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ORIGINAL ARTICLE

School connectedness and child anxiety

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Abstract

Poor school connectedness (SC), defined as students' feelings of belonging, safety, and fairness at school, is a risk factor for negative psychosocial outcomes. Few studies have examined the specific relationship between SC and anxiety. This study examined the relation between SC and anxiety within a group of 114 clinically anxious youth (mean age =10.82; *SD* = 2.93; 48.2% female; 70.2% White, non-Hispanic); age differences were also examined. Results indicated that SC was significantly negatively associated with age but unrelated to gender, race/ethnicity, socio-economic status, parent education, or presence of a comorbid disorder. Findings generally revealed that low SC was associated with greater total and domain specific anxiety. SC may play a unique role in the maintenance of global and domain specific anxiety symptoms.

Keywords: school-connectedness; child anxiety

Child anxiety disorders are common, occurring in approximately 10% of school-aged children (Costello, Egger, & Angold, 2005), and are associated with significant concurrent and prospective impairment in academic, familial, and social functioning (Davis, Ollendick, & Nebel-Schwalm, 2008; Mychailyszyn, Mendez, & Kendall, 2010; Swan & Kendall, 2016). With respect to academic and school functioning, youth with anxiety disorders have higher rates of school refusal (Hansen, Sanders, Massaro, & Last, 1998), school drop-out (Duchesne, Vitaro, Larose, & Tremblay, 2008), and lower academic achievement (Mychailyszyn et al., 2010; Woodward & Fergusson, 2001) relative to non-anxious peers.

Schools are a prime environment for provoking anxiety in students (Green et al., 2016; Hofmann et al., 1999; Langley, Bergman, McCracken, & Piacentini, 2004). For example, youth with separation anxiety disorder (SAD) are required to leave their parent/guardian to attend school. Youth with social phobia (SoP) are expected to interact with peers and school staff throughout the day and perform in front of others (e.g., reading aloud in class, giving presentations). Youth with generalised anxiety disorder (GAD) may have excessive and impairing worries about their school performance and experience heightened anxiety about making mistakes. Given both the multitude of triggers and the length of the school day, school factors should be investigated to identify constructs that may have a role in maintaining or alleviating anxiety, and whether specific constructs might be a candidate target in school-based interventions for youth with anxiety disorders.

One important school construct shown to be related to mental health, behavioural problems and academic achievement is school climate (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013; Wang & Degol, 2016). School climate is a multidimensional construct defined in various ways,

but most often used to describe the school environment in terms of teaching and learning methods, shared norms and values, and organisational structures (National School Climate Council, 2007). Studies examining school climate have revealed several dimensions of school climate are significant predictors of mental health, one being school connectedness (SC; Lester & Cross, 2015).

SC is an important construct that has received growing attention for its role in both school functioning and student psychopathology (Furlong, O'Brennan, & You, 2011; Libbey, 2004; Resnick et al., 1997). School connectedness, though defined in various ways, generally refers to a student's feelings of belonging to their school and beliefs that the school staff and their peers care about them (Libbey, 2004; Waters & Cross, 2010). Supportive and positive teacher-student relationships, effective classroom management, and tolerant school policies that are consistently enforced have all been shown to be important factors in creating high SC (Blum, 2005; Chapman, Buckley, Sheehan, & Shochet, 2013; McNeely, Nonnemaker, & Blum, 2002; Monahan, Oesterle, & Hawkins, 2010). SC has also consistently been shown to decrease with age. The initial decline in SC begins during the transition from elementary to middle school and continues to decrease throughout high school (Monahan et al., 2010; Whitlock, 2006). This is important, as higher SC is associated with lower suicidality, depressive symptoms, externalising behaviours (e.g., violence), substance use, and emotional distress (Kuperminc, Leadbeater, & Blatt, 2001; Langille, Asbridge, Cragg, & Rasic, 2015; Resnick et al., 1997). Despite the established relationship between SC and behavioural difficulties in students, and the importance of the school context for anxious youth, few studies have examined the association between SC and anxiety specifically.

In one study, Shochet, Dadds, Ham, and Montague (2006) examined the relation between SC and mental health symptoms and general functioning in 2567 Australian high school students between the ages of 12 to 14. Among male and female students, lower SC during 8th grade was associated with greater self-reported depressive symptoms. After controlling for baseline anxiety symptoms, lower SC in 8th grade predicted greater anxiety symptoms one year later for females only. In a similar study conducted by Lester, Waters, and Cross (2013) 3459 students aged 12–14 attending Catholic secondary schools in Western Australia completed self-report measures of SC four times throughout 7th, 8th, and 9th grades. Cross-lagged modelling showed a reciprocal relation between SC and self-reported anxiety symptoms. Higher SC was a significant predictor of a reduction in future anxiety symptoms for both males and females at all time points. Notably, this relation was stronger than concurrent self-reported anxiety symptoms predicting less SC in the following grade. The relation between SC and anxiety may be bidirectional, though some evidence has shown that SC is a stronger predictor of an increase in anxiety over time rather than the reverse (Lester & Cross, 2015; Lester et al., 2013). These findings suggest that high levels of SC may be a key protective factor for the prevention of anxiety symptoms, especially during the transition to secondary school.

Extant research on SC and anxiety, however, is limited by a variety of methodological issues, including sample characteristics, reliance on self-report, and a lack of attention to specific domains of anxiety. Specifically, the majority of samples consisted of older, middle and high school aged students that were drawn from the community rather than clinical samples, limiting the conclusions that can be drawn for younger and clinically anxious youth. Research on the relation between SC and mental health has also primarily relied on self-reports of psychopathology, limiting our understanding of the reliability of findings across informants. Finally, because anxiety triggers in school vary by disorder (e.g., distress during school-drop off for students with SAD or fear of participating in class for students with SoP), examining whether SC is related to specific domains of anxiety will also help to inform etiological and intervention models.

The current study examined the following research questions: (1) Are lower levels of SC associated with higher child anxiety symptoms across a broad age range (6–18 years) of clinically anxious youth using multiple informants (i.e., child, parent, teacher, and independent evaluator)? (2) Are domain-specific anxiety symptoms differentially related to SC? (3) Given environmental differences in elementary and middle/high schools (e.g., singular vs. multiple classrooms) and the consistent finding that SC decreases with age and school transitions (Lester et al., 2013; Loukas, Cance, & Batanova, 2016;

Whitlock, 2006), is the relationship between SC and global and domain specific anxiety similar across elementary versus middle/high school? Based on extant literature, we hypothesised that lower SC would be associated with higher total and domain specific anxiety symptoms.

Method

Measures

Demographics form

Completed by the participant's parent or legal guardian, this measure was used to collect data on age, race/ethnicity, gender, family annual income, and parent education.

Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent Versions (ADIS; Silverman & Albano, 1996)

The ADIS is a semistructured diagnostic interview and is used to assess for a broad range of anxiety, mood and externalising disorders, and screens for the presence of several additional psychiatric disorders (e.g., developmental, psychotic, and somatoform disorders). A composite Clinical Severity Rating (CSR) is generated by the evaluator (based on separate child and parent interviews) to rate severity and impairment of each diagnosis. CSRs range from 0 to 8, with a CSR of 4 or higher indicating a level of severity required for diagnosis. The primary diagnosis is the disorder with the highest CSR (i.e., the most disabling condition). The ADIS has demonstrated good internal consistency and interrater reliability (Silverman, Kurtines, Ginsburg, Weems, Lumpkin et al., 1999; Silverman, Kurtines, Ginsburg, Weems, Rabian et al., 1999; Silverman, Saavedra, & Pina, 2001). In the current study, interrater agreement for primary diagnosis (defined as matching on the presence or absence of a disorder) was conducted on 7% of randomly selected available videotaped evaluations and was 100%.

Clinical Global Impression — Severity Scale (CGI-S; Guy, 1976)

The CGI-S is a one-item measure completed by the evaluator (after administering the ADIS) and yields a rating of current anxiety symptom severity. Scores range from 1 (*Normal; not at all ill*) to 7 (*Extremely ill*). Research indicates that the CGI-S is sensitive to treatment effects of interventions (Research Unit on Pediatric Psychopharmacology, 2002; Walkup et al., 2008). In the current study, interrater agreement for the CGI-S (defined as matching within 1 point) was 98%.

School Connectedness (SC; Resnick et al., 1997)

The SC is a five-item questionnaire completed by the child measuring the extent to which a student feels they belong at school, and that the adults and peers in the school care about them as individuals and as students. Responses range from 1 (*strongly disagree*) to 3 (*somewhat agree*) to 5 (*strongly agree*). For the current study, the Cronbach's alpha coefficient was .79 for the total sample.

Screen for Anxiety Related Emotional Disorders, Parent and Child Versions (SCARED-P/C; Birmaher, Brent et al., 1999; Birmaher, Khetarpal et al., 1997)

The SCARED is a 41-item instrument completed by the child and parent and assesses a broad range of anxiety symptoms. Participants respond to items using a 3-point Likert-type scale describing the degree to which statements are true about self/child. Responses range from 0 (*not true or hardly ever true*) to 2 (*very true or often true*). The SCARED yields a total score and five subscale scores that correspond to the anxiety disorders in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000): panic/somatic (13 items), GAD (9 items), SAD (8 items), SoP (7 items), and school phobia (4 items). Total scores range from 0 to 82, with higher

scores reflecting higher levels of anxiety. A total score of 25 is the clinical cut-off differentiating between anxious and nonanxious youth. The psychometric properties of the SCARED are good (Birmaher et al., 1999). For the current study, the Cronbach's alpha coefficients for the SCARED parent and child report total scores were .88 and .92 respectively. The Cronbach's alpha coefficients for SCARED-parent GAD, SoP, SAD, panic/somatic and school avoidance were .83, .90, .78, .80 and .77 respectively. The Cronbach's alpha coefficients for SCARED-child GAD, SoP, SAD, panic/somatic and school avoidance were .86, .83, .81, .84 and .74 respectively.

Child Behavioral Checklist (CBCL/6-18; Achenbach & Rescorla, 2001)

The CBCL is a parent-report measure of child psychopathology and consists of 20 competence scales, 113 specific behavioural/emotional items, and two open-ended items. Parents respond to the behavioural/emotional items using a Likert-type scale: 0 (*not true*) to 2 (*very true or often true*). In the current study we used the internalising scale, which is comprised of 32 items (e.g., fears going to school, feels he/she has to be perfect, feels worthless or inferior). The scores for the internalising scale range from 0–64 and the Cronbach's alpha coefficient for this study was .87.

Teacher Report Form (TRF; Achenbach & Rescorla, 2001)

The TRF is completed by the teacher and consists of 113 problem items, 4 academic performance items, 4 adaptive functioning items, and 3 open-ended items. In the current study, we examined the internalising subscale, which is comprised of 33 items (e.g., would rather be alone than with others, unhappy, sad or depressed, nervous, high-strung or tense). The internalising scale scores range from 0–66 and the Cronbach's alpha coefficient was .90.

Procedures

Participants were recruited for an anxiety treatment study in nine school districts in the state of Connecticut. To recruit participants, the research staff attended school open-house nights, presented free educational seminars on child anxiety to families and school staff, and passed out study flyers. Children were also referred to the study by school staff (e.g., school psychologists, school social workers, and teachers). A brief phone screen, conducted by the research team, was completed with interested families prior to scheduling an in-person baseline evaluation. Data for the current study was obtained during a baseline evaluation in which study eligibility was determined after signing informed consent. Students were considered eligible for participation if they met criteria for a primary *DSM-IV-TR* anxiety disorder, reported no current suicidality, were not receiving current psychosocial treatment for anxiety, and/or had not previously received an adequate dose of CBT for anxiety. Students completed the measures above on their own unless they required assistance. In those situations, a research assistant was available to read items aloud and answer questions.

Data Analysis

Spearman's rho correlations were used to examine the relation between SC and categorical variables (e.g., participant gender, minority status, family income, and highest level of parent education), and Pearson's *r* correlation was used to examine the relation between SC and continuous variables (student age, global and domain specific anxiety). An independent-sample *t* test was conducted to compare SC in participants with and without a comorbid diagnosis for the total sample; *t* tests compared continuous variables and chi-squared tests compared bivariate variables across age groups. Data were examined for violation of the assumptions of normality and equality of variances. The Benjamini-Hochberg false discovery rate (Benjamini & Hochberg, 1995) was used on all SC analyses to correct for multiple comparisons. Analyses were conducted for the total sample and for older and younger subgroups.

Table 1. Child Demographic and Clinical Characteristics

	Total Sample (N = 114)	Elementary school (*n* = 63)	Middle/high school (*n* = 51)	Difference between age groups
Age[a]	10.82 ± 2.93	8.63 ± 1.22	13.53 ± 2.02	$t_{(112)} = -15.18$, $p < .001$
Gender (male)[b]	51.80% (59)	49.21% (31)	54.9% (28)	$\chi^2(1) = 0.37$, $p = .55$
Race (minority)[b]	29.30% (34)	27.98% (17)	33.33% (17)	$\chi^2(1) = 0.54$, $p = .46$
Parent's education (college degree or higher)[b]	77.20% (88)	82.50% (52)	70.60% (36)	$\chi^2(1) = 2.87$, $p = .09$
Family income (>80k)[bc]	58.60% (68)	62.30% (38)	60.00% (30)	$\chi^2(1) = 0.06$, $p = .81$
School connectedness[a]	19.46 ± 4.39	20.65 ± 3.95	17.98 ± 4.49	$t_{(112)} = 3.37$, $p = .00$
CGI-S[a]	5.22 ± 0.75	5.13 ± 0.77	5.33 ± 0.71	$t_{(112)} = -1.47$, $p = .15$
SCARED-C Total[a]	30.82 ± 14.34	29.84 ± 13.81	32.02 ± 15.02	$t_{(111)} = -0.80$, $p = .43$
SCARED-P Total[a]	24.12 ± 11.30	23.36 ± 11.01	25.02 ± 11.68	$t_{(111)} = -0.77$, $p = .44$
CBCL-Internalising[a]	14.91 ± 9.66	12.57 ± 9.07	17.71 ± 9.69	$t_{(108)} = -2.87$, $p = .01$
TRF-Internalising[a]	11.16 ± 8.77	12.36 ± 9.39	9.36 ± 7.51	$t_{(91)} = 1.63$, $p = .11$

[a]Results presented as mean ± *SD* [b]Results presented in percent, number of respondents indicated in parentheses. Elementary school = Grades 5 and under; Middle/high school = Grades 6 and over; CGI-S = Clinical Global Impression – Severity Scale; SCARED-C Total = Screen for Anxiety Related Emotional Disorders, Child Version, Total Score; SCARED-P Total = Screen for Anxiety Related Emotional Disorders, Parent Version, Total Score; CBCL-Internalising = Child Behavior Checklist, Internalising Scale; TRF-Internalising = Teacher Report Form, Internalising Scale. [c]UnitedStates dollar ($).

Participants

Participants were 114 youth, between the ages of 6 and 18 years old, randomised in a clinical trial comparing cognitive behavioural therapy (CBT) to usual care (UC) for anxiety disorders in Connecticut. Of the 114 youth, 63 (55.3%) were enrolled in Grade 5 and under and 51 (44.7%) students were enrolled in Grade 6 and above. Child demographics are presented in Table 1. Primary anxiety disorders for the total sample were: GAD, 65.0%; SoP, 19.3%; SAD, 10.5%; SP, 2.6%; and anxiety disorder not otherwise specified (Anxiety Disorder NOS), 2.6%. Sixty-three percent of the total sample had a comorbid diagnosis. Among students with a comorbid disorder, the rates were as follows: SoP, 25%; GAD, 19.4%; SAD, 19.4%; attention-deficit/hyperactivity disorder (ADHD), 13.9%; major depressive disorder (MDD), 8.3%; SP, 5.6%; obsessive-compulsive disorder (OCD), 2.8%; selective mutism (SM), 2.8%; post-traumatic stress disorder (PTSD), 1.4%; oppositional defiant disorder (ODD), 1.4%.

Results

Means and standard deviations on demographic and clinical characteristics are presented in Table 1. Table 2 presents correlations between all demographic study variables and global measures of anxiety for the total sample. SC was unrelated to the absence or presence of a comorbid disorder (SC Means = 20.14, *SD* = 3.98; *M* = 19.06, *SD* = 5.59 respectively; $p = .20$). Table 3 presents correlations between SC and global measures of anxiety for elementary and middle/high school subsamples. Correlational analyses revealed that SC was negatively associated with age for the total sample, and students in middle/high school reported significantly lower SC than students in elementary school. SC was unrelated to gender, race/ethnicity, SES or parent education. Correlations revealed that SC was negatively associated with CBCL-Internalising scores (parent-report for total sample and elementary aged students) and SCARED child-report total scores (for total sample, elementary and middle/high school students) but unrelated to SCARED parent-report total score, teacher report of

Table 2. Pearson's *r* and Spearman's Rho Correlations among Child Demographics and Clinical Characteristics for Total Sample

	1	2	3	4	5	6	7	8	9	10	11
1. School connectedness[a]	1.00	-0.33**^	-0.01	-.06	0.11	0.16	-.20	-0.37**^	-0.17	-0.40**^	0.07
2. Age[a]		1.00	.02	-.03	-.04	-.16	.16	.20*	.11	.35**	-.21*
3. Gender[b]			1.00	-.05	.12	.10	-.09	.06	.03	-.13	-.08
4. Minority status[b]				1.00	-.32**	-.21*	-.14	-.03	-.10	-.07	.01
5. Family income[b]					1.00	.48**	-.15	.05	.09	-.11	-.05
6. Parent education[b]						1.00	-.11	-.08	.15	.00	.06
7. CGI-S[a]							1.00	0.19*	0.30**	0.31**	0.17
8. SCARED-C Total[a]								1.00	0.16	0.20*	0.08
9. SCARED-P Total[a]									1.00	0.60**	0.17
10. CBCL-Internalising[a]										1.00	0.14
11. TRF-Internalising[a]											1.00

Note: *$p < .05$, **$p < .01$, ^significant with adjusted α values obtained by using the Benjamini-Hochberg discovery-rate correction procedure. [a]Pearson's *r* correlation; [b]Spearman's rho correlation.; CGI-S = Clinical Global Impression – Severity Scale; SCARED-C Total = Screen for Anxiety Related Emotional Disorders, Child Version, Total Score; SCARED-P Total = Screen for Anxiety Related Emotional Disorders, Parent Version, Total Score; CBCL-Internalising = Child Behavior Checklist – Internalising Scale; TRF-Internalising = Teacher Report Form – Internalising Scale.

Table 3. Pearson's *r* Correlations Between School Connectedness and Child Clinical Characteristics for Elementary and Middle/high School Students

	Elementary school ($n = 63$)	Middle/high school ($n = 51$)
CGI-S[a]	-0.11	-0.24
SCARED–C Total[a]	-0.35**^	-0.38**^
SCARED–P Total[a]	-0.12	-0.19
CBCL-Internalisng[a]	-0.40**^	-0.31*
TRF-Internalising[a]	0.05	-0.05

Note: *$p < .05$, **$p < .01$, ^significant with adjusted α values obtained by using the Benjamini-Hochberg discovery-rate correction procedure. Elementary school = Grades 5 and under; Middle/high school = Grades 6 and over; CGI-S = Clinical Global Impression – Severity Scale; SCARED-C Total = Screen for Anxiety Related Emotional Disorders, Child Version, Total Score; SCARED-P Total = Screen for Anxiety Related Emotional Disorders, Parent Version, Total Score; CBCL-Internalising = Child Behavior Checklist, Internalising Scale; TRF-Internalising = Teacher Report Form, Internalising Scale.

internalising symptoms, or IE reports of anxiety severity for either the total sample or for age groups (Table 2 and Table 3).

Means and standard deviations on domain specific anxiety characteristics are presented in Table 4. With respect to domain specific anxiety (Table 5), SC was negatively associated with child-reported symptoms of GAD (total sample and middle/high school aged students), SoP (total, elementary and middle/high school students), panic/somatic (total sample only), and school avoidance (total, elementary and middle/high school students). SC was significantly and negatively associated with parent-reported symptoms of school avoidance (total sample only). SC was unrelated to child- and parent-reported SAD symptoms and parent-reported symptoms of GAD, SoP and SAD.

Table 4. Means, Standard Deviations, and Comparisons on Domain Specific Anxiety Subscales

SCARED Subscale Reporter	Total ($N = 114$)	Elementary school ($n = 63$)	Middle/high school ($n = 51$)	Difference between age groups
Generalised				
Child	8.38 ± 4.72	7.15 ± 4.40	9.88 ± 4.71	$t_{(111)} = -3.18$, $p = .002$
Parent	8.2 ± 4.02	7.84 ± 4.01	8.65 ± 4.02	$t_{(111)} = -1.06$, $p = .290$
Social				
Child	6.82 ± 3.63	6.60 ± 3.16	7.09 ± 4.15	$t_{(111)} = -0.69$, $p = .491$
Parent	6.63± 4.28	6.16 ± 4.17	7.19 ± 4.38	$t_{(111)} = -1.28$, $p = .21$
Separation				
Child	5.97 ± 4.06	7.32 ± 4.10	4.33 ± 3.37	$t_{(111)} = 4.26$, $p = .000$
Parent	4.37 ± 3.58	5.45 ± 3.63	3.05 ± 3.06	$t_{(111)} = 3.76$, $p = .000$
Panic/somatic				
Child	7.00 ± 4.95	6.37 ± 4.63	7.76 ± 5.25	$t_{(111)} = -1.50$, $p = .137$
Parent	2.88 ± 3.41	2.35 ± 3.06	3.51 ± 3.74	$t_{(111)} = -1.81$, $p = .073$
School phobia				
Child	2.65 ± 2.13	2.40 ± 2.01	2.96 ± 2.25	$t_{(111)} = -1.39$, $p = .168$
Parent	2.03 ± 1.98	1.55 ± 1.79	2.61 ± 2.06	$t_{(111)} = -2.96$, $p = .004$

Note: Elementary school = Grades 5 and under; Middle/high school = Grades 6 and over; SCARED = Screen for Anxiety Related Emotional Disorder.

Table 5. Pearson's *r* Correlations Between School Connectedness and Domain-specific Anxiety

SCARED Subscale Reporter	Total sample ($N = 114$)	Elementary school ($n = 63$)	Middle/high school ($n = 51$)
Generalised			
Child	-.34**^	-0.14	-0.42**^
Parent	-.19*	-0.17	-0.17
Social			
Child	-.35**^	-0.34**^	-0.36*^
Parent	-0.04	0.03	-0.03
Separation			
Child	-0.04	-0.28*	-0.25
Parent	-0.01	-0.12	-0.13
Panic/Somatic			
Child	-.30**^	-0.28*	-0.26
Parent	-0.13	0.03	-0.18
School Phobia			
Child	-.38**^	-0.36**^	-0.36*^
Parent	-.25**^	-0.21	-0.15

Note: *$p < .05$, **$p < .01$, ^significant with adjusted α values obtained by using the Benjamini-Hochberg discovery-rate correction procedure. Elementary school = Grades 5 and under; Middle/high school = Grades 6 and over; SCARED = Screen for Anxiety Related Emotional Disorder.

Discussion

The primary aim of the current study was to investigate the relation between SC and both global and domain specific anxiety among elementary and middle/high school students using multiple informants. The magnitude of most of the significant relations between SC and global and domain-specific anxiety was found to be moderate. Notably, and consistent with the literature, results indicated older youth were more likely to report feeling less connected to their school compared to their younger peers and suggests that efforts to increase SC is particularly important for middle and high school students (Bond et al., 2007; Lester et al., 2013; Loukas et al., 2016; McNeely et al., 2002). Overall, findings in relation to anxiety indicated that youth who reported feeling less a part of their school and less safe in their school endorsed greater anxiety symptoms. While not directly tested in this study, it is likely that these constructs are reciprocally related, raising the potential of targeting school connectedness as another pathway to lower anxiety.

The primary aim of the current study was to examine the relation between SC and anxiety. Among all students, we found that parents of students who felt less connected to school described their children as having more internalising problems compared to students with higher SC. Internalising problems consist of anxious, withdrawn, and depressed symptoms such as feeling worthless or inferior, preferring to be alone rather than with others, being easily embarrassed, and sad or unhappy. Internalising problems also included somatic complaints such as headaches, stomach-aches and vomiting, all core symptoms of anxiety. These findings are consistent with previous studies investigating the role of SC in student pathology, which have found that students with lower levels of SC not only report greater anxiety symptoms, but also report greater symptoms of depression (Bond et al., 2007; Kuperminc et al., 2001; Lester et al., 2013; Shochet et al., 2006).

Although findings indicated significant relations between SC and child-reported anxiety and parent-reported school avoidance and internalising symptoms, this was not true for IE or teacher-reported symptoms. The absence of this relation between SC and teacher report of internalising symptoms suggests that SC may be unrelated to children's presentation of anxiety in the classroom. This finding should be interpreted with caution as teachers are known to be more sensitive to and observant of behavioural and externalising problems rather than identifying internal worries or anxiety (Dwyer, Nicholson, & Battistutta, 2006). This finding is of interest as it suggests that a child's feelings of belonging to their school and beliefs that the school staff care about them is unrelated to their teacher's ability to identify their anxious symptoms. Consequently, additional psychoeducation for teachers may be warranted to assist them in identifying anxious youth in need of services. Additional knowledge may also lead to increased sensitivity and empathy by teachers, which could ultimately improve children's SC.

A secondary aim of this study was to examine whether SC was related to specific domains of anxiety. Findings revealed that youth both in elementary and middle/high school who endorsed lower levels of SC self-reported greater levels of social anxiety. Social phobia (SoP), which is marked by an extreme fear of negative evaluations, often leads to avoiding speaking to new and unfamiliar people, attending social events and extracurricular activities, and participating in class. Social anxiety is also associated with lower peer acceptance and negative peer interactions (Blöte, Duvekot, Schalk, Tuinenburg, & Westenberg, 2010). Positive interactions with peers and actively engaging with the school (i.e., participation in school activities) are important components of SC (Centers for Disease Control and Prevention, 2009).

Furthermore, findings revealed that SC was related to child-report of GAD symptoms. GAD is marked by excessive and persistent worries over numerous things often tied to the individual's perception of his or her school performance, acceptance by peers, future success and safety. Therefore, these students may be more sensitive to the climate of belongingness, availability of support, and safety in the school. Notably, the relation between SC and GAD was found to differ between elementary and middle/high school students. This finding may indicate that middle and high school environments may be particularly anxiety provoking, potentially due to greater academic expectations for students.

A consistent finding between parent and child report was the relationship between lower SC and greater desire to avoid school (school phobia). Youth who reported feeling less a part of their school and not happy to be at their school endorsed greater worries about going to school, more fear about going to school, and headaches and stomach-aches while at school. The relation between low SC and greater school avoidance symptoms is consistent with previous findings that show low SC is associated with absenteeism and greater school drop-out rates (Bond et al., 2007). This finding is important as anxiety disorders are one of the most common comorbidities among youth exhibiting school refusal behaviour (Kearney, 2008). Exploration of SC as a moderator of the relationship between child anxiety and school phobia/refusal and as a potential intervention target to reduce anxiety-related school absenteeism is warranted. Future studies should examine the relationship between SC and academic records of days absent and tardy, in order to provide a more objective measure of the relationship between SC, anxiety and school avoidance.

Conclusions about directionality in the relationship between SC and anxiety are limited by this study's cross-sectional design. Higher SC may serve as a protective factor against symptoms of GAD and SoP, or lower SC may result from information-processing biases in attention to and interpretation of threat associated with anxiety (Muris & Field, 2008). Data from longitudinal studies, however, do suggest that low SC is a risk factor for future anxiety symptoms in community samples of adolescents (Lester et al., 2013; Shochet et al., 2006). While further exploration of this relationship is warranted, SC appears to be a potentially important factor to be considered as a target of school-based anxiety prevention and treatment programs.

Other limitations of the current study include the smaller sample sizes for the disaggregated elementary school students and middle/high school students. Future research should continue to expand the literature by examining SC and anxiety in broad age ranges with larger sample sizes. It is also important to note that SC has been conceptualised in a number of ways and consists of various terminology and measures of the construct (Furlong et al., 2011; Libbey, 2004; Waters & Cross, 2010). The measure of SC in the current study is a leading measure used for research on SC (Anderman, 2002; Bonny et al., 2000; Furlong et al., 2011; Loukas, Suzuki, & Horton, 2006; McNeely et al., 2002; Rice, Kang, Weaver, & Howell, 2008). While the version of the measure used has demonstrated good psychometric properties (Furlong et al., 2011), several factors of SC, such as positive and supportive relationships between students and teachers/staff and safety, are measured in a single item and may be insufficient. Generally, SC appeared to be primarily related to child reports of anxiety. This finding is to be expected, due to SC being a child-report measure. Using multiple informants to assess a student's level of belonging in the school, rather than relying on the student's perceptions of belonging, will be important in future studies.

Summary

The current study examined the relation between SC and global and domain-specific anxiety symptoms in clinically anxious youth. Consistent with prior research, youth who reported feeling disconnected from their school (e.g., unhappy to be at their school, feeling as though they are not a part of their school) reported more internalising symptoms, worries, social anxiety, and school phobia. This general pattern was found in older and younger youth and reported by children and their parents (but not when examined using teacher or IE reports of anxiety). Taken together, the construct of SC appears to be related to child anxiety both globally and for specific domains of anxiety (mainly generalised, social, and school anxiety), although the directionality of this relationship is not yet clear. Future research should continue to investigate the causal relation between SC and global and domain-specific anxiety in clinically anxious children and adolescents using prospective methods. Research is also needed to examine whether developing interventions that improve SC subsequently lowers anxiety levels and improves academic functioning, as well as, whether treatments that lower student anxiety improves SC.

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