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Preschool Children with Gender Normative and Gender Non-Normative Peer Preferences: Psychosocial and Environmental Correlates

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Abstract

We addressed several issues concerning children who show gender non-normative (GNN) patterns of peer play. First, do young children with GNN peer preferences differ from children with gender normative (GN) peer preferences in problem behaviors? Second, do GNN and GN children differ in sociability and isolation and do they have differential socialization opportunities with externalizing, internalizing, and socially competent peers? We employed a Bayesian approach for classifying children as GNN based on their peer preferences as compared to their peers using a sample of Head Start preschool children from a large Southwestern city ($N = 257$; 53% boys; M age = 51 months; 66% Mexican American). To calculate socialization opportunities, we assessed affiliation to each child in the class and weighted that by each peer's characteristics to determine the exposure that each child had to different kinds of peers. GN children of both sexes interacted more with same-sex peers, which may limit learning of different styles of interaction. As compared to GN children, GNN children exhibited more engagement in other-sex activities and with other-sex play partners and GNN children experienced somewhat fewer peer interactions, but did not differ on problem behaviors or social competence. Boys with GNN peer preferences had increased exposure to peers with problem behaviors. GNN girls experienced little exposure to peers with problem behaviors, but they also had little exposure to socially competent peers, which may reduce learning social skills from peers. Implications of these findings for future socialization and development will be discussed.

Keywords

Gender identity; Gender roles; Peer socialization; Gender-typing; Sociability

Introduction

Great variation exists in the characteristics displayed by gender non-normative (GNN) children. Some children show minimal variations from traditional gender roles, such as playing with both girls and boys instead of showing strong sex segregation. Others, such as tomboys (girls who enjoy male-typical play), are only somewhat non-normative in their interests and peer partners, whereas other children are clinic-referred and considered more

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extreme, such as those with gender identity disorder (GID). Children who express GNN behavior within multiple domains (e.g., interests, play partners, gender identity) differ from gender normative (GN) children in a number of important ways, some of which are thought to put them at risk for psychological maladjustment. For instance, research on older GNN children (6–15 years) has shown that they exhibit more problem behaviors, are less sociable, and have difficulties with their peers compared to GN children (Egan & Perry, 2001; Zucker & Bradley, 1995). However, the extent to which very young children, especially those with less severe manifestations of GNN or who display GNN behavior within only a single domain, exhibit these behaviors is unclear.

Understanding the behavior of young GNN children may inform the controversy surrounding the origins of problems experienced by GNN children. One view is that the challenges GNN children have arise from their problem behaviors whereas other researchers argue that these result from the intolerance of parents, teachers, and peers who may tease children for their atypical behavior (Carter, 1987; Carter & McCloskey, 1984; Fagot, 1984; Langlois & Downs, 1980). Some evidence supports the latter hypothesis: older GNN children experience increased social isolation and/or rejection (Achenbach & Rescorla, 2000; Adams & Bradbard, 1985; Bailey, Bechtold, & Berenbaum, 2002; Green, 1987; Kreiger, 2005; Young & Sweeting, 2004; Zucker & Bradley, 1995). Because of the implications of difficult peer relationships for GNN children, this topic deserves further attention.

It is important to understand the trajectories that underlie the emergence of healthy and problem behaviors (Cicchetti, 1984). Understanding the development of GNN behaviors and their consequences requires studying younger children who exhibit variations in gender role behavior. Furthermore, we propose that focusing on one type of non-normative behavior may help to tease apart differing explanations regarding these children's developmental trajectories. Specifically, using observational data, we identified children who differed from their peers in affiliation patterns with peers. We emphasized this dimension because peer relationships are problematic for GNN children (Egan & Perry, 2001; Young & Sweeting, 2004; Zucker & Bradley, 1995). Children who showed different peer interaction patterns than their same-sex peers were identified as GNN, and because most GN children show gender segregation, we expected GNN children to show less gender segregation.

To explore whether young children with GNN peer preferences exhibit problem behaviors as do some older GNN children, we compared GN and GNN children on their internalizing and externalizing behaviors and compared their sociability (e.g., social competence, prosociality) and isolation (exclusion, numbers of social interactions). We also assessed the *kinds of peers* with whom GNN children interact when they do engage in social interactions. GN and GNN children may develop differently because of the types of peers to whom they are exposed. Because the qualities of peers provide different socialization opportunities, we explored the degree to which GNN children interact with peers who are socially competent or who exhibit externalizing and internalizing behaviors. If GNN children have increased affiliation with maladjusted peers they may be socialized by those peers to behave in less acceptable ways, thereby leading or contributing to later maladjustment. However, it is also possible that later maladjustment relates to GNN children having problem behaviors. Given that we had 1 year of observational data, we were unable to determine directional effects but we were able to examine in young children the behavioral and peer affiliation correlates of having GNN peer preferences.

Gender Normativity and Gender Non-Normativity: Links to Externalizing and Internalizing Symptoms and Poor Peer Relationships

In this section, we consider the common patterns of behavior problems and social behavior among children classified as GNN using a variety of classification methods. We include this variety of methods to show the commonalities of findings among them, while recognizing that it is difficult to directly compare findings from one method to another.

Gender Identity Disorder—Extreme cases of gender dysphoria may prompt clinical intervention and can result in the diagnosis of GID, which is based on two components: first, a strong and persistent desire to be a member of the other sex and, second, evidence of persistent discomfort with their own sex (American Psychiatric Association, 2000). Boys and girls with GID often show cross-gender identity and atypical playmate preferences (e.g., preferences for other-sex peers; avoidance of same-sex peers) (Coates & Person, 1985; Zucker & Bradley, 1995). Children with GID often also exhibit psychological maladjustment and problem behavior. In one study, 4- and 5-year-old GID boys exhibited more internalizing problems, 6- through 11-year-old boys and girls displayed more internalizing and externalizing behaviors than controls, and the social competence of GID girls was lower than their female siblings (Zucker & Bradley, 1995). In a cross-national, cross-clinic comparison of 480 children with GID, 3- to 12-year-old children from both the Netherlands and Canada showed poorer social competence and peer relationships, with peer relationship issues being more severe for boys than girls. Furthermore, GID children exhibited higher levels of internalizing and externalizing behaviors, and older children tended to have higher overall levels than younger children (Cohen-Kettenis, Owen, Kaijser, Bradley, & Zucker, 2003).

Tomboys and Sissies—“Tomboys” and “sissies” are typically identified through self- or parent-report, and these children exhibit cross-sex behavior (interests, peer preferences) but lack the extreme unhappiness with their sex and intense aversion to sex-typical behaviors that characterizes GID (Corbett, 1996; Dinella & Martin, 2003; Zucker & Bradley, 1995). Bailey et al. (2002) found that 4- to 9-year-old tomboys reported play partner preferences that were significantly more masculine than their sisters, but significantly less masculine than their brothers. Similar to GID boys, sissies have problematic relationships with male peers, preferring to avoid rough-and-tumble play that is characteristic of male play groups (Green, 1987). Sissies and tomboys are judged by teachers and peers as “socially difficult” and prone to acting-out behaviors (Hemmer & Kleiber, 1981), and peers hold negative attitudes toward them and believe that other children do as well (Martin, 1989). Tomboys’ and sissies’ preferences for other-sex playmates, avoidance of same-sex children, and peers’ negative attitudes toward them may lead to social isolation or rejection.

Self-Perceptions of Gender—Egan and Perry’s (2001) multidimensional assessment of gender identity in children and youth (8–14 years) involves assessing summary judgments about gender, including self-perceived gender typicality (feeling that one is a typical example of one’s gender category) and gender contentedness (feeling happy with one’s gender assignment). Gender atypical children are less likely to be accepted by peers (Egan & Perry, 2001), report lower ratings of self-perceived social competence and global self-worth, and their peers rate them higher on internalizing problems (Carver, Yunger, & Perry, 2003). Children not content with their gender report lower global self-worth and self-perceived social competence, and gender non-content girls’ peers rate them higher on externalizing problems (Carver et al., 2003). Additionally, the combination of low typicality and high levels of felt pressure to conform to gender norms is related to internalizing behaviors in both boys and girls (Yunger, Carver, & Perry, 2004).

Gender Diagnosticity—Gender diagnosticity (GD) is a measure of the probability that an individual's behavior is male- or female-typical based on one or multiple gender-typed characteristics using a sample including both sexes (Lippa & Connelly, 1990; Young & Sweeting, 2004). Using a set of discriminant analyses, the average Bayesian probability that a given person's behavior is male-typical is computed, resulting in a score that ranges from 0 to 1 (100% probability of being male-typical). Participants with scores greater than .5 are classified as male-typical and those with scores less than .5 as female-typical; when classification contradicts their biological sex, individuals are labeled gender atypical. The GD approach has the advantage of being based on comparisons to characteristics of the sample rather than on externally attributed stereotypes (Lippa, 1991, 1998). Using a similar approach, GNN adolescent boys were more likely to report depression, victimization, loneliness, and fewer same-sex friends than normative boys, but girls did not show the same problems (Young & Sweeting, 2004). Kreiger (2005) showed that 8- to 9-year-old GNN boys reported more victimization and loneliness and were teased and excluded more by peers than were GN boys. No significant relationships have been found between the GD measure of gender typicality and adjustment in girls or women.

Assessing Peer Affiliation

Because GNN children experience challenging peer relationships, it is important to further consider the social lives of these children. Studies of affiliation patterns in young children often involve determining global qualities such as how sociable (or withdrawn/rejected) a child is, determined by assessing how often children spend time with their peers, usually through self- or parent-reports. Measuring affiliation with peers through behavioral observation can extend previous studies by providing additional information about the full range of children's interaction partners.

Moreover, it is particularly important to identify the types of peers with whom they interact, as peers with different qualities provide different socialization experiences. One factor related to socialization opportunities involves the role of similarity in selection of peers. Children and adults tend to interact with similar others, and this tendency toward homophily has been found across a variety of dimensions, including sex, age, and behavior (Estell, Cairns, Farmer, & Cairns, 2002; Hanish, Martin, Fabes, Leonard, & Herzog, 2005; Kandel, 1978; Kiesner, Poulin, & Nicotra, 2003; McPherson, Smith-Lovin, & Cook, 2001; Rubin, Lynch, Coplan, Rose-Krasnor, & Booth, 1994; Shrum, Cheek, & Hunter, 1988). We would expect that children may be drawn into and maintain interactions with children similar in behavioral qualities, and that children will be drawn to and maintain interactions with peers of the same sex. The question is whether GNN children show similar patterns.

An assessment of the particular peers with whom a child spends time also can provide information about the consequences of spending time with peers with behavior problems. For instance, in a short-term longitudinal study, Hanish et al. (2005) found that girls who affiliated more frequently with externalizing peers were more likely to exhibit multiple problem behaviors several months later than girls who spent little time with externalizing peers. Hanish et al. used a novel approach to assessing peer affiliation, one in which the number of contacts children have with every peer is counted and then weighted by peers' qualities. In the present study, we employed this peer affiliation method and considered how often children interacted with peers varying in levels of socially competent, externalizing, and internalizing behaviors. Rather than using the affiliation measures to predict outcomes, however, we used the affiliation measures as outcomes, specifically to describe the opportunities children have to socialize with specific types of peers.

Assessing Gender Non-Normativity

Many different approaches have been used to assess non-normativity in children, including play partners, activities, gender dysphoria, gender confusion, and feelings of typicality and pressure (e.g., Bailey et al., 2002; Berenbaum & Snyder, 1995; Meyer-Bahlburg, Feldman, & Ehrhardt, 1985; Meyer-Bahlburg, Sandberg, Yager, Dolezal, & Ehrhardt, 1994; Zucker, 2005a). In some cases, gender role (e.g., activities) and gender identity (e.g., gender dysphoria) are considered together as one general factor when assessing gender non-normativity (for review, see Zucker, 2005b). To better understand the links between GNN behavior and outcomes, we took the approach of assessing variation in one dimension of behavior as it relates to outcomes, namely peer preferences. We used this dimension because same-sex peer play is extremely common and salient in preschool children (Maccoby, 1998; Martin & Fabes, 2001) and variations in this behavior could be easily noticed and discouraged by peers (Carter, 1987; Fagot, 1977; Langlois & Downs, 1980).

GNN status was determined using a new method, called the Iterative Probability Procedure (IPP), which generates Bayesian probabilities to predict how boy- or girl-like an individual is according to a sample-based set of criteria (Kreiger, 2008). Similar to the GD classification method (Lippa & Connelly, 1990), this method surmounts the limitation with many other measures by comparing individuals to others in the sample instead of an external standard. Furthermore, Kreiger (2008) overcame a potential shortcoming of the Lippa and Connolly method, which involved the initial classification of individuals into male- and female-like groups. In the GD approach, individuals are classified by their biological sex (i.e., whether one is male or female) in the discriminant function analysis (DFA) and later the probability of being male is adjusted, using Bayes' theorem (BT), depending on how they responded to a set of gender-related criteria. Because GD assigns individuals into male and female groups based on biological sex rather than behavior, the probability that individuals will have a GD score equivalent to their physical sex characteristics is overestimated (Kreiger, 2008).

In contrast, the IPP method minimizes these classification errors by repeating BT through a series of iterations. The first iteration predicts an individual's probability of being male on the basis of the participant's physical sex and how he or she responded to a series of gender-related indicators (e.g., activities or interactions with same- or other-sex peers). However, subsequent iterations generate new probabilities from the posterior probabilities of the previous iteration, resulting in probabilities that are increasingly driven by the gendered behavior of the sample rather than physical sex alone. Iterations continue until the posterior probabilities equal those generated during the current iteration.

To examine the effectiveness of the IPP, 194 children (98 boys) were surveyed on how frequently they engaged in various gender-typed activities (e.g., skateboarding, playing with dolls) (Kreiger, 2008). Three data simulations were conducted in which 30% of the participants were randomly selected and were purposely misclassified as the other-sex (i.e., girls were reclassified as boys and boys as girls). From both the original and the three modified datasets, the probability of being male was generated using four different methods: IPP, Lippa and Connelly's (1990) GD method, a DFA, and a single iteration of BT. Probabilities from both the original and modified datasets were then compared to determine which method was more robust to classification errors. Across all three simulations, the IPP scores from the original and modified datasets were significantly more strongly associated with one another (average $r = .96$) than those from GD (average $r = .70$), DFA (average $r = .46$), and BT (average $r = .78$). The IPP method also reclassified a greater number of the misclassified cases than the other techniques (IPP, $M = 89.1\%$; GD, $M = 75.8\%$; DFA, $M = 64.4\%$; BT, $M = 81.1\%$).

Thus, we utilized the IPP method to classify children based on the proportion of time they spent with male and female peers in relation to other girls and boys in the sample. The determination of GNN was based on sex of play partner patterns that were statistically non-normative in comparison to same-sex children in the sample.

The Present Study

The present study expanded upon earlier research by exploring the problem behaviors and social experiences of GNN children at a younger age than has been typically done. Because older GNN children (both GID and non-clinical samples) exhibit more problem behaviors than GN children, it is important to assess whether increased levels also appear in younger GNN children. Due to the age of the sample, we did not expect to find higher levels of problem behaviors than in GN children.

To assess GNN children's social behavior, we compared GNN and GN children on teacher ratings of exclusion, asociality, and prosociality, and on observed sociability. Given the findings that older GNN children experience peer difficulties, young GNN children might be expected to be excluded by their peers or have fewer social interactions with peers. On the other hand, these children may simply be more balanced in their peer preferences and show no peer adjustment problems.

The assessment of GN and GNN children's peer affiliation patterns involved examining the types of exposure they had to peers who exhibit socially competent, externalizing, and internalizing behaviors. We considered different types of socialization scenarios. First, we considered the "developmentally challenging" scenario in which GNN boys and girls may be doubly challenged by having limited affiliations with socially competent peers and increased affiliations with children high in externalizing and internalizing behaviors. Second is a "difference" scenario in which GNN children show patterns that vary from GN children, but not necessarily in challenging directions. Third is a "flexibility" scenario in which GNN children have affiliations with many types of children. Having varied peer affiliations may provide socialization opportunities that lead to a wider behavioral repertoire, similar to the benefits assumed to result from psychological androgyny (Bem & Lenney, 1976; Paulhus & Martin, 1988).

Method

Participants

Participating children were enrolled in one of 18 Head Start preschool classrooms located in a large southwestern city in the U.S. Head Start programs serve children and families who have incomes at or below the federal poverty line; 82% of the participating families reported an annual income of \$30,000 or less. Most children were enrolled in a half-day program. Participants were drawn from a 3-year longitudinal study of peer relationships and school readiness. To recruit participants, we contacted the local Head Start governing agencies to identify classrooms with teachers who would permit frequent visits by observers. After obtaining permission from the teachers, project personnel met with parents to describe the study and answer questions about the project. Because of the observational procedures and our interest in peer relationships, we required over 70% of the students in each class to be involved in the study. Every classroom enrolled enough participants to warrant inclusion.

Of the 311 families that were recruited across all 3 years of the study, 308 consented to participate (99% participation rate). For the purposes of the present study, of the 308 children, only those who had at least 25 observations during the fall were included. A total of 48 children did not meet that criterion (due to absences, classroom scheduling, or leaving the school) and were excluded from subsequent analyses. Children were also excluded from

the study if they were missing all three teacher-rated measures of internalizing, externalizing, and socially competent behavior ($N = 3$). With these criteria, the total sample included 257 children (136 boys and 121 girls; 100.9 mean number of observations per child). At the start of the school year, the mean age of the children was 51 months ($SD = 5.40$; range = 37–60 months; 90% were between 43 and 60 months). The majority of children were Mexican American (66%); the remaining ethnic distribution included 8% European American, 7% African American, and 6% Asian American, Native American, or other ethnicities. Many children (57%) reported Spanish as their primary language at home. Most children (73%) came from two-adult homes.

Measures

Each child's primary teacher and teacher aide (94% female) completed a questionnaire packet that assessed children's social and problem behaviors. Teacher aides completed their ratings during the fall semester and primary teachers at the end of the spring semester. Primary teachers were paid \$25 per packet for her/his participation; teacher aides were paid \$20.

Social Behavior—Primary teachers rated aspects of children's overall social behavior in the spring of the academic year using the Child Behavior Scale (CBS) (Ladd & Profilet, 1996). Children were rated on 3-point Likert scales for items related to exclusion by peers (7 items), prosocial behavior (7 items), and asocial behavior (6 items), with ratings ranging from 1 ("doesn't apply") to 3 ("certainly applies"). Scores were calculated by determining the mean across the relevant subscale items (α s ranged from .86 to .93). Examples of subscale items include: "is ignored by peers" (exclusion), "helps other children" (prosocial), and "avoids peers" (asocial).

Problem Behaviors—Primary teachers also reported on children's internalizing and externalizing behavior using the Child Behavior Checklist (Achenbach & Rescorla, 2000). Internalizing behavior indicates high levels of emotional reactivity, anxiety, and withdrawal, and externalizing behavior indicates high levels of aggression and attention problems. The 36 internalizing and 24 externalizing items were rated on a 3-point scale (0 = "Not true"; 2 = "Very true or often true"). Scores were computed by summing the items in each scale. High scores indicated high levels of internalizing and externalizing problems. These scales have shown high reliability in previous research (internalizing $\alpha = .89$; externalizing $\alpha = .96$) (Achenbach & Rescorla, 2000) and in the present sample (internalizing $\alpha = .87$; externalizing $\alpha = .95$).

Social Competence—Twice during the fall semester, teacher aides completed a questionnaire for each participating child. Included in this questionnaire was a single item measuring the child's social competence ("This child is skilled, capable, and effective in interactions with other children"), rated on a 5-point scale (1 = "Not at all true"; 5 = "Very true"). The two separate ratings were highly correlated, $r(228) = .60$, $p < .001$; therefore, an average of these ratings was taken to obtain a single measurement of social competence (for some children, only one rating was available and, in that case, only one rating was used).

Procedure

Naturalistic observations of children's behaviors were conducted in preschools approximately twice a week for several hours a day over the course of the fall semester (i.e., from September to December). Observations involved trained coders identifying the target child from a random list of children and watching the target for a 10-s period during structured, semi-structured, and free play, both inside and outside the classroom. During each interval, the child's predominant type of play, play activity, and identity of play

partners were recorded. Although children were observed during structured play time (i.e., teacher-directed activities with no choice of activity or play partner), for the present study, we used only observations conducted during children's semi-structured play (i.e., times in which children had a choice of three or four different activities) and free play (i.e., children had complete control over what activities to participate in and with whom) because we were interested in children's social behaviors when they had free choice of play partners and activities (rather than when assigned by the teacher). *Social Play* was coded when the child was involved in a direct interaction with one or more children (e.g., social conversation, rule-based play, rough-and-tumble play). The sex and identification of their peers were recorded (up to five). Observers also coded whether children were playing with a single boy, a single girl, a group of boys, a group of girls, or a mixed-sex group. To control for unequal availability of children due to absence and illness, proportion scores were calculated by dividing the number of interactions involving peer partners by the total number of each child's observations. Thus, to represent the proportion of interactions spent with same-sex peers, the numbers of observations with single- and groups of same-sex children were added together and divided by the total number of observations. A similar procedure was followed for other- and mixed-sex peer play.

During each observation, the target child's activity was coded into one of 31 play activities (e.g., balls, dolls, blocks, puzzles). Sex differences were examined by comparing the mean proportion of interactions that boys and girls spent playing in each activity (using *t*-tests, *dfs* = 255). Activities in which boys were significantly more likely to play were categorized as masculine and those in which girls were significantly more likely to play as feminine ($p < .05-.01$). Masculine activities included riding bikes; playing with blocks, trucks, and toy animals; using computers; pretend play with masculine themes, and figure-play with masculine and neutral figures. Feminine activities included playing kitchen, puzzles, and phone; artistic play with crayons and paint; pretend play with feminine themes and figure-play with female figures. Activities in which the sexes did not significantly differ were considered neutral and were not included in the analyses. Masculine and feminine activities were recoded to "same-sex activities" and "other-sex activities" depending on a child's sex.

Approximately 10% of the observations were simultaneously coded by two observers to ensure reliability. Reliabilities were acceptable for activities (M kappa = .88; range for individual activities, .40–1.0) and for identification of play partners (percent agreement ranged from 89 to 97%). Only two activities had low reliabilities (below .60)—play with neutral figures and play with masculine figures—due to being seldom observed. These low frequency observations constituted only .25% of the total observations but, to maintain the largest number possible, these low frequency activities were also included. These observational procedures have been used in previous studies and have demonstrated very good reliability and validity (Hanish et al., 2005; Martin & Fabes, 2001).

Data Analysis

The IPP Program—The IPP program was written using SPSS 12. Once the biological sex of each participant and the metrics of the assessment of gender were entered, the IPP program ran multiple iterations of BT to classify children as GN or GNN. The first iteration used biological sex to classify individuals according to their response patterns on the peer interaction gender measure. The probabilities of being male or female generated from the first iteration were then used to classify individuals for the second iteration, and the probabilities generated during the second iteration were used to classify individuals for the third iteration, and so forth until the iterations were complete. The main output file includes information pertaining to (1) the sex of each individual, (2) their gender classification following the iterations, (3) their final Bayesian gender probability (the probability of being

male based on their response pattern), (4) their initial gender probability after the first iteration, (5) the number of iterations run until the initial probability equaled the posterior probability, and (6) a z-score of the final Bayesian probability of being male based on the response patterns.

Calculating IPP Scores—Bayesian calculations require categorical data. To meet this requirement, the two continuous scores of the proportion of time each child (1) played with boys and (2) played with girls were recoded into 5-point ordinal scales based on the range of the other boys and girls in the sample, relative to their own sex. That is, the upper and lower limits were determined by the actual range of scores of girl peers and boy peers in the sample. The categories were devised by dividing the range for each sex into five equal parts (boys' range = .0–.92; girls' range = .0–.93). Higher scores indicated a greater number of interactions with boys or with girls. The IPP was then conducted using these two variables as indicators. The IPP ran multiple iterations based on the two scores (interactions with boys; interactions with girls) and, at each iteration, children's patterns on these two dimensions were classified as "boy-like" or "girl-like." The changing classifications were then used in the next iteration, again resulting in classifications for each child. Once convergence was reached, each child was assigned a categorical placement as either being "girl-like" or "boy-like" in play patterns. If a child's sex was incongruent with their categorical placement, they were labeled as GNN (e.g., a girl who was classified as being "boy-like" in her choice of play partners). In total, 100 girls and 122 boys were classified as GN, and 21 girls and 14 boys were classified as GNN.

Calculations of Type of Peer Affiliation—We used a new method to calculate peer affiliation (see Hanish et al., 2005). This method was based on the number of times children were observed to be with certain types of peers and assessed a child's pattern of peer affiliation. Affiliation with a particular type of peer was calculated by first multiplying the number of times a target child was observed interacting with a particular peer by that peer's internalizing, externalizing, or social competence score. For example, if child A played with child B 30 times and child B had an internalizing score of 15, 30 was multiplied by 15. If child B had an externalizing score of 5, 30 was multiplied by 5. This was done for the target child's interactions with every peer in the classroom. These product scores were summed and then divided by the number of children the target child was observed to affiliate with (to differentially weight strong versus weak affiliations), creating a mean affiliation score. To control for individual differences in number of observations, the mean affiliation score was multiplied by the target child's total number of observations divided into 100. For example, if the target child had 150 observations, that number was divided into 100, and then multiplied by the mean affiliation score. This resulted in a peer affiliation quotient that reflects the concentration of affiliation with certain types of peers per 100 interactions.

The procedure was repeated for all target children within each classroom and done separately by sex of the peer, resulting in six peer affiliation quotient scores for each child: affiliation with internalizing, externalizing, and socially competent boys and girls. Because the measures of socially competent versus internalizing and externalizing behaviors were scored on different scales, the quotients were then standardized on a z-score metric to make them directly comparable. Higher affiliation quotient scores reflect greater peer affiliation.

Results

Descriptive Relations Among the Study Indices

The means for the study variables are shown in Table 1. Some sex differences were apparent: boys were higher than girls on exclusion, asociality, and externalizing, whereas girls were higher on prosociality and social competence.

Preliminary analyses included examining the relation of age to each of the study variables for boys and girls separately. For boys, of 15 variables examined, two were correlated with age: same-sex interactions and social competence scores, $r_s(134) = .24$ and $.25$, $p < .01$, respectively, and, for girls, of the 15 variables examined, age was correlated with only other-sex interactions, $r(119) = .20$, $p < .05$. Because age was significantly correlated with these variables, it was controlled in subsequent analyses.

Table 2 shows the partial correlations (controlling for age) among the child indices. For boys and girls, the proportions of same- and other-sex interactions were inversely related, but were positively related to their corresponding play activities. Thus, the more time children spent playing with same-sex peers, the more time they spent in same-sex activities (r^2 s = .25 and .10 for boys and girls, respectively), and the more time children spent playing with other-sex peers, the more time they spent in other-sex activities (r^2 s = .04 and .23 for boys and girls, respectively). However, the relations with activities accounted for only a small part of the variance.

There were moderately strong relations among the teacher indices. As shown in Table 2, the positive qualities of prosocial and socially competent behaviors were positively related to each other and inversely related to behavior problems, asocial behavior, and peer exclusion. In contrast, behavior problems, asocial behavior, and peer exclusion were positively related to each other. Thus, teachers presented a coherent pattern within and across the positive and negative child qualities.

Table 3 shows the partial correlations (controlling for age) among the affiliation quotients as well as their relations with the teacher data that were used to calculate the affiliation quotients. Because we were interested in who would affiliate with male and female peers, we presented the partial correlations separately by sex of child (given the strong same-sex peer preference bias). For both boys and girls, relations among the internalizing and externalizing affiliation scores were relatively high and consistent both within and across type of behavior problem and sex of peer. Thus, children who had relatively high affiliations with externalizing peers also had relatively high tendencies to affiliate with internalizing peers.

A very different pattern emerged for affiliations with socially competent peers. Affiliation with socially competent boys was not related to affiliation with socially competent girls. However, affiliation with internalizing girls was correlated with affiliation with socially competent girls, a relation that held for both boys and girls. Girls (but not boys) who were relatively high in affiliation with internalizing and externalizing boys were also relatively high in affiliation with socially competent boys. Finally, girls who were relatively high in affiliation with externalizing girls were also relatively high in affiliation with socially competent girls.

Perhaps most significant for our purposes were the relations among the children's own behavioral qualities and their tendencies to affiliate with certain types of peers. Homophily effects were evident in the positive correlations between children's own internalizing, externalizing, and socially competent behavior and their affiliations with peers with the

same characteristics. Also, children affiliated with both internalizing and externalizing peers rather than one or the other. These patterns generally held for both boys and girls (see bottom half of Table 3).

Finally, Table 3 also shows the relations of the teacher-reported peer data (peer exclusion, prosocial, asocial) to children's affiliation quotients. In general, peer exclusion was positively related to affiliations with internalizing and externalizing boys and girls. In contrast, prosocial behavior was inversely related to affiliations with peers who were high on behavior problems. Additionally, boys who were relatively high on prosocial behavior tended to affiliate with socially competent boys and girls, but this pattern was not apparent in girls (this was the only significant sex difference in correlations, z -score = 2.30, $p < .01$). Asocial behavior was not related to any of the affiliation quotients.

IPP Classifications of GN and GNN Children

Play Partner Preferences—The IPP was used to categorize each child as GN or GNN by comparing their peer interaction patterns to those exhibited by their classmates. If a child's peer interaction patterns strongly differed from his or her same-sex peers, he or she was categorized as GNN, but that does not inform us of the exact nature of the play pattern. Because the IPP method creates groups based on the characteristics of the sample rather than on externally attributed stereotypes, the nature of those differences could not be specified a priori; to determine the nature of the difference requires an analysis of interaction patterns for each sex. However, because many children show gender-segregated play, we expected to find sex segregated play patterns. Therefore, we expected that GNN and GN children would differ in their degree of gender-segregated interactions, such that GN children would play with same-sex peers more than GNN children, and that GN children would show a greater preference for same-sex over other-sex peer play as compared to GNN children. We calculated effect size measures to compare GN and GNN children. GN children interacted more with same-sex peers ($d = 1.73$), whereas GNN children interacted more with other-sex peers ($d = 1.75$). These patterns were also supported by the correlational analyses (see Table 2) but to more fully assess play patterns, additional analyses were conducted.

A repeated measures analysis of variance (ANOVA) was conducted, with child sex and GN/GNN status as between subjects factors, sex of partner (same-sex and other-sex interactions) as the within-subject factor, and age controlled. The sex of partner by GN/GNN interaction was significant, $F(1, 252) = 111.58$, $p < .001$, $\eta^2 = .31$. Two simple effects tests were conducted to decompose this interaction. First, GN and GNN children were compared. GN children exhibited higher levels of same-sex play than did GNN children, $F(1, 254) = 61.03$, $p < .001$, $\eta^2 = .19$, whereas GNN children exhibited greater other-sex play, $F(1, 254) = 101.64$, $p < .001$, $\eta^2 = .29$. Second, when comparing same-sex versus other-sex partner interactions, GN children exhibited more same-sex than other-sex interactions, $F(1, 220) = 465.91$, $p < .001$, $\eta^2 = .68$, and GNN children exhibited the reverse pattern of more other-sex than same-sex interactions, $F(1, 33) = 53.39$, $p < .001$, $\eta^2 = .62$.

Activity Preferences—Effect size measures showed that GN children engaged in more same-sex activities ($d = .67$) than GNN children, whereas GNN children engaged in more other-sex activities ($d = .55$) than GN children. Additional analyses were conducted to control for age.

An ANOVA was conducted to examine differences in activity preferences, with age controlled, sex of child as a between subject factor, and type of activity (same-sex activities, other-sex activities) as a within-child factor. The analyses revealed a significant activity type by GN/GNN interaction, $F(1, 254) = 20.17$, $p < .001$, $\eta^2 = .07$. Simple effects analyses showed that GN children engaged in more same-sex activities than did GNN children, $F(1,$

254) = 11.89, $p < .001$, $\eta^2 = .05$, and that GNN children engaged in more other-sex activities than did GN children, $F(1, 254) = 11.87$, $p < .001$, $\eta^2 = .05$. When activity types were compared within each group, GN children participated in same-sex activities more than other-sex activities, $F(1, 220) = 218.84$, $p < .001$, $\eta^2 = .50$, but GNN children showed no significant difference between same-sex and other-sex activities, $F(1, 33) = 1.07$, $\eta^2 = .04$.

Additionally, the sex of child by GN/GNN status interaction was significant, $F(1, 254) = 5.90$, $p < .01$, $\eta^2 = .02$. For both girls and boys, GN children engaged in more activities than GNN children but this pattern was more pronounced for girls ($p = .02$, $\eta^2 = .05$) than for boys ($p = .04$, $\eta^2 = .03$).

Do GNN and GN Children Differ in Problem Behaviors?

We investigated the extent to which GNN children showed problem behaviors that might contribute to social difficulties. A MANCOVA (controlling for age) of teacher ratings of children's externalizing and internalizing behavior revealed a trend for a multivariate main effect for sex, $F(2, 223) = 2.76$, $p = .07$, $\eta^2 = .02$. Univariate analyses showed that boys were rated as significantly more externalizing than girls, $F(1, 224) = 5.54$, $p < .05$, $\eta^2 = .02$ (see Table 1). No significant differences were found between GNN and GN children's externalizing, $F(1, 224) < 1$, or internalizing behavior, $F(1, 224) < 1$. These patterns also were evident in the correlational analyses (see Table 2).

Social Environments of GNN and GN Preschoolers

Do GNN and GN Children Differ in Sociability?—An ANCOVA (with age controlled) was conducted for teacher aides' ratings of children's social competence which revealed a main effect for sex, $F(1, 252) = 9.03$, $p < .01$, $\eta^2 = .04$. Girls were rated as significantly more socially competent than boys (see Table 1). No significant differences were found in teachers' ratings of GNN and GN children, $F(1, 252) < 1$.

A MANCOVA examining teacher ratings of peer exclusion, prosocial behavior, and asocial behavior revealed a multivariate main effect for sex, $F(1, 227) = 3.09$, $p < .05$, $\eta^2 = .04$. Univariate analyses showed that boys were judged by teachers to be significantly more excluded and more asocial than girls, $F(1, 229) = 3.90$ and 4.94 , $p < .05$, η^2 s = .02, respectively (see Table 1). Girls were rated as significantly more prosocial than boys, $F(1, 229) = 6.33$, $p < .05$, $\eta^2 = .03$ (see Table 1). No significant differences were found for GN and GNN status for exclusion, $F(1, 229) = 1.11$, prosocial behavior, $F(1, 229) < 1$, or for asocial behavior, $F(1, 229) < 1$ (also evident in correlational analyses, Table 2).

To directly examine the hypothesis that GNN children may have fewer social interactions than GN children, observations of social play were tested in an ANCOVA with sex of child and GN/GNN status as between subject factors and age as a covariate. GN children ($M = .24$) showed a trend of spending more time in social play than did GNN children ($M = .21$), $F(1, 254) = 3.18$, $p = .076$, $\eta^2 = .01$. This could be accounted for by the increased amount of time GN children spent with same-sex children as compared to GNN children. Interestingly, GNN children also appear to spend more time in mixed-sex interactions (with both girls and boys) than GN children (see Table 2). Overall, the types of children with whom GN and GNN children interact may be more important to consider than the amount of time they spend in social interactions.

Do GNN and GN Children Affiliate with Different Types of Peers?—Because children tend to interact with others like themselves, it is important to determine if gender category status (GN or GNN) relates to peer affiliation beyond that explained by behavioral similarity. We conducted hierarchical regression analyses for each of the affiliation quotient

indices (affiliation with internalizing, externalizing, and socially competent boys and girls; see Table 4). Each regression involved four steps: first, age was entered, followed by the relevant behavior on the second step (internalizing, externalizing, or social competence). Sex of child and GNN/GN status (0 = GN children and 1 = GNN children) were entered on the third step, and the multiplicative interaction of Sex and GNN/GN status was entered on the final step (after centering each by subtracting the group mean). When a significant interaction was found, we conducted a simple effects regression by re-computing the regression analysis separately for boys and girls.

Homophily based on behavioral similarity was important in predicting affiliation with socially competent boys and girls. Sex of child (favoring girls) was also significant in both analyses but this was subsumed by the significant Sex $\times$ GNN/GN status interaction terms (see Table 4). Regressions computed separately by sex of child revealed that the interaction was due to differing patterns for boys and girls. For affiliation with socially competent boys, GNN boys showed less affiliation than GN boys ($\beta = -.17, p < .05$), whereas GNN girls showed greater affiliation than their GN peers ($\beta = .23, p < .05$). The reverse pattern was found for affiliation with socially competent girls: GNN boys evidenced greater affiliation than GN boys ($\beta = .41, p < .01$), whereas GNN girls evidenced less affiliation than GN girls ($\beta = -.41, p < .01$).

Homophily was also important in predicting affiliation with externalizing boys and girls (see Table 4), and was the only significant predictor for affiliation with externalizing boys. For affiliation with externalizing girls, sex of child and the Sex $\times$ GNN/GN interaction were significant predictors. Probing this interaction separately for boys and girls revealed that GNN boys evidenced greater affiliation with externalizing girls than did GN boys ($\beta = .29, p < .01$), whereas GNN girls exhibited less affiliation than did GN girls ($\beta = -.31, p < .01$).

In predicting affiliation to internalizing peers, homophily was again important: target child internalizing predicted affiliation with internalizing males and female peers. In the analyses of affiliation with internalizing boys, no other predictor was significant. However, in the analysis of affiliation with internalizing girls, sex, GNN/GN status, and the interaction of the two also predicted affiliation (see Table 4). Decomposing this interaction separately for boys and girls revealed that GNN boys had greater affiliation with internalizing girls than GN boys ($\beta = .35, p < .01$), whereas GNN/GN status for girls was not a significant predictor ($\beta = -.16$).

Discussion

In the present study, we addressed two important issues relevant to children with GNN peer preferences. The first concerned whether young children with GNN peer preferences are more likely than GN children to exhibit problem behaviors. The second concerned the social environments of GNN versus GN children, to explore differences in sociability, isolation, and the types of peers with whom children affiliate. To address these issues, we used a Bayesian method of classifying children as GNN. We also employed a new method of assessing socialization opportunities involving affiliation with peers who possessed specific characteristics. This study extends prior research by examining variations in gender normativity in a younger sample of children than is typically studied, and by including observational data.

Problem Behaviors of GNN and GN Children

Comparing teacher ratings of GN and GNN children's externalizing and internalizing behaviors showed no significant differences. Prior studies show increasing likelihood of problem behaviors with age for children with more broadly defined GNN and for those with

more extreme GNN behavior. For children diagnosed with GID, both boys and girls 6–11 years of age exhibit increased levels of internalizing and externalizing problems, and similar patterns have been identified in less extreme children who claim to feel gender atypical (8–11 years, Carver et al., 2003). For younger GID children, the patterns are much less extreme: 4- to 5-year-old boys showed more internalizing behavior compared to control boys, but had significantly less psychopathology than older boys (Zucker & Bradley, 1995). Similar age trends have been identified in several other studies of children's internalizing and externalizing behavior (Cohen-Kettenis et al., 2003; Singh, Bradley, & Zucker, 2011).

The lack of problem behaviors in our sample of young GNN children could be due to a variety of reasons. First, children who are GNN in peer preferences may not be at risk for behavior problems any more than are GN children. Second, because our sample was young, the GNN children may not yet have learned these behaviors through interaction with peers or these behaviors may not yet have emerged. Third, our method of identifying GNN children by peer preferences may not capture a subset of GNN children who may have behavior problems. Further research is needed to explore developmental trajectories of children with GNN peer preferences.

Social Qualities of GNN and GN Children

Young children with GNN peer preferences were not found to differ greatly from GN children on a variety of observed and teacher-rated individual and social behaviors. Specifically, children with GNN peer preferences did not differ in social competence and were not rated as more asocial than their GN peers. Furthermore, unlike older GNN children, the young children in this sample with GNN peer preferences did not appear to be excluded from or rejected by peers. Given that older children with more and less extreme GNN have often been identified as loners or having peer difficulties (e.g., Egan & Perry, 2001; Green, 1976; Green, William, & Goodman, 1982; Young & Sweeting, 2004; Zucker & Bradley, 1995), it is interesting that younger GNN children were not identified as such in the present study. Nonetheless, we did find that GNN children had some-what reduced social interactions compared to GN children. This reduced time in social interactions suggests that peers were less interested in engaging with these children, which ultimately could be problematic. However, this effect may largely be due to their reduced time spent playing with same-sex peers. Rather than being actively rejected, young GNN children may be ignored or overlooked by same-sex peers because they have different partner or activity preferences than GN children. Other findings support the notion that GNN children are not being rejected by peers: GNN boys exhibited more mixed-sex play, that is, they interacted with groups of girls and boys more than GN children. Based on the present findings, we would not conclude that children with GNN peer preferences are excluded, rejected, or isolated from their peers. Overall, it appears that young GN and GNN children are more similar than different on a variety of social and psychological measures.

Peer Affiliations of GNN and GN Children

A more detailed picture of GNN and GN children's social lives emerged when we examined their opportunities to interact with externalizing, internalizing, and socially competent peers. We considered several implications of these findings. First, the comparison of GN girls and boys provided information about the kinds of socialization opportunities available to typically developing children. Not surprisingly, both sexes received socialization opportunities for positive and negative behaviors from same-sex peers, consistent with research and theorizing on gender segregation and its consequences (e.g., Maccoby, 1998). Because of sex differences in interaction styles, behavior, and communication styles, being around children of both sexes may be ideal for girls and for boys in terms of developing a wide repertoire of skills. As to the specific socialization opportunities, girls with GN peer

preferences had moderate levels of exposure to internalizing, externalizing, and socially competent girls, and little affiliation with boys-especially socially competent boys. This pattern is interesting: it may present challenges to these girls because of exposure to girls with problem behaviors and a lack of opportunities to socialize with boys. GN boys had low levels of affiliation with internalizing boys, externalizing boys, and relatively high levels of affiliation with socially competent boys but had low levels of affiliation with all types of girls. This likely provides GN boys with opportunities to learn social skills from other competent boys (but not girls) but limits interactions with the other sex. These patterns reflect the socialization opportunities available for GN children in the gender-segregated worlds of boys and girls (Maccoby, 1998).

Second, the socialization opportunities for GNN children were different than for GN children, and the patterns varied by sex of the child and by sex of peer. Relative to their GN peers, GNN children of both sexes appeared to face possible challenges in their social relationships, but the nature of these challenges was different. Compared to boys with typical peer preferences, boys with GNN peer preferences had moderate to high levels of affiliation with children of both sexes with behavior problems, and very low levels of affiliation with socially competent boys although they did have some interactions with socially competent girls. This pattern demonstrates that GNN boys affiliate with many types of children and therefore may have the opportunity to learn a wide variety of behaviors from them. An alternative interpretation, however, is that this pattern presents challenges because these boys spend much of their social time with peers who exhibit both externalizing and internalizing behaviors, thereby increasing their propensity for exhibiting problem behaviors. The only positive type of affiliation these boys have is with socially competent girls.

Compared to girls with GN peer preferences, girls with GNN peer preferences had relatively low levels of affiliation with children with behavior problems, but also affiliated less with socially competent children. GNN girls may be at lower risk for later adjustment problems than GNN boys because they have so little affiliation with externalizing and internalizing peers of either sex. That is, GNN girls may be protected by receiving little exposure to problem behaviors from peers. Unfortunately, they also have little exposure to socially competent girls or boys, which may limit social skills learning. The importance of experiences with peers is underscored in studies of GID children in which poor peer relationships were the strongest predictor of behavior problems (Cohen-Kettenis et al., 2003).

Socialization opportunities also depend upon the similarity of characteristics between and among children. For affiliation with peers with behavior problems, children demonstrated homophily in that they tended to interact with others who were similar to themselves in behavioral tendencies. These findings replicate patterns in studies of older children (Ennett & Bauman, 1994; Kandel, 1978), and were partially consistent with a study of preschool children where homophily was evident for externalizing but not for internalizing behaviors (Martin, Fabes, Hanish, & Hollenstein, 2005).

Young children with GNN peer preferences also exhibited a different balance in the gender of their playmates (i.e., ratio of same- and other-sex peers) than did GN children. Homophily on the basis of sex was less apparent for GNN children than for GN children and, in fact, was reversed. Whereas GN children mostly interacted with same-sex peers (Maccoby, 1998; Martin & Fabes, 2001), GNN children's affiliations with same-sex peers were limited, and their affiliations with other-sex peers inflated. These findings are consistent with those from a recent study of sociometric ratings of acceptance in which gender-referred boys, compared to non-referred boys, were more accepted by girls and less

so by boys. However, the same pattern was not found for gender-referred girls, who were rejected less frequently by same-sex peers than were boys (Wallien & Cohen-Kettenis, 2008). In the present study, GNN children of both sexes showed increased other-sex and decreased same-sex affiliations compared to GN children, and this may be due to the use of observational methods rather than sociometric procedures, or it may be due to age differences in the samples.

Because so little is known about the influence of the gender balance of peers in children's lives, it is unclear what the consequences of these patterns may be for future development. GNN children have more balanced exposure to same- and other-sex peers, which may be beneficial due to increased exposure to a wider range of skills and interaction styles compared to GN children who spend much of their time with same-sex peers. Furthermore, it is not clear whether same- and other-sex socialization occurs in the same way, with the same intensity, or with the same facility. We also do not know if GNN and GN children vary in their susceptibility to same- and other-sex peer influence.

Although we have presumed a "socialization through affiliation" model of influence by peers, we recognize that we do not have data that directly test the actual consequences of affiliation with each type of peer. We cannot know whether children are effectively socialized through their affiliation with peers exhibiting different qualities. Although many conceptualizations of peer influence and socialization presume that contact with peers, particularly friends, is important in socializing behavior of adolescents (Ennett & Bauman, 1994; Fisher & Bauman, 1988; Kandel, 1978; Mercken, Candel, Willems, & de Vries, 2007), much less is known about peer socialization in younger children. For instance, it is not yet known which types of peers are more influential or which children are more susceptible to peer influence. Despite these unanswered questions, identifying variations in affiliation with different types of peers is an important step in understanding more fully the potential of peers to influence each other.

Assuming that socialization occurs in part as the result of affiliation with peers, children with GN versus GNN peer preferences would be expected to diverge in behavior over time. Although there is evidence of some consistency in gender-typed behavior from 2.5 to 8 years of age, divergence between gender normative and non-normative children increases over time, suggesting there are differential socialization experiences for these groups of children (Golombok et al., 2008). GN children may become more gender-typed in their behavior and interests with increased exposure to same-sex peers (Martin & Fabes, 2001). Children with slight predispositions toward non-gender-typed behavior early in life may have a different trajectory. Through affiliations with other-sex peers, they gain practice in the interactional styles and interests of other-sex peers, and some of these children may then move to increased non-normativity as they grow older, consistent with theorizing that early, small behavior changes may lead to later more extreme behaviors (Capara, Dodge, Pastorelli, & Arnaldo, 2007).

Not all young GNN children would be expected to follow this trajectory: GNN children also may develop friendships with children who allow them acceptance into social groups (Smith & Leaper, 2005) or they may exhibit high levels of adaptability in interaction with both sexes and thus experience peer acceptance. GNN children who spend time with both girls and boys may be exposed to many different interaction and communication styles, allowing them to become increasingly comfortable with children of both sexes. Additionally, degree of non-normativity may matter: children with more extreme or more numerous atypical behaviors may have a different and potentially more challenging developmental trajectory than children with less extreme non-normativity (Drummond, Bradley, Peterson-Badali, & Zucker, 2008; Wallien & Cohen-Kettenis, 2008; Zucker, 2005a, 2008). Thus, multiple

pathways of development are possible for children with GNN peer preferences. These trajectories may become negative because of the qualities of peers or poor peer relationships, or they may be positive for children with exposure to many types of behaviors from peers of both sexes. In either case, minor variations in behavior may become exaggerated over time and represent one route of development for GNN children.

The potential for socialization effects is also suggested in the literature on genetic and environmental influences on gender development. Early gender non-normativity appears to be related to genetic, hormonal, parental, and peer factors (Ruble, Martin, & Berenbaum, 2006). Twin studies suggest that there is a potentially significant genetic influence on gender-related behaviors (Mitchell, Baker, & Jacklin, 1989; van Beijsterveldt, Hudziak, & Boomsma, 2006) and for more extreme gender atypical behavior (Bailey, Dunne, & Martin, 2000; Coolidge, Thede, & Young, 2002; Knafo, Iervolino, & Plomin, 2005). Interestingly, several large-scale studies suggest that both shared and non-shared environmental effects also play important roles in gender development (Iervolino, Hines, Golombok, Rust, & Plomin, 2005; Knafo et al., 2005). Longitudinal studies involving long-term follow-up of children should provide insights into whether early gender variations are exacerbated or minimized through socialization experiences with parents and with peers.

Measurement Issues

The present study employed a novel approach for defining gender non-normativity by applying a Bayesian statistical method, the IPP, to explore variations in children's play partner patterns. Although we recognize that gender typing is multidimensional, the deconstruction of gender normativity to focus on one dimension may allow for a better calibration of the outcomes associated with each type of variation. For instance, variations in toy choices may influence development of academic skills (e.g., blocks and spatial abilities vs. dolls and verbal abilities), whereas variations in play partners may influence the development of social skills. Furthermore, peers may be more rejecting of a child for having extreme cross-sex activities than having cross-sex friends (Fridell, Owen-Anderson, Johnson, Bradley & Zucker, 2006). Even though activity engagement and peer selection are related, they are not highly overlapping, suggesting that it would be interesting in future research to conduct an IPP analysis of children's gender-typed activities.

In the present study, we used the play patterns of all the children in the sample to determine GN patterns. Each child's own play was compared to the pattern of children of his/her own sex, and if the child strongly differed from the pattern he or she was categorized as GNN. If a boy was categorized as GNN, it meant that his play patterns differed from the play patterns of other boys in the sample, but it did not tell us exactly the nature of the play pattern. Finding meaningful differences between play patterns of GN and GNN children suggests that the IPP program fulfilled our intention—to identify groups of children based on their similarity or dissimilarity to one another.

Whether the young GNN children in the present study are similar to GNN children in other studies requires comparisons with both extreme and moderate cases of GNN. The prevalence rate of GNN in the present study (14 %) is higher than would be expected for GID, which is considered rare, although no formal epidemiological analyses have been conducted. Also, more boys are referred to clinics for GID than are girls and our data showed the inverse ratio (Zucker & Bradley, 1995). However, more liberal estimates come from analyses of CBCL data (item "behaves like the opposite sex"), in which parents of 4- to 5-year-old children claimed agreement with the statement for 6% of boys and 12% of girls who were non-referred (vs. 16 and 19% for clinic referred) (Zucker & Bradley, 1995). These percentages are not that dissimilar to the rates in the present study, and for non-referred children the sex ratio is reversed as compared to GID sex ratios. Only longitudinal studies of

young GNN children assessed using the IPP method can examine the developmental trajectories they are likely to exhibit.

Another methodological feature of the present study was the use of a relatively novel approach for assessing children's affiliation with peers, one used successfully in previous research (Hanish et al., 2005). However, we used the affiliation quotient approach differently, using it as an outcome that represented peer socialization opportunities, which varied across children depending on their own characteristics (e.g., GNN status, their own behaviors).

Conclusions and Limitations

Care must be taken in generalizing the present findings because the children involved in this study were largely from low-income families, and many were Mexican-American. Very little research has been conducted on gender development in Mexican-American and in low-income children. Thus, the study fills a gap in the literature, but it is impossible to address the concern that young Anglo-American children with GNN peer patterns may have different social experiences compared to those in the present sample due to cultural differences related to ethnicity. The emphasis of the present study was on the peer environment, but information about the family and home environment was not examined, although they are known to contribute to the development of children's gender-typed behaviors. The teachers who rated the children were largely female, and they may hold differing ideas about the behavior of boys and girls than male teachers. The focus on one dimension of gender normativity may have excluded some children who would normally be captured in self- or other-reports of gender atypical behavior, including children with extreme cross-sex interests. Future research is needed to compare the qualities and outcomes of children varying in one versus multiple dimensions of gender typing.

Our use of a new method for identifying GNN children has the methodological advantages of classifying children with more accuracy than the GD approach and of being sensitive to the child's own peer context. However, the usefulness of the method depends on the quality of the reference sample. The method also has the disadvantage of making generalization more challenging. To enhance the potential to determine how deviations map onto cultural stereotypes, it is important to provide mean scores of the gendered behaviors used to determine the classifications; this allows comparisons to other samples.

The utility of the IPP method was assessed and seemed reasonable; however, caution should be exercised when interpreting the results. Furthermore, without conducting long-term prospective longitudinal studies, it is impossible to know if children identified in preschool as being non-normative will show non-normative gender behavior patterns throughout childhood, and whether these are the kinds of children who will grow up to exhibit the peer relations and adjustment difficulties that some GNN children experience later in childhood or whether they will develop healthy relationships with peers of both sexes.

The new affiliation quotient measure used here has many advantages, including the ability to better assess young children's peer interactions, especially by allowing consideration of the qualities of the peers with whom a child associates. However, the measure does not allow for assessment of the nature of the relationships with each peer (for instance, the degree of conflict or closeness). It is reasonable to expect that children may be more vulnerable to peers' qualities if they are friends than if they are not, but this hypothesis requires additional research to be confirmed. Furthermore, we had too few classrooms to consider conducting multi-level analyses, which would be ideal because children were nested within classrooms.

In summary, the present study extended research on gender normative and non-normative behavior by examining behavior in younger samples than typically used, and by using observational data collected over several months time. It is intriguing that, despite showing peer behavior that differs from the norm for their own sex, these young GNN children were not identified as having adjustment or peer difficulties. GNN children differed from GN children in their gender balance of peers and in the types of peer with whom they affiliated. The findings suggest that a more complete understanding of variations of gendered behavior and gendered relationships in young children is a promising start for furthering understanding of the consequences of gender normative and non-normative behavior on children's development.

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Table 1

Means and SDs of study variables by sex and gender category status

	Boys			Girls			Total		
	GN (N = 122)	GNN (N = 14)	GN (N = 100)	GN (N = 21)	GNN (N = 35)	Boys (N = 136)	Girls (N = 121)		
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)		
Child indices									
Same-sex interactions ^a	.24 (.10)	.09 (.04)	.24 (.08)	.13 (.05)	.11 ^{ap} (.05)	.23 (.11)	.22 (.09)		
Other-sex interactions ^a	.08 (.04)	.15 (.05)	.08 (.04)	.15 (.04)	.15 ^{bp} (.04)	.08 (.05)	.09 (.05)		
Same-sex play activities ^a	.22 (.09)	.13 (.05)	.18 (.08)	.17 (.08)	.15 ^c (.07)	.21 (.09)	.18 (.08)		
Other-sex play activities ^a	.10 (.05)	.13 (.06)	.10 (.04)	.13 (.06)	.13 ^d (.06)	.10 (.06)	.10 (.05)		
Peer exclusion ^b	1.25 (.37)	1.38 (.30)	1.19 (.27)	1.19 (.38)	1.27 (.36)	1.26 ^e (.37)	1.19 ^e (.29)		
Prosocial ^b	2.19 (.48)	2.24 (.48)	2.41 (.43)	2.48 (.41)	2.39 (.45)	2.19 ⁱ (.48)	2.42 ⁱ (.43)		
Asocial ^b	1.46 (.46)	1.49 (.34)	1.27 (.35)	1.32 (.45)	1.38 (.41)	1.46 ^h (.44)	1.28 ^h (.37)		
Internalizing ^c	4.92 (5.98)	5.15 (4.10)	3.32 (3.87)	3.85 (5.42)	4.36 (4.92)	4.95 (5.79)	3.41 (4.17)		
Externalizing ^d	11.22 (13.94)	10.31 (9.82)	5.05 (7.53)	6.35 (8.98)	7.91 (9.37)	11.12 ^e (13.51)	5.29 ^e (7.79)		
Social competence ^e	3.98 (1.07)	3.57 (1.00)	4.28 (.87)	4.38 (.69)	4.06 (.91)	3.93 ^f (1.06)	4.30 ^f (.84)		
Peer affiliation quotients ^f									
Internalizing boys	.06 (1.10)	.38 (1.15)	-.07 (.87)	-.24 (.87)	.00 (1.02)	.10 (1.10)	-.10 (.87)		
Internalizing girls	-.31 ^k (.74)	.65 ^k (1.03)	.29 (1.13)	-.12 (1.07)	.18 (1.11)	-.20 (.83)	.21 (1.12)		
Externalizing boys	.04 (1.07)	.40 (1.15)	-.09 (.91)	-.06 (.94)	.12 (1.04)	.08 (1.08)	-.09 (.90)		
Externalizing girls	-.32 (.66)	.35 (.92)	.41 ^j (1.23)	-.39 ^j (.50)	-.10 (.78)	-.25 (.72)	.27 (1.17)		
Socially competent boys	.34 ^m (1.08)	-.42 ^m (.49)	-.39 ⁿ (.81)	.14 ⁿ (.84)	-.08 (.76)	.26 (1.06)	-.30 (.84)		
Socially competent girls	-.55 ^l (.74)	.45 ^l (.81)	.67 ^o (.95)	-.30 ^o (.56)	.00 (.76)	-.45 (.80)	.50 (.96)		

Note. Means sharing the same superscript are significantly different at $p < .05$

GNN gender non-normative, GN gender normative

^aProportion of interactions out of all the interactions, and range from 0 to 100%

^bThe Child Behavior Scale (absolute range, 1–3)

^cChildren Behavior Checklist (absolute range, 0–72)

- ^d Child Behavior Checklist (absolute range, 0–48)
- ^e Children's social competence was measured on a 5-point Likert scale (1–5)
- ^f Standardized scores

Table 2

Partial correlations among child indices (controlling for age)

	1	2	3	4	5	6	7	8	9	10	11	12
Observational data												
1. SS interactions	–	–.44***	–.27**	.50***	–.02	–.39***	–.17	–.01	–.25**	.03	–.12	–.01
2. OS interactions	–.33***	–	.07	–.19*	.20*	.48***	.05	.09	–.05	–.20*	.01	.18*
3. MS interactions	–.36***	–.12	–	–.43***	.01	.22*	–.12	.34***	–.06	–.12	–.21*	.26**
4. SS activities	.32***	–.10	–.24**	–	–.20*	–.31***	.14	–.38***	.08	.15	.22*	–.14
5. OS activities	–.17	.48***	–.18*	–.13	–	.15	–.12	.15	–.06	–.05	–.09	.18*
6. GN/GNN status	–.51***	.59***	.02	–.08	.28**	–	.11	.06	–.01	–.01	–.03	–.07
Teacher data												
7. Peer exclusion	.09	.04	–.01	–.01	.10	–.02	–	–.44***	.25**	.39***	.64***	–.50***
8. Prosocial	–.27**	.02	.20*	–.08	–.23*	.06	–.40***	–	–.18*	–.36***	–.50***	.35***
9. Asocial	–.11	–.04	.05	–.16	.01	.04	.37***	–.39***	–	.39***	.22	–.22*
10. Internalizing	–.04	.11	–.15	.01	.25**	.05	.33***	–.41***	.48***	–	.66***	–.37***
11. Externalizing	.15	.14	–.24*	.10	.29**	.05	.50***	–.51***	.11	.36***	–	–.46***
12. Social competence	–.04	.05	.08	–.01	–.01	.04	–.26**	.31**	–.25**	–.30**	–.31**	–

Note. df's range from 115–133 for boys and 108–118 for girls. Partial correlations for boys are above the diagonal and for girls below the diagonal

SS same sex, OS opposite sex, MS mixed sex

* $p < .05$;** $p < .01$;*** $p < .001$

Table 3

Partial correlations for affiliation quotients (controlling for age)

	INT boys	INT girls	EXT boys	EXT girls	SC boys	SC girls
Affiliation quotients						
INT boys		.57 ***	.81 ***	.29 **	.10	.05
INT girls			.88 ***	.32 **	.29 **	.07
EXT boys				.61 ***	-.03	.43 ***
EXT girls					.56 ***	.45 ***
SC boys						-.03
SC girls						.02
Teacher data						
INT		.41 ***	.29 **	.37 ***	.23 *	-.14
EXT		.42 ***	.34 ***	.42 ***	.32 ***	.07
SC		.32 ***	.31 **	.39 ***	.30 **	-.15
Peer exclusion		.18	.24 *	.23 *	.32 **	-.04
Prosocial		-.23 *	-.02	-.15	.03	.19 *
Asocial		-.09	.07	-.13	-.09	.03
		.35 ***	.28 **	.28 **	.16	.04
		.29 **	.12	.34 ***	.21 *	.11
		-.32 ***	-.33 ***	-.26 **	-.41 ***	.20 *
		-.11	-.28 *	-.09	-.39 ***	.16
		.09	.09	.15	.11	.10
		.15	-.06	.14	.03	.06

Note. Correlations for boys are on top (df = 115–133) and correlations for girls (df = 108–118) are on bottom in each cell. Variation in the df is due to missing data

SS same sex, *OS* opposite sex, *INT* internalizing, *EXT* externalizing, *SC* socially competent

* $p < .05$;
 ** $p < .01$;
 *** $p < .001$

Table 4
Hierarchical regressions predicting affiliation with socially competent, externalizing, and internalizing boys and girls

Affiliation quotient	Step	Predictors	R ²	ΔR^2	β
SC boys ^a	1	Age		.02 [*]	.02
	2	Child SC		.07 ^{***}	.33 ^{***}
	3	Sex		.11 ^{***}	-.34 ^{***}
		GNN status			-.06
SC girls ^a	4	Sex $\times$ GNN status	.24	.04 ^{**}	.20 ^{**}
	1	Age		.00	.09
	2	Child SC		.04 ^{**}	.12 [*]
	3	Sex		.20 ^{***}	.46 ^{***}
EXT boys ^b		GNN status			.09
	4	Sex $\times$ GNN status	.36	.12 ^{***}	-.38 ^{***}
	1	Age		.01	.11
	2	Child EXT		.12 ^{***}	.35 ^{***}
EXT girls ^b	3	Sex		.00	.01
		GNN status			.09
	4	Sex $\times$ GNN status	.14	.01	-.09
	1	Age		.00	.09
INT boys ^b	2	Child EXT		.04 ^{**}	.29 ^{***}
	3	Sex		.11 ^{***}	.35 ^{***}
		GNN status			.04
	4	Sex $\times$ GNN status	.22	.08 ^{***}	-.30 ^{***}
INT girls ^b	1	Age		.00	.05
	2	Child INT		.18 ^{***}	.42 ^{***}
	3	Sex		.00	-.03
		GNN status			.04
INT boys ^b	4	Sex $\times$ GNN status	.19	.01	-.10
	1	Age		.01	-.01

Affiliation quotient	Step	Predictors	R ²	ΔR ²	β
	2	Child INT		.06***	.30***
	3	Sex		.07***	.25***
		GNN status			.14*
	4	Sex × GNN status	.19	.05***	-.25***

Note. Reported betas are from the last step in the regression

SC socially competent, EXT externalizing, INT internalizing

* $p < .05$;

** $p < .01$;

*** $p < .001$

^a df = 251

^b df = 223