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EXAMINING THE ASSOCIATION BETWEEN PEER REJECTION, LONELINESS, AND DEPRESSIVE SYMPTOMS IN CHILDREN AND ADOLESCENTS

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ABSTRACT

Although positive peer relations play a significant role in children's development, not all children are accepted by peers. Unfortunately, peer rejection can have a tremendous negative impact on children's lives and future adjustment. Secondary to peer rejection, this study examines the experience and stability of loneliness as reported by children and adolescents, as well as the connection between loneliness and the presence of depressive symptoms. Further, the study examines how different rejected children, those who are withdrawn as compared to those who are aggressive, vary in their experience of loneliness and depression. Results indicate that withdrawn, rejected children reported a higher degree of loneliness than aggressive rejected children over time. Results also support the connection between loneliness and depression.

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INTRODUCTION

The early school years are a critical period in a child's social development. As children increase their interactions with peers, they develop important social skills that set the stage for managing future relationships and adjustment. Peer relationships also promote the development of cognitive skills and self-concept (Parker, Rubin, Price, and DeRosier, 1995). Unfortunately, some children lack positive peer relationships and thus do not acquire the benefits of socializing with peers who accept them. Negative peer experiences may have damaging outcomes such as internalizing (Deater-Deckard, 2001; Rubin, LeMare, and Lollis, 1990; Rubin, Bukowski, and Parker, 1998) and externalizing behavior problems (Parker *et al.*, 1995). Rejection by peers can also negatively influence school attitude, achievement, and attendance (Birch and Ladd, 1996; Ladd, 1990; Ollendick, Weist, Borden, and Greene, 1992). Despite substantial research supporting the influence of peer rejection upon children's adjustment, the underlying processes of this relationship are less understood. In order to better understand why some children and adolescents are

impacted by peer rejection more than others, some researchers have considered the internal personal experiences of peer rejection. For example, internalizing behaviors (i.e., shyness, social withdrawal, and depression) have been found to contribute to peer rejection (Boivin, Poulin, and Vitaro, 1994; Rubin, 1990). Yet, internalizing problems such as loneliness and depression may also result from peer difficulties (Boivin, Hymel, and Bukowski, 1995; Parker *et al.*, 1995). The experience of loneliness may explain why children and adolescents react to rejection differently (Fontaine *et al.*, 2009). Children as young as five and six years of age have been found not only to possess an understanding of loneliness, but also to report experiencing it (Asher, Parkhurst, Hymel, and Williams, 1990). Despite the presence of loneliness at such a young age, few studies have examined the stability of loneliness in children and adolescents. Some studies have found a direct relationship between loneliness and depressive symptoms in children and adolescents (Boivin *et al.*, 1995; Fontaine *et al.*, 2009). Therefore, depression may be a potential outcome of a child who experiences loneliness over a long period of time. Due to the evidence that depression has been found to occur among young people (Birmaher *et al.*, 1996a; Garber, 2000), actually increasing with each successive generation (Birmaher, Brent, and Benson, 1998), further

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examination of the interrelationship between peer rejection, loneliness, and depression in children and adolescents is warranted.

Children's Peer Acceptance

Peer acceptance is the degree to which a child is liked or accepted by peers (Rubin, *et al.*, 1998). Several sources can be utilized to determine a child's status among peers, including peer, parent, and teacher rating scales. However, rating scales may yield incomplete data regarding a child's peer status, and as such, observational data is also important to consider (Ladd, Price, and Hart, 1988). Over the years, various classification systems have been developed to categorize children's peer acceptance (Coie and Dodge, 1983; Coie, Dodge, and Coppotelli, 1982). The most common categories for defining peer status are popular, rejected (aggressive or withdrawn), neglected, and controversial. Popular children are most liked by peers, possessing positive social traits, social actions, and social interactions (Newcomb, Bukowski, and Pattee, 1993). Popular children are sociable, cooperative, helpful, and possess leadership skills (Rubin *et al.*, 1998). In contrast, socially rejected children are disliked by peers (Coie *et al.*, 1982). They are often characterized as either aggressive or withdrawn (Boivin *et al.*, 1995). Aggressive rejected children are easily identified due to their negative and aggressive behavior toward other children (Coie, 1990). Withdrawn rejected children may be rejected by peers for various reasons, such as atypical characteristics, social anxiety, and immature and insensitive behavior (Bierman, 2004). The withdrawn rejected group tends to experience internalizing problems (Deater-Deckard, 2001; Rubin *et al.*, 1990; Rubin *et al.*, 1998), and have lower self-concepts than non-rejected peers (Vershueren and Marcoen, 2002).

Rejected children have difficulty improving their peer status (Coie and Dodge, 1983; Newcomb and Bukowski, 1983) and as such, maintain their status over years (Ollendick, *et al.*, 1992). Children are considered neglected by their peers when they are considered neither liked nor disliked (Coie *et al.*, 1982; Margolin, 2001). Neglected children tend to be less sociable, aggressive, and disruptive than other children (Newcomb *et al.*, 1993). They do not appear to be depressed about their status (Crick and Ladd, 1993; Newcomb *et al.*, 1993) and are not reported to experience adjustment problems (French and Waas, 1985; Rubin *et al.*, 1990). Children who appear to have qualities of both rejected and popular children are considered to be controversial (Rubin *et al.*, 1998). Although they appear to possess the social skills similar to those of popular children (i.e., helpful, sociable, cooperative; Coie and Dodge, 1988), controversial children can also be disruptive, aggressive, and easily angered, often requiring reprimands from adults (Coie, Dodge, and Kupersmidt, 1990).

Peer Relationship Problems

The exact cause of peer relationship problems is often difficult to determine (Parker *et al.*, 1995). Rejected children may lack or not utilize pro-social and cooperative behaviors (Bierman, 2004). Instead, this group may engage in aggressive and disruptive behavior that drives peers away and spurs peer rejection (Campbell, 2002). Children are also rejected when they behave immaturely, by whining, pouting, or depending on adults too much (Bierman, 2004).

The cause of the social difficulty can be associated with various disorders (i.e., Pervasive Developmental Disorders, Attention-Deficit/Hyperactivity Disorder [ADHD], and Conduct Disorder), in which poor social skills may drive peers away (Parker *et al.*, 1995), atypical characteristics including physical disabilities, minority status (Coie *et al.*, 1982), or being the new child in the classroom/neighborhood. Family strains, such as socioeconomic status, parental unemployment, marital conflict, and parental psychopathology can impact parent and child interactions, which in turn can influence the children's peer interactions (Parker *et al.*, 1995). These difficulties can combine to comprise a cycle of peer rejection. Bierman (2004) describes several scenarios that can result in a cycle of peer rejection. For example, the initial teasing of a rejected child can provoke negative reactions, such as becoming aggressive. The aggressive behavior may then put an end to the teasing, thereby reinforcing the use of aggression by the rejected child. Secondly, peers may limit the social opportunities available to rejected children, hindering their ability to develop important social skills necessary for positive peer interactions. In this model, rejected children may be forced to interact with peers of similar status who may not be good role models (Bierman, 2004). Thirdly, peers develop reputational biases about rejected children that influence how others treat and perceive these children's behavior. As a result of negative reputations, rejected children may be ignored (Dodge, 1983; Hymel, Wagner, and Butler, 1990) or become the victims of verbal and physical aggression (Perry, Kusel, and Perry, 1988).

Some rejected children may feel uncomfortable around peers and become unmotivated or feel a lack of confidence in approaching and interacting with others (Bierman, 2004). Indeed, a child's self-esteem and self-confidence can also suffer as a result of peer difficulties (Hartup, 1992). Furthermore, children with poor peer relations and negative social reputations have been shown to report lower self-confidence (Coie, 1990), and less social competence than more accepted children (Bierman, 2004). Beyond social distress, peer rejection may lead to significant symptoms of internalizing problems (Rubin *et al.*, 1990) such as loneliness, anxiety, or depression (Boivin *et al.*, 1995; Parker *et al.*, 1995). These problems tend to occur more often in rejected girls (Bell-Dolan, Foster, and Christopher, 1995) and withdrawn, rejected children (Deater-Deckard, 2001; Rubin *et al.*, 1998). As children age, peer rejection may also lead to externalizing problems such as substance abuse and delinquency (Parker *et al.*, 1995). Importantly, peer problems across the development period can decrease school interest (Birch and Ladd, 1996), school attendance (Ladd, 1990), and grades, and result in school dropout (Ollendick *et al.*, 1992; Parker *et al.*, 1995).

Loneliness

Although loneliness was once thought to be only experienced by adolescents and adults, researchers have provided evidence that children understand and suffer from loneliness (Asher *et al.*, 1990; Cassidy and Asher, 1992). For instance, Asher, Hymel, and Renshaw (1984) found that at least 10% of elementary school aged children reported feeling lonely either always or most of the time. Despite this alarming finding, few studies have examined loneliness in children aged 6 to 10 (Berguno, Leroux, McAinsh, and Shaikh, 2004). The causes of

loneliness are likely many; among these, loneliness may stem from having few or no friends, suffering the loss of a significant person, rejection, low social acceptance, and difficulty making friends (Asher and Paquette, 2003; Asher *et al.*, 1990; Parker and Asher, 1993). Rejected children express greater loneliness than children who belong to other peer status groups at various ages (Asher *et al.*, 1984; Asher *et al.*, 1990; Asher and Wheeler, 1985; Cassidy and Asher, 1992; Crick and Ladd, 1993; Parkhurst and Asher, 1992). Differences in loneliness among rejected children may be attributed to factors such as the degree and chronicity of rejection, presence of friends, attributions regarding the rejection, and willingness to admit feelings of loneliness (Asher *et al.*, 1990). Withdrawn rejected children tend to report greater loneliness than aggressive rejected children (Boivin and Hymel, 1997; Patterson, Kupersmidt, and Griesler, 1990). Lonely children may experience feelings of sadness, malaise, boredom, and alienation (Bullock, 1998). They tend to believe that they caused their peer difficulties (Hymel and Franke, 1985), so their self-esteem may suffer (Bullock, 1998). They may also feel helpless and become hopeless regarding being able to change their peer difficulties (Hymel and Franke, 1985), which may deprive them of the benefits of peer interactions and relationships (Bullock, 1998). Lastly, lonely children may begin experiencing depressive symptoms (Boivin *et al.*, 1995).

Depression in Childhood and Adolescence

The mean age of onset for depression is approximately eleven years (Kovacs, Obrosky, Gatsonis, and Richards, 1997), and the rate increases as children enter adolescence (Fleming and Offord, 1990). Although most children and adolescents recover from their depression within eight to nine months (Kovacs *et al.*, 1997; McCauley *et al.*, 1993), there is a high probability of recurrence (Kovacs, 1996; Lewinsohn, Clarke, Seeley, and Rhode, 1994; McGee and Williams, 1988; Sanford *et al.*, 1995). There are many theories regarding the etiology of depression in children and adolescence. Genetic, psychopathological, familial factors (e.g., parental psychopathology, early-onset mood disorders), and psychosocial factors (e.g., poor support, stressful life events) have all been linked with depression (Birmaher *et al.*, 1996a; Garber, 2000). However, regardless of the cause of depression, social and emotional development may be stunted and relationships with others may be influenced negatively (Birmaher *et al.*, 1998).

Gender Differences

Although both males and females report the experience of peer rejection, loneliness, and depression, there are differences noted in the literature. For example, Wood, Cowan, and Baker (2002) examined rejection-sensitivity in boys and girls. Girls who were considered to be high on rejection-sensitivity and were experiencing concurrent peer rejection tended to blame themselves for the rejection. Girls tended to eliminate aggressive responses from their behavioral repertoire and adapt their behavior to garner acceptance from their peers. In contrast, boys high on rejection-sensitivity experiencing peer rejection tended to blame their peers. These boys displayed more hostile behaviors than girls, hypothesized to be a protective reaction aimed at the peers who disliked them

(Wood *et al.*, 2002). Some researchers argue that these differences are simply an over-response of stereotyped gender-specific behaviors. For example, behaviors such as withdrawal are regarded favorably by females, while behaviors like aggression and hostility, in certain contexts, can be perceived as acceptable by males (Wass and Graczyk, 1999). Furthermore, females view their same-gender peers unfavorably when their behaviors are aggressive or disruptive. Conversely, males view their same-gender peers negatively when they show anxious and depressive reactions (Wass and Graczyk, 1999). Thus, each sex tends to respond negatively to gender-atypical behaviors.

Loneliness also may be experienced differently by males and females. For example, Junttila and Vauras (2009) examined two types of loneliness: social isolation (the feeling of not belonging to a social group) and emotional loneliness (the feeling of not having an emotional and intimate relationship with another person). When comparing youth in the fourth and fifth grades, these researchers found that males reported more emotional loneliness than their female peers. Social loneliness, however, was reported to be the same in both groups (Junttila and Vauras, 2009). Finally, there are differences in depression that is noted between male and female children. When considering time-invariant (stable overtime) and time-varying (situational changes) symptoms of depression, females in grades 4-7 showed more time-invariant patterns of depression as compared to males, who presented with greater time-varying depressive patterns. However, regardless of early depressive patterns, once a child reaches adolescence, he or she tends to experience ongoing symptoms that occur in lengthy time intervals. Diamantopoulou, Verhulst, and van der Ende (2011) found that the trajectory of depression appears to be similar for adolescent males and females when the symptoms began at age 11. However, these investigators found that females' trajectories increased at a higher rate and decreased at a slower rate than males.

Current Study

The current study examines the connection between peer rejection, loneliness, and depressive symptoms. First, we will measure the stability of loneliness across developmental periods (e.g., childhood, middle childhood, and adolescence). Then we will determine if there are sex differences and if the rejection group status (e.g., withdrawn or aggressive) produce different results. It is expected that loneliness will persist and increase over time, and that significant differences will be observed between aggressive rejected and withdrawn rejected groups. Specifically, it is hypothesized that withdrawn rejected children will experience greater loneliness than aggressive rejected children. Additionally, the role of sex differences is considered. Second, we examine the relationship between loneliness and depressive symptoms. Specifically, are loneliness scores from early childhood and middle childhood predictive of middle childhood or adolescent depression? It is predicted that participants who experience loneliness will also report depressive symptoms.

MATERIALS AND METHODS

Participants

Datasets from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care

(SECC) was used in the analyses. These data were collected through a variety of methods (e.g., trained observers, interviews, testing, questionnaires) to examine children’s social, emotional, intellectual, and language development as well as their physical health. Participants were followed from birth to adolescence and their development was measured at various intervals. A full description of the sampling and recruitment procedures is available at <http://www.nichd.nih.gov/research/supported/seccyd.cfm>; initially 1364 families with full-term healthy newborns were recruited for the study. At the conclusion of the study, 958 adolescents were still involved, which is approximately 70% of the original sample. Of this group, only 720 of these participants had complete data regarding the current study’s variables. In this study, only participants who were considered to be “rejected” on the Sociometric Status: Teacher Rating Scale were included in this analysis. Thus, the final sample for the current study was comprised of 21 participants, in which 67% are males ($n = 14$) and 34% are females ($n = 7$). The ethnicity breakdown of the selected participants was as follows: African American (19%), Caucasian (76%), and Other (4.8%). The aggressive rejected group consisted of 54% males ($n = 7$) and 46% females ($n = 6$). The withdrawn rejected group contained 87% males ($n = 7$) and 12% females ($n = 1$). Table 1 contains the overall means and standard deviations of the groups for the study’s variables. Gender differences in the means and standard deviations are illustrated in Table 2.

grade) and a test-retest coefficient of .55 over one year (Asher et al., 1990).

Sociometric Status: Caregiver and Teacher Ratings

The Sociometric Status: Caregiver and Teacher Ratings (SSCTR; Cillessen, Terry, Coie, and Lochman, 1992) measures a child’s social position among peers and aggressive behavior. The teacher/caregiver is asked to indicate the number of votes the child would receive from peers for being liked, disliked, and for aggression. In addition, the teacher/caregiver is asked to classify children by socio metric group (popular, rejected, neglected, controversial, average). While peer data is generally preferred to judge a child’s socio metric status, this rating system uses adults’ perceptions of a child’s peer acceptance or rejection, which provide adequate convergent validity with peer reports of rejection ($r = .38, p < .001$) and acceptance ($r = .49, p < .001$; Cillessen et al., 1992).

Children’s Depression Inventory (Short Form)

The Children’s Depression Inventory (Short Form-CDI-S; Kovacs, 1992) is a 10-item measure that is based on the 27-item self-report scale that assesses the cognitive, affective, and behavioral signs of depression in school age children and adolescents from seven to seventeen years of age. The condensed version, which measures dysphoric mood, lack of

Table 1. Means and Standard Deviations for Dependent Variables

Measure	Total ($n = 21$)		Aggressive ($n = 13$)		Withdrawn ($n = 8$)	
	Mean	SD	Mean	SD	Mean	SD
Loneliness Grade 3	32.86	9.65	30.23	7.28	37.13	11.89
Loneliness Grade 5	33.52	9.42	31.00	7.46	37.63	11.26
Loneliness Age 15	33.00	10.89	28.38	10.20	40.50	7.54
Depression Grade 5	1.76	1.30	1.23	1.01	2.63	1.30
Depression Age 15	3.05	2.18	2.00	1.47	4.75	2.12

Table 2. Means and Standard Deviations for Dependent Variables by Rejection Group and Gender

Measure	Aggressive				Withdrawn			
	Male ($n = 7$)		Female ($n = 6$)		Male ($n = 7$)		Female ($n = 1$)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Loneliness Grade 3	30.29	8.36	30.17	6.59	34.29	9.46	57.00	--
Loneliness Grade 5	31.14	7.82	30.83	7.76	38.57	11.82	31.00	--
Loneliness Age 15	30.14	12.27	26.33	7.74	39.86	7.90	45.00	--
Depression Grade 5	1.14	.69	1.33	1.37	2.86	1.21	1.00	--
Depression Age 15	1.86	1.07	2.17	1.94	4.43	2.07	7.00	--

Measures

Loneliness and Social Dissatisfaction Questionnaire

The Loneliness and Social Dissatisfaction Questionnaire measure (LSDQ) was designed to assess “social distress” in elementary school students (Asher et al., 1984). The twenty-four items (16 principal, 8 filler) are rated from 1 to 5 (1 = not at all true to 5 = always true). Principal items assess children’s feelings of loneliness (e.g., "Are you lonely?"), feelings of social adequacy versus inadequacy (e.g. "Are you good at working with other kids?"), and subjective estimations of peer status (e.g., "Do you have a lot of friends?"). The fillers pertained to hobbies or preferred activities. The items that comprise the loneliness score were found to have high internal reliability (Cronbach’s alpha = .87 at 3rd grade and .91 at 5th

pleasure, and low self-esteem, is based on the ten best discriminating and most internally consistent items from the longer twenty-seven item form. Requiring only a first grade reading level, the inventory contains ten items that has three options. The child is asked to read each option and select the choice that best describes his or her feelings or behavior over the past two weeks. This inventory, which claims to measure a child’s state and not a depressive trait, reports strong test-rest reliability when the test is given between one and three weeks apart ($r = .87$ at one week interval, $r = .82$ at two week interval, and $r = .83$ at three week interval). This measure has also been shown to possess good discriminant validity, as the CDI was able to distinguish between a clinically-depressed sample and a normative group, $F(1,1397) = 11.85, p = .0006$; Kovacs, 1992).

Table 3. Correlation Matrix for Loneliness and Depression Variables

Measure	1	2	3	4	5
1 Loneliness Grade 3	--				
2 Loneliness Grade 5	.379	--			
3 Loneliness Age 15	.252	.568**	--		
4 Depression Grade 5	.352	.538*	.342	--	
5 Depression Age 15	.398	.313	.689**	.251	--

* $p < .05$, ** $p < .01$ **Table 4. Range, Skewness, Kurtosis Values for Loneliness and Depression Variables**

Measure	Range	Skewness		Kurtosis	
		Value	Standard Error	Value	Standard Error
Loneliness Grade 3	17-57	.868	.501	.790	.972
Loneliness Grade 5	16-57	.603	.501	1.039	.972
Loneliness Age 15	16-50	-.229	.501	-1.046	.972
Depression Grade 5	0-5	1.092	.501	.859	.972
Depression Age 15	0-8	.670	.501	-.099	.972

Teacher Report Form

The Teacher Report Form (TRF; Achenbach and Rescorla, 2001) is a common measure used to gather teachers' input on a child or adolescent's social and emotional functioning. The scale, comprised of 113 items, can be used for children aged six to eighteen. Teachers are asked to rate each behavior on a scale from 0 (not true of child) to 2 (very true of the child) based on the child's behavior over the past two months. T-scores are calculated for eight Syndrome scales (Withdrawal, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior). This measure has been found to have strong test-retest reliability ($r = .90$). The inter-rater reliability of the measure is also satisfactory, as the reports of students' general education and special education teachers were significantly correlated ($r = .60$, $p < .05$; Achenbach and Rescorla, 2001).

Research Design

The current study aimed to better understand the impact of peer rejection on children and adolescents by examining peer acceptance, loneliness, and depressive symptoms. Data from Phase II, III, and IV of the NICHD SECC were utilized to examine these variables. Peer acceptance information was obtained from results of the Socio metric Status rating scale given to participants' teachers in second grade. Each participant's loneliness was measured by the Loneliness and Social Dissatisfaction Questionnaire administered in grades three and five as well as at age fifteen. The presence of depressive symptoms was assessed from information gathered from the Children's Depression Inventory- Short Form (administered in fifth grade and at age fifteen). Table 1 provides a visual representation of the study's variables as well as how they were measured.

Procedures and Data Analysis

After Institutional Review Board approval, a de-identified dataset from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care (SECC) was used in the analyses. Prior to conducting the statistical analyses, several statistical tests were used to ensure that the

assumptions associated with the ANOVA, ANCOVA, and multiple regression analyses were met. According to Stevens (2002), data used for an ANOVA must have independent observations, normality, homogeneity of variance, and sphericity. The same assumptions must also be met for the ANCOVA, as well as three other important assumptions: the independent variable must not affect the covariate, the dependent variable and covariate should have a linear relationship, and homogeneity of regression, or that the correlation between the covariate and dependent variable, is the same for each level of the independent variable. Finally, the assumptions of normality, linearity, multicollinearity, and homoscedasticity must be met for a multiple regression analysis to proceed successfully. After testing each of these assumptions, each was met at an alpha level of .05.

Research Question 1

The first research question investigated the relationship between loneliness and developmental period. A repeated measures ANOVA was chosen to assess the potential differences between males and females as well as aggressive rejected and withdrawn rejected participants in loneliness at time 1 (grade 3), time 2 (grade 5), and time 3 (age 15). The between-subjects factors were gender (male, female) and rejection group (aggressive rejected, withdrawn rejected). A one standard deviation cutoff score was selected to characterize participants as aggressive rejected and withdrawn rejected. Time was the within-subjects factor, while loneliness was the dependent variable.

Research Question 2

In order to evaluate the second research question, if loneliness predicts later depression, ANCOVA was first conducted to adjust for subjects' initial depression at Time 1 of the study. By adjusting the means in a linear fashion, an ANCOVA reduces the likelihood of a Type II error and increases statistical power (Stevens, 2002). In the current study, the covariate was initial depression as measured by the Anxious/Depressed scale on the TRF completed when the participants were in kindergarten. Next, multiple regression was utilized to determine how well loneliness explains the variation in depressive symptoms. Regression analyses were first conducted using participants' loneliness scores from third grade and fifth grade to predict depression in the fifth grade. Furthermore, loneliness scores from the fifth grade and at age 15 were used to predict depression at age 15.

RESULTS

Research Question One

Question one examined the relationship between loneliness and the developmental period of the study's participants. A significant between-subjects main effect of rejection group (aggressive rejected, withdrawn rejected) was found, $F(1, 17) = 7.36$, $p = .02$. At time 1, 2, and 3, withdrawn rejected children reported greater loneliness than aggressive rejected children. There were no significant gender differences or an interaction between rejection group and gender.

Research Question Two

Research question two was designed to explore if there was a relationship between loneliness and depressive symptoms. An

ANCOVA was first conducted to control for initial depression, with the covariate as initial depression as measured by the Anxious/Depressed scale on the TRF completed when the participant was in kindergarten. Results were not significant. Next, participants' loneliness scores from third grade and fifth grade were used to predict depression in the fifth grade (see Figure 1). The results of the regression were significant, $F(2, 18) = 4.13, p < .05$. As shown in Table 5, depression at grade 5 was uniquely predicted by loneliness at grade 5, ($p < .05$). For the second regression analysis, loneliness scores from the fifth grade and at age 15 were used to predict depression at age 15. This model also reached significance, $F(2, 18) = 8.42, p < .01$. Loneliness at age 15 appears to be the best predictor of depression at age 15, ($p = .00$). Table 6 illustrates these findings.

Table 5. Regression Analysis for Loneliness Variables Predicting Depression at Grade 5

Variable	B	Standard Error B	Beta	T	Sig.
Loneliness Grade 3	.023	.028	.173	.822	.422
Loneliness Grade 5	.065	.029	.472	2.239	.038

Table 6. Regression Analysis for Loneliness Variables Predicting Depression at Age 15

Variable	B	Standard Error B	Beta	T	Sig.
Loneliness Grade 5	-.027	.048	-.116	-.562	.581
Loneliness Age 15	.151	.041	.754	3.664	.002

Summary

The overall findings of this study provide evidence of the connection between peer rejection, loneliness, and depressive symptoms in children and adolescents. The first research question investigated the pattern of loneliness from children aged 5-15, and yielded significant results, indicating that withdrawn rejected children reported a higher degree of loneliness than aggressive rejected children over time. No significant gender differences were found. The second research question, which assessed the potential relationship between loneliness and depressive symptoms, was also supported by significant results. Loneliness appears to predict depression.

DISCUSSION

The purpose of this study was to better understand how children and adolescents are impacted by peer rejection by examining the interrelationship between peer rejection, loneliness, and depressive symptoms. The tremendous impact of peer rejection on children's lives cannot be ignored or underestimated. Peer relationship problems can lead to numerous problems, including internalizing difficulties such as loneliness, anxiety, or depression (Boivin *et al.*, 1995; Parker *et al.*, 1995). Although research on peer rejection and externalizing problems is extensive, research regarding internalizing difficulties does not have such a rich history. However, studies have begun to provide evidence that children experience loneliness (Asher *et al.*, 1984; Berguno *et al.*, 2004) and depression (Birmaher *et al.*, 1996a; Garber, 2000). In fact, loneliness and depression are becoming more common among young people (Asher *et al.*, 1990; Birmaher *et al.*, 1996a; Garber, 2000). Due to the alarming rates of loneliness and depression in children, further examination of the interrelationship between peer rejection, loneliness, and depression is warranted.

Loneliness over Time

The first research question examined the pattern of loneliness across developmental periods. Gender differences and rejection group differences in loneliness at time 1 (grade 3), time 2 (grade 5), time 3 (age 15) were assessed. Loneliness was expected to persist and increase over time. Moreover, it was hypothesized that withdrawn rejected children would experience greater loneliness than aggressive rejected children. Consistent with past studies (Boivin *et al.*, 1994; Boivin and Hymel, 1997; Parkhurst and Asher, 1992), this hypothesis was supported by results of the analyses. In fact, at all three time periods, withdrawn rejected children reported a higher degree of loneliness than aggressive rejected children. No significant gender differences were found. There are several possible explanations for these findings. The accuracy of children's perceptions of their peer acceptance may have played a role. Research has shown that withdrawn rejected children are more

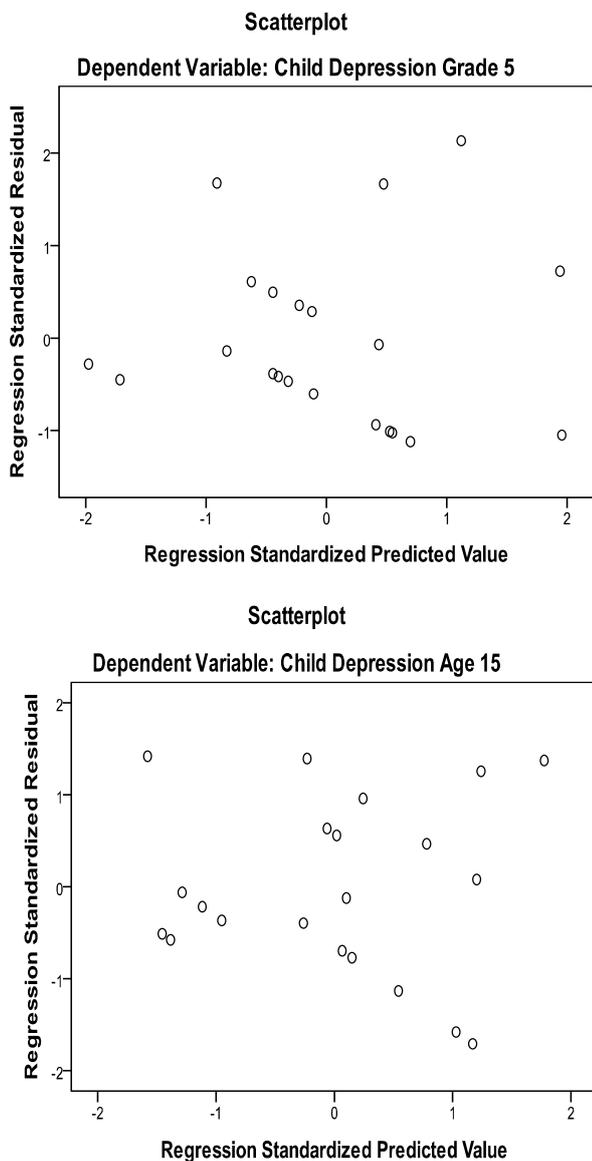


Figure 1. Scatterplots of residuals versus predicted values of dependent variable

realistic and accurate in their self-perceptions than aggressive rejected children (Hymel, Bowker, and Woody, 1993). Aggressive rejected children tend to not recognize their poor peer relationships (Patterson *et al.*, 1990) and may overestimate their status among peers (Hymel *et al.*, 1993; Rubin *et al.*, 1998; Zakriski and Coie, 1996). These inaccurate perceptions may be due to self-protective errors (Zakriski and Coie, 1996) or an unwillingness to acknowledge their peer difficulties (Boivin and Hymel, 1997). Aggressive rejected children may also possess more stable friendships that lessen their feelings of loneliness (Cairns, Cairns, Neckerman, Gest, and Louis-Gariepy, 1988). Unfortunately, this study did not examine other relationships that children may have that may impact whether loneliness or depression is experienced. Another explanation of the loneliness differences between rejected children may involve their attributions regarding their rejection. Withdrawn rejected children tend to make internal, global, and stable attributions for their peer difficulties (Rubin *et al.*, 1998). In other words, they may believe that their peer difficulties are caused by their behavior and blame themselves for their rejection (Hymel *et al.*, 1993; Renshaw and Brown, 1993). In this sense, their greater tendency to experience internalizing problems such as loneliness and depression is understandable. In contrast, aggressive rejected children tend to have negative attributional biases and negatively interpret others' behavior towards them (Dodge, 1980; Dodge and Frame, 1982). Consequently, they may blame their low peer acceptance on their peers instead of themselves (Verschuere and Marcoen, 2002).

Loneliness and Depression

The second intent of this study was to explore if there was a relationship between loneliness and depressive symptoms. First, participants' loneliness scores from the third grade and fifth grade were used to predict depression in the fifth grade. Next, loneliness scores from the fifth grade and at age 15 were used to predict depression at age 15. It was predicted that participants who experienced loneliness would also report depressive symptoms. Both regression analyses yielded significant results and provided evidence of the connection between loneliness and depression. The finding of depression in fifth grade children is alarming, but consistent with previous studies that have documented a diminishment in the age of onset of depression (Birmaher *et al.*, 1996a; Garber, 2000). The expression of depressive symptoms at a young age often varies and may mirror behaviors typical of normal development. Therefore, the strong connection between loneliness and depression cannot be ignored. If children are experiencing peer rejection and express loneliness, their feelings should not be viewed as transient and taken lightly. Withdrawn rejected children should also be closely monitored because they may be easily overlooked and may be at the most risk for internalizing problems (Deater-Deckard, 2001; Rubin *et al.*, 1990; Rubin *et al.*, 1998).

Conclusions

This study adds evidence to the extant literature base that loneliness is experienced by both children and adolescents. The fact that it can persist and contribute to more serious problems such as depression is troubling. Knowing that the long lasting effects of loneliness may even persist into

adulthood (Hymel and Franke, 1985) is evidence enough that loneliness needs to be recognized, acknowledged, and addressed at a young age. Although various interventions have been developed to assist with peer difficulties, many of these strategies do not take into consideration that no two rejected children are alike. Rejected children possess different characteristics and may contribute to their peer difficulties differently than other groups of children (i.e., shyness, social withdrawal, aggressive behavior; Rubin *et al.*, 1990). Such individuals may not even understand why they are not accepted by their peers or how to go about remedying their difficulties (Coie, 1990). Thus, rejected children may require different techniques to ameliorate their difficulties based on their unique needs. As shown in the current study, a child's internal experience of rejection may be a good starting point for determining an appropriate plan of treatment. As with rejected children, not all lonely children are alike.

The source of their loneliness may differ and should be taken into consideration. For instance, one child may be lonely due to lack of peer interactions, while another has peer relationships, albeit unhealthy and not adequately responsive to their social and emotional needs. Therefore, a combination of interventions should be utilized to assist a child or adolescent experiencing chronic loneliness (Margolin, 2001; McWhirter, 1990). Strategies might focus on improving a child's social skills, including how to initiate social interactions, maintain conversations, and display appropriate nonverbal communication (McWhirter, 1990). Efforts should also be made to increase peer contacts and relationships. Opportunities should be provided for positive social interactions and a safe environment to practice emerging social skills. Cognitive therapy should also be considered (Dill and Anderson, 1999), since lonely individuals who are rejected by peers tend to blame themselves and engage in self-defeating thought patterns that likely need to be addressed. Whereas cognitive therapy with withdrawn rejected children may involve challenging negative self-perceptions and assisting such children in developing the cognitions associated with social skills, cognitive-behavioral therapy with aggressive rejected children may involve helping them to challenge their unrealistic, positive self-perceptions.

Boivin and Begin (1989) found that withdrawn rejected children were more likely to have a negative self-perception whereas aggressive rejected children were more likely to have a positive self-perception, and the researchers suggested that aggressive rejected children may have a distorted view of themselves. Thus, cognitive therapy with aggressive rejected children may involve an interim phase in which such children experience an increase in feelings of loneliness as they become more aware of their rejected status. It is important to acknowledge that interventions should not be solely devoted to the lonely or rejected child. The role that other children play in maintaining the rejection should not be ignored. As discussed in the literature review, peers may engage in verbal and physical aggression (Perry *et al.*, 1988), limit the availability of social contacts (Coie, 1990), and maintain reputational biases about rejected children that influence how others treat them (Bierman, 2004). Moreover, the school setting may be an ideal setting for prevention programs and interventions to occur.

Limitations

Despite the strengths of the current study, a few limitations should be noted. One limitation is the relatively small sample size. Although the overall dataset contained many participants, only a small number of participants were identified as rejected based on the measures and criteria used in the study. Therefore, the results should be interpreted with caution. The dataset utilized in the current study are based on participants from ten data collection sites across the United States. Much effort was exerted to obtain a large, diverse population to allow for generalizability of the results of the analyses. Nonetheless, the sample utilized may not be representative of all families. For example, families who were very busy with extracurricular activities may have not had sufficient time to continue participating in the study. Another limitation of the study is the method of identifying rejected children. Although a multitude of information was gathered from various people over several years, peer input would have been very beneficial. For instance, participants' socio metric status was derived from teacher reports due to the nature of the study and inability to obtain consent for peers to participate. However, peers ultimately determine a child's acceptance within the peer group and may have provided a clearer picture of how participants are viewed by peers. The study may have also been more informative if participants' sociometric status was assessed periodically over the years to determine if it remained constant. Nevertheless, studies have shown that the rejected group of children has greater stability than any other sociometric group (Coie and Dodge, 1983; Newcomb and Bukowski, 1983), so it is believed that many of those identified as rejected in the current study continued to be so for the duration of the study.

Recommendations for Future Research

Over the past three decades, research on the impact of peers on adjustment has proliferated. More and more studies are focusing on children's internal experiences of peer rejection, such as loneliness. Future studies should continue to investigate loneliness, particularly the source of loneliness. For instance, a child may experience loneliness due to the lack of peer relationships or connection with their parents. Another child may have relationships which are not meeting his needs. In contrast, the protective factor of a relationship may also be an avenue to pursue in additional research. It would be interesting to assess if a strong teacher-student relationship provides resilience against the development of loneliness. Although the NICHD SECC study concluded when the participants were adolescents, a follow-up study of participants could be used to determine if loneliness persists into adulthood. More longitudinal studies should be conducted to follow rejected and lonely children to examine if they experience different types of problems after adolescence. Furthermore, studying the relationship between rejected and lonely children's social status, school performance, and adult relationships also may be important variables to study in future research.

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