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Social self-perception among pediatric brain tumor survivors compared to peers

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Abstract

Objective: To assess self-perceptions of social behavior among children treated for a brain tumor and comparison children. To investigate group differences in the accuracy of children's self-perceptions as measured by discrepancies between self and peer reports of social behavior and to understand if these phenomena differ by gender.

Method: Self and peer report of social behavior were obtained in the classrooms of 116 children who were treated for an intracranial tumor. Social behaviors were assessed utilizing the Revised Class Play (RCP) which generates indices for 5 behavioral subscales: Leadership-popularity, Prosocial, Aggressive-disruptive, Sensitive-isolated, and Victimization. A child matched for gender, race, and age, was selected from each survivor's classroom to serve as a comparison. Abbreviated IQ scores were obtained in participants' homes.

Results: Relative to comparison children, those who had undergone treatment for a brain tumor overestimated their level of Leadership-popularity and underestimated levels of Sensitive-isolated behaviors and Victimization by peers. Female survivors were more likely to underestimate Sensitive-isolated behaviors and Victimization than male survivors.

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Portions of these data and analyses were presented at the Biennial Meeting of the Society for Research in Child Development, Boston, MA (2007) and the Regional Conference on Child Health Psychology, Cincinnati, OH (2007).

Conclusion: Following treatment for a brain tumor, children (particularly girls) may be more likely to underestimate peer relationship difficulties than healthy children. These discrepancies should be considered when obtaining self-report from survivors and developing interventions to improve social functioning.

Keywords

pediatric; brain tumor; self-perception; self-report; social behavior

Brain tumors are the second most common form of pediatric cancer and advances in diagnostic techniques and treatment protocols have led to 5-year survival rates that now approach 74%.¹ The sensitive location of these tumors, as well as the necessity for treatments that penetrate the central nervous system (CNS) increase risk for neurocognitive deficits and psychosocial difficulties. However, questions often arise about the best methods and sources of data to use when describing the outcomes of these children.²

Although self-report of psychosocial outcomes and quality of life are typically obtained in adult cohorts, information about children's functioning is often obtained from other sources. This may reflect challenges in data collection from children including concerns about the ability of children to provide accurate self-report data and the availability of reliable and valid child report measures. Self-report accuracy, or discrepancy from how one is perceived by others, is particularly concerning for children following treatment for a brain tumor due to the high possibility that children have experienced neurological and cognitive impairments.² Thus, experts recommend obtaining assessments of children from multiple sources and examining intersource agreement.³ Although studies examining intersource agreement typically analyze concordance or correlation between measures, an alternative strategy is to use discrepancy scores.³ Discrepancies between self and others' ratings of specific attributes have been used to examine variations in self-perception accuracy among typically developing children.⁴ While high levels of agreement between sources may increase confidence in children's self-report, it has been noted that diminished concordance does not necessarily suggest that one source is more valid than another; rather each source may provide unique, valuable contributions to the measurement of a particular construct. Systematic discrepancies in reports from different sources may help illustrate differences in perspectives or access to different domains of information that could inform education and intervention approaches. Using both concordance and discrepancies to examine accuracy may be useful in order to assess agreement between sources as well as the magnitude of differences between sources.

A key area of quality of life that is adversely affected for children treated for brain tumors is social behavior and acceptance in the peer group.^{5,6} However, we know little about brain tumor survivors' self-perceptions of their social competence and even less about the extent of concordance or discrepancies between self-perceptions and the reports of others. Some studies have reported consistent patterns of results using data provided by self and others' reports of social difficulties. For example, Aarsen and colleagues⁵ found that social problems were endorsed by parents, teachers, and children. Likewise, Vannatta et al.⁷ reported that brain tumor survivors were more socially isolated than comparison peers

according to peer, teacher, and self-report. However, in at least two studies, mothers of brain tumor survivors reported that their children had less social competence and more social problems than normative peers, but this was not reported by teachers and children themselves.^{8,9} These studies suggest that parents, particularly mothers, may over-report symptoms and difficulties, that brain tumor survivors may under-report problems, or that both may be true.

Typically developing children follow a predictable pattern of self-perception development. As children age, they are able to process more complex information which typically improves self-perception accuracy. During early to middle childhood (e.g., 5-8), children frequently provide inflated reports of abilities. However, by middle to late childhood, children begin to incorporate both positive and negative information regarding the self.¹⁰ Children use social comparison to assess their behaviors and competencies in reference to those of peers and integrate this information to develop more accurate and differentiated perceptions of themselves.^{10,11} By mid-adolescence self-perceptions become fairly stable. Self-perceptions may differ across domains for males and females but self-perception accuracy, or concordance between reports, may be similar for typically developing males and females.¹²

Pediatric brain tumors and their treatment (CNS-directed chemotherapy, cranial radiation, and neurosurgery, alone or in combination) may interfere with the development of these self-perception skills. Such treatments have been associated with neurocognitive deficits including declines in IQ, working memory deficits, slower processing speed, and attentional problems.¹³ Research also suggests that females may be at greater risk for neurocognitive impairments than their male counterparts.¹⁴ Neurocognitive deficits have been linked to underestimation of social problems in children with learning disabilities or attention deficit/hyperactivity disorder when compared to teacher or peer report.^{15,16} It is unclear, however, if pediatric brain tumor survivors demonstrate similar patterns of social self-perception or self-perception accuracy and if this may be more pronounced for females.

Methodologically, examination of either inter-source agreement or discrepancies are strongest when self and other report data are collected using parallel forms and the reporting source is carefully selected. When choosing “other” informants, the research question must take into consideration the reliability and validity of that source with respect to the domain assessed. Further, reductions in response biases may be achieved by using multiple informants rather than a single source when possible.³ When examining accuracy of self-perception for social behaviors, classmates may be the best informants regarding a child’s actual social behavior in the peer group. Classmates have more opportunity to interact with and observe a child in social settings compared to parents who most often observe behaviors at home, or teachers who may typically focus on behaviors related to academic performance. Information from a group of children may also give better insight into a child’s general behavior by reducing bias from any single observer.

The aim of this study was to examine the accuracy of social self-perceptions of children treated for brain tumors relative to demographically similar comparison classmates matched for gender, race, and age. Results from this data set have been reported elsewhere indicating

that brain tumor survivors and comparison classmates differed on multiple dimensions of social behavior; however, these differences were consistently found for peer reported data and not self-report.¹⁷ Peers reported that survivors demonstrated less leadership and popularity but more sensitive-isolated behaviors and victimization than comparison classmates. Our primary hypothesis was that brain tumor survivors' self-perceptions would be less accurate than those of comparison classmates. This was investigated by examining both levels of concordance and discrepancies between self and peer reports of social behavior. We expected that correlations between self and peer reports of specific dimensions of social behavior would be weaker for brain tumor survivors than comparison classmates and that the magnitude of discrepancies between self and peer reports would be greater for brain tumor survivors. We explored the direction of the inaccuracy, as well as factors (i.e., gender and IQ) which may be associated with self-perception accuracy. We expected that female survivors would demonstrate lower concordance and greater discrepancies than male survivors due to greater cognitive impairment as measured by IQ.

METHOD

Participants

This project was part of a larger multi-site study investigating psychosocial outcomes for pediatric brain tumor survivors and their parents. Data were obtained during school and home-based assessments with pediatric brain tumor survivors and healthy comparison classmates. Children were identified from tumor registries at four pediatric oncology centers and met the following criteria: (a) age 8-15 years, (b) diagnosed and treated for an intracranial tumor (c) 1-5 years post-treatment without evidence of active disease, and (d) residing within 100 miles of the medical center. Children were excluded if they: (a) were not fluent in English, (b) had a neurobehavioral disorder prior to diagnosis (e.g. neurofibromatosis or tubular sclerosis), or (c) were home-schooled or received full-time special education¹.

Of 175 eligible children, parents for 149 (85%) permitted contact with their child's school, and 121 (81%) schools agreed to participate in the school-based assessment. Complete data was available for 116 children. A majority of this sample was male (52%) and White (86%). At the time of school data collection, participants were an average age of 11.02 years ($SD = 2.20$) and 3.95 years ($SD = 1.78$) from diagnosis. Diagnoses included Astrocytoma (55%), PNET/Medulloblastoma (23%), Ependymoma (8%), Germ Cell (3%), Craniopharyngioma (6%), and other tumor types (5%). A comparison group was constructed that included one classmate of each brain tumor survivor. Class rosters were used to identify one classmate of the same gender and race who was closest in date of birth to each brain tumor survivor for inclusion in the comparison group. Children were not eligible for the comparison group if a parent indicated that they or another child in the home were undergoing treatment by a subspecialist for a chronic illness of at least 6 months duration. Screening for this exclusion criteria occurred when families were recruited for further assessments in the home. When a

¹Many self-contained special education classrooms have a small class size that may compromise the reliability and validity of the sociometric measures. However, children who received part-time special education services were included if they did not exclusively receive instruction in required academic subjects (e.g., English, math, social studies, science) in small, special education classes.

potential comparison family was ineligible or declined to participate, the family of the next closely matched classmate was recruited. Ninety-one percent of comparison classmates were the first, second, or third choice. Previous work using this method has constructed comparison groups that are similar to target groups on numerous demographic factors (e.g., family income, parental education).¹⁸ The final sample of comparison peers had an average age of 10.96 years ($SD = 2.19$), and the majority was male (52%) and White (87%).

Measures

Revised Class Play (RCP)—The RCP was developed as a peer-report measure of children's patterns of social behavior and interaction.¹⁹ Using a descriptive matching format, classmates were asked to "cast" their classmates into 42 roles of a hypothetical play. Of the 42 roles, 14 reflect positive behavioral attributes and 19 reflect negative behavioral attributes. Tallies of nominations received by each child for each role were computed. These item totals were converted to z scores ($M = 0$, $SD = 1$), within each class to adjust for uneven class sizes, gender composition, and participation rates. Four behavioral subscales: (a) Leadership-popularity (e.g., someone everyone listens to), (b) Prosocial (e.g., someone who helps others), (c) Aggressive-disruptive (e.g., someone who gets into fights a lot), and (d) Sensitive-isolated (e.g., someone who is often left out) are generated.²⁰ Three additional items were included to assess Victimization (e.g., someone picked on by other children) based on other work. Scale scores were created by summing the z scores for each of the roles loading on a behavioral dimension and then converting these totals to z scores. Given the variability of the number of items per scale, this procedure is beneficial in that it creates scale scores that have equivalent means and variances.

The RCP was administered within children's classroom during a regularly scheduled class period by a trained staff member. Participating children in the classroom were asked to imagine they were a director of a play and decide which boys or girls would best play each part in the play. During administration, children were given a class roster that listed all of the children who were the same gender as the brain tumor survivor. Single gender nominations were used to eliminate sex role stereotyping. Children were told that the same child could be cast in more than one role, but only one child could be chosen for each role. Each item was read aloud to the students by the staff member. Questionnaires were collected directly by the staff members upon completion and students' responses were never seen by the classroom teacher. After completion of the RCP, children were given a second RCP and were instructed to rate themselves on a 1-4 scale for each item, indicating how well they could play each role listed. Total scale scores were computed and standardized to mirror peer report scale scores. This self-report version provides data regarding children's self-perception of their social behaviors.

Wechsler Abbreviated Scale of Intelligence (WASI)—The WASI is a standardized measure of intelligence for individuals 6 to 89 years of age.²¹ The WASI consists of four subtests: Vocabulary, Block Design, Similarities, and Matrix Reasoning, which have a strong association with cognitive abilities. The test yields estimates of verbal, performance, and overall intelligence. For this study, full-scale intelligence scores (FSIQ) were used.

Procedures

Each child's primary oncologist or neurosurgeon sent a letter to the family describing the project. A research staff member then contacted the parents of each eligible pediatric brain tumor survivor by phone, explained the study, and requested permission to contact the child's school principal. Following parental agreement, each principal received a packet of information about the study and a follow-up call to answer questions and obtain permission to contact the child's teacher. Staff met with the primary teacher of elementary school students or one teacher of a required academic subject for students in middle or high school. Teachers were asked to send consent forms home to the parents of all classmates, including the target child. Of 5026 available classmates, 4390 or 87% returned consents. Trained staff members administered questionnaires in a fixed order during a group session for each classroom. To ensure that the medical history of each survivor was confidential, the study was described to the classroom as a project about children's friendships with no mention of brain tumors or chronic illness, the medical center, or the ill child. Following classroom data collection, families of pediatric brain tumor survivors and comparison classmates were recruited to participate in a home-based assessment where WASI Full Scale IQ scores were obtained. Not all children who participated in the school data collection completed home data collection due to progression of disease or refusal. Therefore, analyses involving IQ scores have fewer participants.

Analysis Plan

Pearson correlations were computed between self and peer report of each social behavior subscale to investigate agreement, or concordance, between sources. Correlations were computed separately for pediatric brain tumor survivors and comparison peers and then again separately for males and females within each group. Correlation coefficients were converted to Fischer Z scores and z statistics examined differences in the strength of correlations for subgroups of children. To examine systematic biases in social self-perceptions, a discrepancy score was calculated by subtracting z scores for peer report from self-report on each behavioral subscale for survivors and comparison peers. Positive discrepancy scores suggested an overestimation of a behavioral attribute, while negative discrepancy scores suggested an underestimation. Two-tailed, independent *t*-tests ($\alpha = .05$) compared mean discrepancy scores for brain tumor survivors and comparison classmates.

Hierarchical regression analyses examined whether gender moderated the association between group (i.e., survivors vs. comparison) and discrepancy for each RCP subscale by entering group, gender and the group X gender cross product as predictors of each discrepancy score. For significant interactions, post-hoc analyses were conducted to determine whether simple slopes, or associations of group and the discrepancy score, were significantly different from zero for boys and girls.²² This procedure was conducted utilizing the SPSS macro "MODPROBE" provided by Hayes and Matthes.²³ Next, a series of hierarchical regressions examined whether FSIQ mediated group differences in discrepancy scores, and post-hoc tests were conducted using bootstrapping procedures.²⁴ Lastly, mediated moderation models were run using the SPSS macro "INDIRECT" to examine whether differences in FSIQ accounted for the moderating effect of gender (i.e., variability in self-perception discrepancies that were associated with the interaction of group

and gender).²⁵ To do this, the interaction of group X gender was entered as an independent variable, with the main effects of group and gender as covariates. Discrepancy scores were entered as the dependent variable and FSIQ was entered as the mediator. Bootstrapping (5,000 samples) was again used to estimate whether there was a significant indirect effect of the group X gender interaction on self-perception discrepancy scores via FSIQ scores.

RESULTS

Evaluation of concordance between self and peer report of social behavior

Correlations between self and peer report of social behavior, as well as statistical tests examining differences in correlations, are presented in Table 1. Correlations were similar between brain tumor survivors and comparison peers for subscales measuring Leadership-popularity, Sensitive-isolated, and Prosocial behavior. In contrast, correlations between self and peer report of Aggressive-disruptive behavior were weaker for survivors than comparison peers, while correlations between self and peer report of Victimization were stronger for survivors than comparison peers. The same pattern of differences was found between survivors and comparison peers for girls but not boys. Female survivors also demonstrated lower correlations for Prosocial behavior than comparison females.

Evaluation of discrepancies between self and peer report of social behavior

Discrepancy scores for brain tumor survivors and comparison peers did not differ for the Prosocial, and Aggressive-disruptive subscales (Table 2). In contrast, brain tumor survivors were more likely to overestimate their level of Leadership-popularity relative to comparison peers. Brain tumor survivors also significantly underestimated their levels of Sensitive-isolated behaviors and Victimization relative to reports provided by peers.

Gender did not moderate group differences in discrepancy scores for the Leadership-popularity, Prosocial, or Aggressive-disruptive subscales (Table 3). Gender did moderate the association between group and discrepancy scores for the Sensitive-Isolated and Victimization subscales. Post-hoc analyses indicated that girls treated for brain tumors were significantly more likely to underestimate the degree to which they demonstrated these behaviors than boys treated for brain tumors.

Mediation of group differences in self-perception discrepancies by child IQ²

Full scale IQ scores were significantly different for pediatric brain tumor survivors ($M = 100.09$, $SD = 14.83$) and comparison peers ($M = 104.87$, $SD = 14.13$), $t(192) = -2.30$, $p = .02$, $d = -.33$. Gender did not moderate the association between group and IQ (R^2 change = .00, $F(3, 190) = 1.86$, $p = \text{ns}$). IQ was significantly correlated with discrepancies for the Sensitive-Isolated subscale ($r(192) = 0.14$; $p < .05$), but not with subscales measuring Leadership-popularity ($r(192) = -0.13$; $p = \text{ns}$), Prosocial behavior ($r(192) = -0.09$; $p = \text{ns}$), Aggressive-disruptive behavior ($r(192) = 0.08$; $p = \text{ns}$), or Victimization ($r(157) = 0.05$; $p = \text{ns}$).

²Full Scale IQ scores were gathered at home visits and were available for 101 survivors and 93 comparison children.

Bootstrapping indicated that FSIQ did not mediate group differences in discrepancies in self and peer report on any of the five behavioral subscales as all bootstrapping confidence interval estimates included zero. Furthermore, analyses indicated that IQ did not account for the moderating effect of gender on group differences in self-perception accuracy. All bootstrapping confidence interval estimates included zero.

DISCUSSION

Given the importance of peer relationships and the inconsistencies in reports of social deficits for children with cancer, we examined the accuracy of social self-perceptions among pediatric brain tumor survivors.^{8,9} By using parallel forms of the same sociometric measure for self and peer reports, we were able to calculate a discrepancy score which allowed us to determine whether survivors underreport or overreport specific social behaviors (both positive and negative) relative to peers. Because some inaccuracy in self-perception is developmentally appropriate, we utilized a sample of comparison classmates to understand the potential for inaccuracy above and beyond what is normal during childhood and adolescence.

Discrepancies between self and peer report differed for three of the five behavioral subscales (i.e., Leadership-popularity, Sensitive-isolated, Victimization). Specifically, comparison peers underestimated their levels of popularity and leadership, while survivors overestimated, to a greater degree, their levels of popularity-leadership. This suggests that survivors perceive themselves as capable of leadership and popularity to a greater degree than classmates perceive survivors as demonstrating these behaviors. Further, brain tumor survivors significantly underestimated their level of isolation and victimization behaviors relative to classmates' perceptions while comparison peers overestimated their level of these behaviors relative to classmates' perceptions. Interestingly, survivors underestimated to a greater degree than comparison peers overestimated. This is consistent with prior literature suggesting brain tumor survivors may under-report their social or emotional difficulties relative to others' observations.^{8,9,26}

Although both boys and girls treated for brain tumors underestimated their levels of sensitivity and isolation and victimization, the degree of underestimation was much greater for girls. Although discrepancies were not significantly different for aggressive and prosocial behaviors, correlations for these domains were quite low for girls treated for brain tumors relative to their comparison counterparts. These results are consistent with our hypothesis that girls treated for brain tumors may be less accurate than boys in reporting their social behaviors. The hypothesis that this gender difference would be due to greater neurological insult for girls as measured by IQ was not confirmed. IQ scores were not significantly associated with discrepancies and lower IQ did not account for variability in self-perception biases. Furthermore, while survivors and comparison classmates differed in IQ, the difference was not significantly greater for girls participating in this study. While we found that girls treated for brain tumors were less accurate than boys treated for brain tumors, it noted that in the developmental literature some have found no gender differences in self-perception accuracy while others have found girls to be more accurate than boys.^{11,12,27}

Taken together, the differences found on leadership and popularity, sensitivity and isolation, and victimization suggest that pediatric brain tumor survivors perceive themselves more positively than they are perceived by peers, and this was particularly the case for girls, rather than boys. It is possible that these findings are a consequence of the information survivors reported rather than inaccuracies in self-perception. That is, these positive reports may reflect an attempt to protect the self rather than leaving the self vulnerable to considering the consequences of diminished social behavior or social standing. Thus, children may prevent experiencing distress by underreporting social deficits. On the other hand, it is possible that survivors' reports are consistent with the suggestion that children with cancer demonstrate resilience through a repressive adaptive style which can lead to presenting one's self in a positive light.²⁸

There are other alternative explanations. Inaccurate reports may be a true representation of survivors' perceptions of their social behaviors suggesting that survivors, particularly girls, do not recognize negative peer interactions to the degree they are perceived by outside observers. This may indicate that some aspect of social information processing may not be functioning optimally for survivors, or that brain tumor treatment may have a detrimental impact on the typical development of self-perception. Survivors may not correctly incorporate social feedback from others or they may have deficits in the ability to attend to social cues that may contribute to self-understanding. Interestingly, some degree of self-awareness was suggested by the relatively high correlations between peer and self report on these dimensions for survivors. In fact, brain tumors survivors in general, and girls in particular, demonstrated stronger concordance between self and peer report on victimization and sensitive-isolated behavior than comparison classmates. These findings suggest that survivors are self-aware to a point, but simultaneously have a systematic bias or tendency to inflate self-report. Self-report of functioning could be useful for describing variability among survivors, but caution may be warranted when comparing actual values of self-report ratings to other groups including instrument norms.

There are limitations to the current study. First, a brief IQ test was used as a proxy for neurocognitive functioning. Core neurocognitive deficits such as working memory, processing speed, and executive functioning which are known areas of weakness and deficit among brain tumor survivors were not examined and would require more comprehensive neuropsychological testing. The discrepancies in self-perception we found are not fully explained by the factors we examined (gender, IQ). In order to understand these phenomena better, it is recommended that other variables such as social cognition, neurocognition (e.g., working memory, processing speed, or executive functioning), and repressive adaptive styles also be assessed. Finally, some survivors were excluded from the current study if they were not attending school or mainstreamed. Therefore this data may not reflect self-perception accuracy in a subgroup of survivors, particularly those who may have greater difficulties. In addition, other factors which may impact children's social interactions and experiences such as physical changes resulting from treatment, late effects and physical disabilities requiring ongoing treatment and absences from the classroom may also contribute to the development of accurate self-perceptions.

In sum, children who had undergone treatment for a brain tumor overestimated their level of Leadership-popularity and underestimated levels of Sensitive-isolated behaviors and Victimization relative to comparison classmates. Female survivors were more likely to underestimate their degree of sensitivity and isolation and victimization than male survivors. On the positive side, these self-perceptions may prevent distress. However, interventions with goals to modify social behaviors may be a challenge if participants do not recognize or identify social deficits. Future research should identify potential explanations for inaccurate self-perceptions among survivors. It is also necessary to determine whether self-perceptions can be modified, and whether modification would be beneficial or harmful to these children. It may also be helpful to determine if inaccurate self-perceptions may, in fact, interfere with intervention. Finally, it would be interesting to examine whether discrepancy between self and other report occurs in other domains of functioning for pediatric brain tumor survivors, such as mental health or academic achievement. The association between social self-perception accuracy and other social outcomes such as acceptance and friendship would also be of interest. Finally, identifying potential treatment-related causes of variation in self-perception accuracy would allow us to better understand which children may be at greatest risk for such difficulties.

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Table 1

Correlations between self and peer report of social behavior for pediatric brain tumor survivors (BT) and comparison peers (CP)

RCP^I Subscale	BT	CP	Z	p
Leadership-Popularity				
Males	.27*	.24	0.17	.43
Females	.26	.34*	-0.45	.33
Total Sample	.27**	.29**	-0.16	.44
Prosocial				
Males	.16	.08	.43	.33
Females	.02	.34*	-1.70	.04
Total Sample	.10	.22*	-0.92	.18
Aggressive-Disruptive				
Males	.25	.41**	-0.96	.17
Females	.00	.55**	-3.17	.00
Total Sample	.13	.49**	-3.03	.00
Sensitive-Isolated				
Males	.55**	.42**	0.91	.18
Females	.40**	.32*	0.47	.32
Total Sample	.44**	.38**	0.63	.27
Victimization				
Males	.51**	.45**	0.38	.35
Females	.66**	.23	2.56	.01
Total Sample	.58**	.34**	2.09	.02

^I RCP = Revised Class Play

* $p < .05$;

** $p < .01$

Table 2

Discrepancy scores for pediatric brain tumor survivors (BT) and comparison peers (CP)

	Discrepancy scores (Self-Peer report) ^c			
RCP Subscale	BT <i>M ± SD</i>	CP <i>M ± SD</i>	<i>t</i> ^a	<i>d</i> ^b
Popular-leadership				
Males	0.25 ± 1.11	-0.24 ± 1.10	2.39*	0.44
Females	0.25 ± 1.06	-0.07 ± 1.12	1.54	0.29
Total Sample	0.25 ± 1.08	-0.16 ± 1.11	2.80**	0.37
Prosocial				
Males	-0.13 ± 1.25	-0.16 ± 1.21	0.13	0.02
Females	0.06 ± 1.26	0.00 ± 1.15	0.30	0.06
Total Sample	-0.04 ± 1.25	-0.09 ± 1.18	0.31	0.04
Aggressive-disruptive				
Males	0.10 ± 0.99	0.07 ± 0.97	0.18	0.03
Females	0.01 ± 1.07	-0.09 ± 0.95	0.53	0.10
Total Sample	0.06 ± 1.03	-0.01 ± 0.96	0.50	0.07
Sensitive-isolated				
Males	-0.32 ± 1.00	0.16 ± 0.95	-2.72**	-0.50
Females	-0.94 ± 1.25	0.20 ± 1.02	-5.28***	-1.01
Total Sample	-0.62 ± 1.16	0.18 ± 0.98	-5.67***	-0.75
Victimization				
Males	-.26 ± .97	.05 ± .94	-1.61	-0.32
Females	-.85 ± 1.04	.17 ± 1.23	-4.25***	-0.90
Total Sample	-.54 ± 1.04	.11 ± 1.08	-4.20***	-0.61

RCP = Revised Class Play

^a Degrees of freedom = 227 – 228 for Total Sample except for Victimization in which degrees of freedom = 187.^b Effect sizes represented with Cohen's *d*.^c Represents discrepancy between self-reported and peer reported z scores.* $p < .05$;** $p < .01$;*** $p < .001$

Table 3

Hierarchical Multiple Regression Analyses Examining Gender as a Moderator of Group Differences in Discrepancy Scores

Dependent variable: RCP Subscale discrepancy scores ^c	<i>R</i>	<i>R</i> ²	Step	Predictor	Beta ^a	Beta ^b
Leadership-popularity	.19*	.04	1	Group Gender	-.18** .04	-.22* .00
	.19	.00	2	Group × Gender		.06
Prosocial	.08	.01	1	Group Gender	-.02 .07	-.01 .08
	.08	.00	2	Group × Gender		-.01
Aggressive-disruptive	.07	.01	1	Group Gender	-.03 -.07	-.02 -.05
	.08	.00	2	Group × Gender		-.03
Sensitive-isolated	.37***	.14***	1	Group Gender	.35*** -.13*	.21* -.27**
	.40*	.02*	2	Group × Gender		.25*
Victimization	.31	.10***	1	Group Gender	.29*** -.10	.14 -.27**
	.35	.03*	2	Group × Gender		.27*

Note: RCP = Revised Class Play

^aStandardized beta weights for step 1.

^bStandardized beta weights for step 2.

^cRepresents discrepancy between self-reported and peer reported z scores.

*
 $p < .05$,

**
 $p < .01$,

 $p < .001$