization above and beyond initial levels of behavioral disturbance.

The correlates of peer status in this clinical setting were quite similar to the typical correlates of peer status in school settings (Coie, Dodge, & Kupersmidt, 1990). Prosocial behavior was correlated with social acceptance, whereas aggression and victimization were correlated with social rejection. The similarity of behavioral correlates in this setting and those found in school research suggests that children's peer status in this clinical setting might be related to their peer status at school. However, a more direct test of the relationship between inpatient peer status and school status is needed before inpatient peer status assessments could be used by clinicians to confidently make inferences about children's functioning in other settings.

### 3. Study 2

Study 2 was designed to evaluate the relation between inpatient sociometrics and more traditional school-based measures. Specifically, children's inpatient peer status (i.e., calculated from inpatient peer nominations) was compared to their peer status at school (i.e., calculated from normative classroom peer nominations). Children's inpatient peer status was also compared to teacher-rated social problems at school.

It was difficult to base predictions for this study on previous research, because very few other studies have examined how children's social status in one context is related to their social status in a different social context. The closest example is Coie and Kupersmidt (1983), which showed that children replicate their school social status when placed in an unfamiliar peer group (e.g., rejected children at school become rejected in the playgroup). Based on these findings, we would expect agreement between peer status at school and peer status on the inpatient unit. However, in Coie and Kupersmidt, status judgements were made relative to normative peers in both settings. Also, playgroups were constructed to contain children who spanned the full sociometric range, thus making it hard for school-rejected children to improve their status because the playgroup included other children who were more socially competent. In the present study, status judgements were made relative to normative peers in the school setting and relative to clinical peers in the inpatient setting. Further, in the inpatient setting, the clinical peer group was entirely composed of maladjusted children, making it possible for school-rejected children to improve their status to the extent that they were more socially competent than were the other children in this new peer context. This difference in peer groups across settings and the greater opportunity for shifting of status from school to inpatient unit suggested that the general expectation for status continuity could not be assumed to apply here.

#### 3.1. Method

##### 3.1.1. Participants

A second sample of child inpatients who were admitted to the inpatient unit described in Study 1 was used for Study 2. Thirty-eight children were admitted to the unit during the 4-

month period following the completion of Study 1. Of the 38 potential participants, parental permission was solicited to request a teacher assessment of social functioning and a modified sociometric procedure (see Measures) at their child's school while their child was hospitalized. Thirty out of 38 parents gave consent for the school-based assessment, and 19 teachers completed the teacher measures. Fifteen of the 19 teachers also agreed to have their pupils complete the modified sociometric peer assessment. This final sample of 15 was used to compare peer nominations of social acceptance and social rejection on the inpatient unit with peer nomination of acceptance and rejection at school and with teacher ratings of relationship difficulties at school. The demographics for this subsample were as follows: Participants ranged in age from 7 to 12 years ( $M=9.23$ ,  $S.D. = 1.75$ ), 100% were Caucasian, 80% ( $n = 13$ ) were male, and 20% ( $n = 3$ ) were female. Results from this small sample should be interpreted as most relevant to Caucasian inpatients. Because of sample size and because age did not affect the pattern of results in Study 1 using a similar sample, age differences were not examined.

### 3.1.2. Procedure

Inpatient peer social preferences were assessed for participants using the same interview procedure described in Study 1. School peer social preferences were assessed for participants using Strauss et al.'s (1988) procedure, which involves mailing the instructions for a group-administered sociometric to the classroom teacher for completion by the participants' classmates. Questionnaire packets were sent to teachers during the first week of hospitalization for all children with parental consent. Teachers were asked to have their students complete the sociometric assessment and then mail the results to the first author, who was also the psychologist coordinating the participants' assessments. Teachers were also asked to complete two measures describing the participants' peer relationships in the classroom. The questionnaires were accompanied by a copy of the parental consent form and a cover letter explaining that these data were being collected for clinical and research purposes. The letter further explained that all information provided by the teacher would first be incorporated into the children's clinical assessments and treatment planning and then combined for research purposes. Phone calls were made to the teachers 4–5 days after the packets were mailed to answer questions and encouraged completion of the measures (Strauss et al., 1988).

### 3.1.3. Measures

**3.1.3.1. Inpatient peer sociometric status.** The sociometric measure was identical to the one used in Study 1. Inpatient peers were interviewed to determine their social preferences. Inpatient social acceptance and rejection scores were calculated for participants as in Study 1.

**3.1.3.2. School peer sociometric status.** Sociometric data were collected from classroom peers via the teacher-administered sociometric described above to calculate school social acceptance and rejection scores for our inpatient participants. Data were collected during the first week of hospitalization rather than after discharge, so that sociometric scores would most closely reflect adjustment at the time of admission. Sociometric scores obtained after discharge could have been influenced by potential improvements in adjustment made during

hospitalization, and therefore might have been less reflective of the child's adjustment during the first week of hospitalization when inpatient peer sociometrics were conducted. Teachers were instructed to ask students to think of all peers in their classroom (even ones who may not be present) and write on a piece of paper the names of the children they like the most and the names of the children they like the least.<sup>5</sup> The teacher then collected these nomination forms and tallied the number of like most and like least nominations the participant received. The teacher also noted the number of children who participated in the sociometric. Nominations for other students in the classroom were ignored, and the ballots discarded by the teacher. The identities of the nominators were not recorded by the teacher nor shared with the researchers. Social acceptance scores were computed by dividing the number of like most nominations by the number of nominators, and social rejection scores were calculated in the same manner using like least nominations. Social preference scores were computed as the difference between acceptance and rejection. Social acceptance, rejection, and preference scores were then standardized over all participants.

*3.1.3.3. School peer relations: teacher ratings.* To rate the participants' peer relationships at school, teachers completed the Exclusion scale of The Child Behavior Scale (Ladd & Profilet, 1996). This scale consists of seven items for which respondents can answer "never, sometimes, or very often." A total raw score may be derived from this scale, with higher scores reflecting greater peer exclusion. Ladd and Profilet (1996) reported high internal consistency for this scale ( $\alpha = 0.94$ ) and adequate stability over a 4-month interval ( $r = .72$ ). Teachers also completed the Peer Relations Inventory (Dumas & Guevremont, 1999). Several subscales from this measure were examined in the present study: Problems with Friendship (four items: e.g., "My student has problems making friends"), Unpopularity (four items: e.g., "My student is unpopular among friends/peers"), and Loneliness (two items: e.g., "My student generally feels lonely because she/he has poor peer relationships"). Teachers responded to 10 items using a 3-point scale, with 0 indicating that the problem is "not true" for the student and two indicating that the problem is "very true or often true." Total raw scores were derived for each scale, with higher scores reflecting more problems in that social domain. Reliability data on this scale from a larger sample of child inpatients ( $n = 49$ ) suggested adequate reliability on all scales ( $\alpha = 0.89$  for Friendship;  $\alpha = 0.76$  for Unpopularity;  $\alpha = 0.93$  for Loneliness). One item in the Unpopularity scale ("My student is just one of the crowd") was unreliable and dropped from the scale for these analyses (new  $\alpha = 0.93$ ).

---

<sup>5</sup> It is not known whether students were aware that their absent peer (our participant) was hospitalized, and if they did how this might have affected their nominations. However, based on the authors' clinical experience in this setting, it is likely that they did not know the participant was hospitalized because hospitalizations are brief and often even teachers were not aware of the hospitalization until we contacted them. Of course, if peers were aware, a negative bias may have affected their nominations of our participants. Such a bias would restrict the range of presumably already low social status/adjustment scores for these children and work against finding relationships between school status and unit status (which by definition is not restricted).

Table 2  
Unit peer acceptance/rejection and teacher-rated peer relations at school intercorrelations

Teacher-rated peer relations	Peer nominations on inpatient unit	
	Acceptance	Rejection
Exclusion	-.86***	.84***
Problems with friendship	-.77***	.68**
Popularity	-.72**	.62*
Loneliness	-.78***	.58*

$n = 15$ .

\*  $P < .05$ .

\*\*  $P < .01$ .

\*\*\*  $P < .001$ .

### 3.2. Results

We first assessed the relationship between peer status on the unit and peer status at school. Inpatient social acceptance was significantly correlated with school social acceptance ( $r = .52$ ,  $p < .05$ ) and the same pattern held for rejection ( $r = .57$ ,  $p < .03$ ). Thus, despite the differences in social setting and peer context, peer social status on the inpatient unit for children with emotional and behavioral difficulties was related to their peer social status at school.

Even stronger relationships between inpatient peer status and school social adjustment were revealed in comparisons with teacher-reported peer problems. Children who were perceived by teachers to be excluded, unpopular, have problems with friendships, and to be lonely at school prior to their hospitalization were more likely to be rejected on the unit and less likely to be accepted (see Table 2). The strength of these correlations indicates that conducting peer status assessments in clinical settings may be nearly as informative about children's social adjustment at school as conducting formal assessments of social adjustment in their school setting. Given the relative ease of conducting peer sociometrics in clinical settings and the difficulty collecting peer sociometrics at school for patients in clinical treatment (Zakriski et al., 1999), this is an important finding.

## 4. General discussion

Previous research has comprehensively examined the relationships between peer sociometric status and psychological adjustment in normative peer groups. This prior research has provided substantial support for children's peer sociometric status as an important predictor of psychological adjustment. The current study is among the first to provide data on the meaning of peer sociometric status in an atypical peer group. In Study 1, we examined whether peer sociometric status would be related to children's psychological adjustment and social adaptation in an inpatient peer group, and in Study 2, we examined whether peer status in an inpatient peer group would be indicative of peer relations outside of the clinical context. These investigations suggested that peer social status is an indicator of social adaptation and

psychological adjustment in the clinical setting that also provides a window into a child's social functioning outside of the clinical setting. We will first review the evidence supporting these conclusions and its limitations and then discuss directions for future research and clinical applications.

The results of Study 1 demonstrated that despite the fact that children generated their sociometric nominations from relative comparisons of maladjusted children, inpatient peer status was related to adjustment. Concurrent analyses suggested more internalizing symptoms and behavioral adjustment problems for relatively rejected children than for children who were relatively popular. Other analyses suggested that relative peer acceptance in the first week of hospitalization was related to length of stay in the hospital. Most importantly, peer social status in the first week of hospitalization contributed to later behavioral disturbance above and beyond initial behavioral disturbance. Although further research would be needed to establish the causal influence of clinical peer group acceptance and rejection on psychological adjustment, peer social status appears to convey information about adjustment and risk above and beyond the information conveyed by early behavior problems during hospitalization. The extent to which it contributes above and beyond other readily accessible indicators of adjustment in the clinical setting is an important question for future research.

Study 2 examined the relationship between sociometric scores from inpatient and school peer groups and found that peer acceptance and rejection by inpatient peers were related to peer acceptance and rejection by school peers for our inpatient participants. Peer problems were even more strongly related across contexts when unit-peer status was compared with teacher ratings of peer problems in the classroom. Teacher-reported peer exclusion, unpopularity, problems with friendships, and loneliness were all related to inpatient peer status. Very few studies have compared the social status of children in two different settings concurrently, and those which have made such comparisons (e.g., Coie & Kupersmidt, 1983) have compared status in two normative contexts. Thus, our finding of status continuity, despite dramatic differences in setting and peer context, is noteworthy. We suspect that although the settings are indeed quite different in numerous ways, the similar behavioral expectations from supervising adults (e.g., staff and teachers) across settings helped facilitate status continuity across settings. It is likely that in settings with dramatically different behavioral norms (e.g., the street gang vs. the well-run classroom), such status continuity would not be observed, just as different behavioral correlates of peer status have been found in peer groups with different behavioral norms (Stormshak et al., 1999; Wright et al., 1986).

Future work in this area would benefit from addressing some of the limitations in this study. In the current investigation, we were limited in our ability to assess gender differences due to both limited referrals of girls for child inpatient treatment and small overall sample size. In Study 1, preliminary analyses revealed that boys and girls did not differ in sociometric status. We did find girls to be more often nominated as leaders and as shy and less likely to receive Time Outs on the unit. This limited exploration of gender differences was unfortunate, especially because it is so common in the literature. An ongoing large-scale study of gender and peer status (Putallaz, Kupersmidt, Grimes, & DeNero, 1999) suggests that subtle yet important differences emerge between boys and girls in the relationships between status, behavior, and adjustment. Future studies on this topic will require data collection over more consecutive admissions to increase sample size for inpatient girls.

Future replications or extensions of this research may also examine age differences in the associations between peer status, peer behaviors, and psychological adjustment, which was not a focus of this study. The age range examined in this study was equal to or more restricted than prior work on inpatient peer status (Asarnow, 1988; Joiner et al., 1997), allowing for any possible age effects to be minimized. Additionally, the use of age as a covariate in these analyses did not compromise the findings reported. Nevertheless, investigations with larger sample sizes could more thoroughly examine possible age effects.

The inpatient setting provides an interesting opportunity to study contextual influences on peer status in future research. The peer group on a modern inpatient unit is constantly changing. The behavioral style of the peer groups, the numbers of longer-term vs. shorter-term inpatients in the groups, the numbers of older vs. younger children in the groups, and the number of boys vs. girls in the groups all vary week to week. More systematic study of these contextual factors would be useful to learn how they might modify the broad relationships we found between peer status, social behavior, and adjustment.

Additional reporters of children's psychological adjustment might also be included in future studies of this type. In the current investigation, children's self-report of internalizing symptoms was utilized, as children are frequently cited as the most reliable reporters of internalized states (Achenbach, McConaughy, & Howell, 1987; La Greca, 1990). However, this yielded some underreporting of symptoms, which may be addressed in future investigations utilizing parent-report instruments. Reports of psychological symptoms could also be enhanced with the use of structured interviews that would allow for the investigation of children's diagnoses. Indeed, although the current study used well-established self-report measures of symptoms (e.g., CDI), the results from this assessment cannot be used to suggest the presence of a psychiatric disorder (e.g., major depressive disorder).

Our experience using these data clinically (both in inpatient and therapeutic camp settings), which is now bolstered by empirical support from the present study, suggests that the results of peer status assessments can be incorporated into treatment plans in numerous ways. Sociometric results can be shared with clinical staff to help them better understand the specific social challenges facing the children they work with. Our experience suggests that the most productive way to share these results is in a clinical supervision meeting when there is time for education and discussion. Clinical staff can use this information to plan dyadic interventions and staff-supported relationship building activities between lower status and higher status children. Peer sociometric status information can also be sensitively communicated to parents, teachers, and other service providers as part of a comprehensive clinical assessment to indicate either relative social strengths for the higher status children or risk for persistent peer relationship difficulties and heightened psychological risk for the lower status children.

In sum, this research suggests that peer social status assessment may be more broadly useful than previously demonstrated and may provide clinicians with an additional tool for assessing social functioning and psychological risk. This investigation supports the use of peer sociometric assessments within a clinical setting to learn more about children's concurrent and future adjustment, both in the hospital and in at school. The findings also extend normative peer relations theory by demonstrating that within at least some atypical

peer groups, children's nominations of "who they like most" and "who they like least" out of the children in the available peer group can yield important information about the psychological properties of the nominees.

## Acknowledgments

The authors would like to thank Elizabeth Wheeler, Paul Baker and the staff, children and families of Bradley Hospital for making this work possible.

## References

- Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational specificity. *Psychological Bulletin*, *101*, 213–232.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association.
- Asarnow, J. R. (1988). Peer status and social competence in child psychiatric inpatients: a comparison of children with depressive, externalizing, and concurrent depressive and externalizing disorders. *Journal of Abnormal Child Psychology*, *16*, 151–162.
- Asher, S. R., Singleton, L. C., Tinsley, B. R., & Hymel, S. (1979). A reliable sociometric measure for preschool children. *Developmental Psychology*, *15*, 443–444.
- Coie, J. D., Dodge, K. A., & Coppotelli, H. (1982). Dimensions and types of social status: a cross-age perspective. *Developmental Psychology*, *18*, 557–570.
- Coie, J. D., Dodge, K. A., & Kupersmidt, J. B. (1990). Peer group behavior and sociometric status. In: S. R. Asher, & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 17–59). New York: Cambridge Univ. Press.
- Coie, J. D., & Kupersmidt, J. B. (1983). A behavioral analysis of emerging sociometric status in boys' groups. *Child Development*, *54*, 1400–1416.
- Dodge, K. A. (1989). Problems in social relationships. In: E. J. Mash, & R. A. Barkley (Eds.), *Treatment of childhood disorders* (pp. 222–246). New York: Guilford.
- Dumas, M. C., & Guevremont, D. C. (1999). The peer relationship inventory. Unpublished measure, Bradley Hospital.
- Hymel, S., Bowker, A., & Woody, E. (1993). Aggressive versus withdrawn unpopular children: variations in peer and self-perceptions in multiple domains. *Child Development*, *64*, 879–896.
- Ialongo, N., Edelsohn, G., Werthamer-Larsson, L., & Crockett, L. (1993). Are self-reported depressive symptoms in first-grade children developmentally transient phenomena? A further look. *Development and Psychopathology*, *5*, 433–457.
- Joiner, T. E., Katz, J., & Lew, A. S. (1997). Self-verification and depression among youth psychiatric inpatients. *Journal of Abnormal Psychology*, *106*, 608–618.
- Kazdin, A. E., Rodgers, A., & Colbus, D. (1986). The hopelessness scale for children: psychometric properties and concurrent validity. *Journal of Consulting and Clinical Psychology*, *54*, 241–255.
- Kovacs, M. (1982). *The children's depression inventory: a self-rated depression scale for school-aged youngsters*. Unpublished manuscript, University of Pittsburgh.
- Kupersmidt, J. B., Coie, J. D., & Dodge, K. A. (1990). The role of poor peer relationships in the development of disorder. In: S. R. Asher, & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 274–308). New York: Cambridge Univ. Press.
- La Greca, A. M. (1990). Issues and perspectives on the child assessment process. In: A. M. La Greca (Ed.), *Through the eyes of the child: obtaining self-reports from children and adolescents* (pp. 3–17). Boston: Allyn & Bacon.



- Ladd, G. W., & Profilet, S. M. (1996). The child behavior scale: a teacher-report measure of young children's aggressive, withdrawn, and prosocial behavior. *Developmental Psychology*, 32, 1008–1024.
- Masten, A. S., Morison, P., & Pellegrini, D. S. (1985). A revised class play method of peer assessment. *Developmental Psychology*, 21, 523–533.
- Newcomb, A. F., Bukowski, W. M., & Pattee, L. (1993). Children's peer relations: a meta-analytic review of popular, rejected, neglected, controversial, and average sociometric status. *Psychological Bulletin*, 113, 99–128.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: are low-accepted children at risk? *Psychological Bulletin*, 102, 357–389.
- Perry, D. G., Kusel, S. J., & Perry, L. C. (1988). Victims of peer aggression. *Developmental Psychology*, 24, 807–814.
- Piers, E. V. (1984). *Manual for the Piers–Harris self-concept scale*. Los Angeles: Western Psychological Services.
- Putallaz, M., Kupersmidt, J. B., Grimes, C. L., & DeNero, K. (1999). *Overt and relational aggression: aggressors, victims, and gender*. Paper presented at the biennial meeting of the Society for Research in Child Development, Albuquerque, NM.
- Reynolds, C. R., & Richmond, B. O. (1985). *Manual for the revised children's manifest anxiety scale*. Los Angeles: Western Psychological Services.
- Saylor, C. F., Finch, A. J., Spirito, A., & Bennett, B. (1984). The children's depression inventory: a systematic evaluation of psychometric properties. *Journal of Consulting and Clinical Psychology*, 52, 955–967.
- Stormshak, E. A., Bierman, K. L., Bruschi, C., Dodge, K. A., & Coie, J. D. Conduct Problems Prevention Research Group. (1999). The relation between behavior problems and peer preferences in different classroom contexts. *Child Development*, 70, 169–182.
- Strauss, C. C., Lahey, B. B., Frick, P., Frame, C. L., & Hynd, G. W. (1988). Peer social status of children with anxiety disorders. *Journal of Consulting and Clinical Psychology*, 56, 137–141.
- Terry, R., & Coie, J. D. (1991). A comparison of methods for defining sociometric status among children. *Developmental Psychology*, 27, 867–880.
- Wright, J. C., Giammarino, M., & Parad, H. (1986). Sociometric status in small groups: individual–group similarity and the social “misfit”. *Journal of Personality and Social Psychology*, 50, 523–536.
- Wright, J. C., Zakriski, A. L., & Fisher, P. (1996). Age differences in the correlates of perceived dominance. *Social Development*, 5, 24–40.
- Zakriski, A. L., Seifer, R., Sheldrick, R. C., Prinstein, M. J., Dickstein, S., & Sameroff, A. (1999). Child-focused versus school-focused sociometrics: a challenge for the applied researcher. *Journal of Applied Developmental Psychology*, 20, 481–499.