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A Prospective Study Investigating the Impact of School Belonging Factors on Negative

Affect in Adolescents

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Abstract

School belonging, measured as a unidimensional construct, is an important predictor of negative affective problems in adolescents, including depression and anxiety symptoms. A recent study found that one such measure, the Psychological Sense of School Membership (PSSM) scale, actually comprises three factors: Caring Relations, Acceptance, and Rejection. We explored the relations of these factors with negative affect in a sample of 504 Australian grade 7 and 8 students who completed the PSSM and Children's Depression Inventory (CDI) at three time points. Each school belonging factor contributed to the prediction of negative affect in cross-sectional analyses. Scores on the Acceptance factor predicted subsequent negative affect for boys and girls, even controlling for prior negative affect. For girls, the Rejection factor was also significant in the prospective analysis. These findings have implications for the design of interventions and are further confirmation that school belonging should be considered a multidimensional construct.

Keywords: school belonging, negative affect, adolescence, connectedness, depression, anxiety, affective disorders

A Prospective Study Investigating the Impact of School Belonging Factors on Negative

Affect in Adolescents

School belonging is an important predictor of many significant adolescent outcomes, including academic motivation, academic achievement, and various aspects of wellbeing (Anderman & Freeman, 2004). Negative affect is one such outcome and the focus of this study. Not only has previous research found that lower levels of school belonging are associated with higher levels of negative affect and depressive symptoms (e.g., Anderman, 2002; Jacobson & Rowe, 1999), but there is evidence to suggest that school belonging can predict subsequent negative affect, even after controlling for initial affective symptoms (Shochet, Dadds, Ham, & Montague, 2006). Given the high prevalence of affective disorders in adolescents (Hilt & Nolen-Hoeksema, 2009) and the ensuing need for more effective interventions, it is important to gain a more detailed understanding of school belonging and its effects.

Within the literature exploring students' relationship to school, many terms overlap and are used differentially, e.g., school belonging, school connectedness, school attachment, and school engagement (Libbey, 2004; Loukas, Ripperger-Suhler, & Horton, 2009; Whitlock, 2006). As a result, there have been calls for the clarification of these constructs (Barber & Schluterman, 2008). In this study we use the term *school belonging*, which as has been defined as the, "…extent to which students feel personally accepted, respected, included, and supported by others in the school environment" (Goodenow, 1993, p. 80). The Psychological Sense of School Membership scale (PSSM) (Goodenow) is one widely used measure of school belonging. A recent study, the first to employ both exploratory and confirmatory factor analyses, investigated the factor structure of the PSSM (You, Ritchey, Furlong, Shochet, & Boman, in press). Results supported the existence of three factors: Caring Relations, which measures perceptions of caring adult relationships in the school setting;

Acceptance, which assesses whether the adolescent has a sense of acceptance or belongingness at school, and Rejection, which measures perception of disrespect or rejection in the school setting.

Given the tendency of researchers to treat school belonging as a unidimensional construct, exploring it in this more atomized way in relation to important adolescent outcomes seems vital. In the current study we seek to clarify the relation between each of the PSSM factors and negative affect in this age group. This will enhance researchers' understanding of the association between school belonging and negative affect, which will, in turn, allow the development of more specific interventions. Using prospective data seems especially important in this field in order to explore which of the factors may have a more enduring relation with subsequent negative affect. For this reason, the present study utilized data collected across three times points.

One theory that is useful in understanding how the three school belonging factors may relate to negative affect is sociometer theory (e.g., Leary, 2005). This theory highlights the importance of perceived relational value to the wellbeing of individuals, with low perceived relational value resulting in a number of aversive emotions (Leary). It proposes self-esteem functions as a "sociometer," monitoring whether there is any indication in the social environment that relational value is low or declining (Leary). The purpose of this is to ensure the individual remains included, supported, and protected by the group (Leary). Note that actual rejection or low levels of acceptance are not necessary, with the sociometer responding to actual, perceived, and anticipated rejection, disapproval, and exclusion.

In applying this theory to the three PSSM factors, a low score on the Caring Relations factor may indicate a sense of being insufficiently supported and cared for by adult staff members in the school community. A low score on the Acceptance factor seems likely to reflect a more general perception that one is insufficiently accepted in the school setting, with

a focus on peers in addition to adult staff members. High levels of the Rejection factor may represent a perception that the individual is being actively rejected or is at risk of rejection. Therefore, low scores on the Caring Relations and Acceptance factors and high scores on the Rejection factor are likely to reflect perceived problems in relational value. Such perceptions may lead to a variety of adverse emotional reactions, i.e., negative affect. It is noted that according to sociometer theory, adolescents who are not objectively rejected or poorly accepted but perceive this to be the case (i.e., those who are high on rejection sensitivity), may be as susceptible to developing negative affect as those who are actually rejected or poorly accepted by others. This has important implications for tailoring interventions to individuals.

Although the PSSM factors themselves have not been researched in relation to negative affect, related constructs have been explored in the literature and add support for the proposed relations between each PSSM factor and negative affect. For example, several studies have examined the relation between teacher support and depressive symptoms. In a prospective study of senior high school students, Murberg and Bru (2009) found that poorer perceptions of teacher support predicted depressive symptoms one year later. In a larger prospective study of younger adolescents (middle school students followed for two years), Reddy, Rhodes, and Mulhall (2003) reported similar results, with students who reported increasing teacher support showing corresponding decreases in depressive symptoms. Testing a competing model further supported a pathway from teacher support to depressive symptoms rather than the reverse. These studies provide further evidence to suggest that more negative perceptions of caring adult relationships are likely to predict negative affect in adolescents.

A number of cross-sectional studies have examined the relation between perceived peer social acceptance and depressive symptoms in younger adolescents, finding perceptions

of lower peer social acceptance to be associated with higher levels of depressive symptoms (King, Akiyama, & Elling, 1996; Zimmer-Gembeck, Hunter, & Pronk, 2007). Kistner, Balthazor, Risi, and Burton (1999) conducted a prospective study with results indicating that perceived acceptance predicted dysphoria seven years later, even controlling for initial levels of dysphoria. Although these studies measured perceived peer acceptance rather than more general school acceptance as measured by the PSSM factor, they do suggest that poorer perceptions of acceptance in the school environment may predict negative affect in adolescents.

Several studies have investigated peer rejection amongst adolescents. Lopez and DuBois (2005) found that perceived peer rejection was associated with emotional problems, including depressive and anxiety symptoms, in a sample of younger adolescents. Other studies have utilized more objective measures of rejection, like peer nominations. Although the Rejection factor of the PSSM is concerned with *perceptions* of rejection, these studies still provide useful information. Bell-Dolan, Foster, and Christopher (1995) found that girls classified as rejected by peer nominations were more likely to have higher scores on teacher-rated depression than girls classified as popular or average. However, there were no differences between the groups on self-rated depression or parent rating scales. Prinstein and Aikins (2004) conducted a similar study with an older sample and a prospective design, finding that peer rejection predicted depressive symptoms 17 months later. However, a larger study with a wider age range found that children/adolescents who were classified as rejected did not differ on overall scores of depressive symptoms, although some differences were noted on specific depression subscales (Hecht, Inderbitzen, & Bukowski, 1998). It is possible that these somewhat inconsistent findings are the result of using more objective measures of rejection rather than measuring perceptions of rejection, given theory suggesting perceptions

are of greater importance. Despite this uncertainty, there is certainly sufficient evidence to justify further exploration of this relation.

In unravelling the link between these school belonging factors and negative affect it is important to investigate this prospectively and to control for prior negative affect. This will help exclude the possibility that school belonging measures are simply a marker of negative affect. Thus, it is important to establish which of the school belonging factors predict future negative affect when controlling for prior negative affect.

It also seems necessary to examine these relations separately for males and females, for several reasons. Gender differences are commonly seen in the prevalence of adolescent affective disorders (e.g., Charbonneau, Mezulis, & Hyde, 2009). The impact school belonging has on adjustment may also differ for males and females (Maddox & Prinz, 2003), with inconsistent evidence about the moderating role of gender on the effects of school belonging (Loukas et al., 2009). Males and females differ socially during adolescence in a number of ways. Rueger, Malecki, and Demaray (2008) suggest that social support may affect girls and boys differently, with girls appearing to have more developed social relationships and tending to place a higher value on social support. Girls also tend to report a higher level of support from their peers (Cheng & Chan, 2004), and receive more support from their peers than their parents, while the opposite is true of boys (Frey & Röthlisberger, 1996). While adolescent girls are most likely to receive psychological support from their peers, boys are more likely to receive instrumental support (Frey & Röthlisberger). Further, girls seem to perceive higher levels of emotional closeness in their relationships than do boys (Johnson, 2004). Given the social nature of school belonging, these gender differences may mean the relations between the PSSM factors and negative affect may differ for males and females.

In summary, it appears that the school belonging components of caring, acceptance and, rejection will each impact on current and future affective problems. Therefore, the first hypothesis is that each of the PSSM factors will contribute uniquely to the prediction of negative affect at each of three time points, with lower levels of Acceptance and Caring Relations, and higher levels of Rejection, associated with higher levels of negative affect. The second hypothesis is that the three PSSM factors will predict future negative affect, even when controlling for previous levels of negative affect.

Method

Participants

A sample of 504 students attending two high schools in urban New South Wales (NSW) ($n = 273$) and two schools in regional Tasmania ($n = 231$) participated in the current study. Students in the two Tasmanian schools ($n = 141$, and $n = 90$) were in grade 7, whereas students in the two NSW schools ($n = 188$, and $n = 85$) were in grade 8. Students remained with their same cohort and did not transition to a new school over the course of the study, remaining in the same high schools. The response rate was 57%. At Time 1, students ranged in age from 12 to 14 years, with a mean age of 13.3 years ($SD = 0.5$). More males (55%) than females (45%) participated. The majority of participants spoke English as their main language in the home (95%), with 4% speaking both English and another language, and 1% speaking another language only. The majority of participants were born in Australia (94%). Nine percent of the sample indicated they were of an Aboriginal or Torres Strait Islander background. Although this is slightly higher than the estimated national resident Indigenous population (of 2.5%), this subset of the Australian population does have a younger age structure (Australian Bureau of Statistics, 2007). For 27% of participants, both parents were employed full-time; for 45% of participants only their fathers were employed full-time; and for 10% of participants, only their mothers were unemployed full-time. Both parents of the

remaining 18% of participants were not in full-time employment. The two most common types of employment amongst fathers were managerial/professional (34%) and tradesperson/production roles (38%). Amongst employed mothers, 42% were in professional positions and 35% were in clerical/sales positions. Sixty-two percent of participants lived with both parents in the same household; 33% reported living with a parent who was divorced or separated; and the remaining 5% endorsed an alternate living arrangement.

Measures

Psychological Sense of School Membership scale (PSSM). The PSSM (Goodenow, 1993) is an 18-item measure of school belonging with responses indicated on a 5-point response scale ranging from 1 *(not at all true)* to 5 *(completely true)*. Its construct validity has been verified by significant findings of several hypothesised subgroup differences in school belonging (Goodenow). The reliability of this measure has been found to be high (ranging from .78 to .95 in a review of 27 studies; You et al., in press). Cronbach's alpha for the total PSSM in the current study ranged from .88 (T1) to .92 (T3). As indicated by You et al.'s factor analyses, 12 items were used to create the three PSSM factors. The *Caring Relations* factor was composed of four items (e.g., "Most teachers at this school are interested in me," "There's at least one teacher or other adult in this school I can talk to if I have a problem"); five items constitute the *Acceptance* factor (e.g., "I am included in lots of activities at this school," "Other students here like me the way I am"); and the *Rejection* factor included three items (e.g., "It is hard for people like me to be accepted here," "Sometimes I don't feel as if I belong here"). In this study's sample, the PSSM factors were found to have the following range of reliability coefficients across the three time points: Caring Relations (.71 [T2] to .77 [T3]), Acceptance (.73 [T1] to .79 [T3]), and Rejection (.64 [T1] to .72 [T2 and T3]).

Children's Depression Inventory (CDI). The CDI (Kovacs, 1992) is widely used and cited measure (Sitarenios & Stein, 2004), originally described as assessing depressive

symptoms in children and adolescents. However, as recent studies suggest it more accurately

measures negative affectivity (e.g., Joiner, Catanzaro, & Laurent, 1996; Stark & Laurent,

2001), we use the term "negative affect" rather than "depressive symptoms," The CDI

consists of 27 items (sets of three statements), with the youth selecting one of three

statements that represent: 0, *an absence of symptoms*; 1, *mild symptoms*; and 2, *definite*

symptoms. In this study. one item was excluded that related to suicidal thoughts. The CDI's

validity has been well established by a variety of techniques (Sitarenios & Stein, 2004) and in

previous studies, the reliability of this measure has been found to be high (internal

consistency reliability coefficients ranging from .71 to .89) (Reynolds, 1994). Cronbach's

alpha in the present study ranged from .84 (T1) to .92 (T3) across the three time points. Raw

scores were utilised in this study rather than *T*-scores.

Procedure

This research received the appropriate ethical clearance from the University Human

Research Ethics Committee and complies with the Australian National Health and Medical

Research Council ethical standards. The current study involved analyzing data collected as

part of an investigation of a teacher-directed intervention (i.e., there were no direct

interventions with the students), which did not appear to influence our student participants on

key study variables. Data collected at three time points are used in this study. The time span

between data collected at Time 1 (T1) and Time 2 (T2) is approximately 12 months, and the

time span between data collected at T2 and Time 3 (T3) is approximately 6 months. There

were no transitions to new school settings within these time periods. All students in grade 7

in two Tasmanian schools and in grade 8 at two NSW schools were eligible to participate in

the study (i.e., there were no exclusionary criteria). In each state, one school received the

teacher-directed intervention and one school was the wait-list control. The subsequent cohort

of students attending the wait-list control schools (i.e., one of the two Tasmania schools and

one of the two NSW schools) were also eligible to participate and consenting students are included in this study's data. Therefore, analyses are based on data from four schools from one cohort ($n = 344$) and the subsequent cohort from two of these schools ($n = 160$). Given data collection for each cohort took place over 18 months, the data collection of the two cohorts overlapped by six months. Parental consent was obtained via letters sent to parents and student assent was sought before participation.

In addition to demographic information, the CDI, and the PSSM, participants also completed a battery of questionnaires that assessed other areas of mental health and school related information. Questionnaires were presented in the same order to all participants. School guidance counsellors administered the measures to students using scripted instructions, during regular scheduled classes at prearranged times. Students who did not return parental consent forms or did not assent to participate engaged in an alternate quiet activity, within the same classroom. The complete battery of questionnaires took approximately one hour to complete.

Results

Due to attrition over the study and absences on testing days, the number of students at T1 was 504, the number of students at T2 was 463, and the number of students at T3 was 450. This represents an attrition rate of 10.7%. Those who participated at all three time points differed significantly from those who participated at only one or two of the time points on a number of the T1 variables, with higher scores on PSSM total T1, $t(495) = 3.76$, $p < .001$, and Acceptance T1, $t(495) = 2.53$, $p = .012$, and lower scores on CDI T1, $t(492) = -3.16$, $p = .002$, and Rejection T1, $t(495) = -3.84$, $p < .001$. Those who participated at all three time points were also less likely to have born overseas than those who participated at only one or two of the time points, $t(501) = 2.31$, $p = .021$. No other differences were noted on demographic variables in regards to attrition (analyses are available upon request). Missing

data were handled with a regression imputation procedure. Although CDI scores were skewed greater than 1 at each of the three time points, as transformations reducing the skew of these scores did not significantly alter overall conclusions, untransformed data were used in the final analyses.

Table 1 presents the means, standard deviations, and correlations (by gender) for CDI scores, overall PSSM scores, Caring Relations, Acceptance, and Rejection, at T1, T2, and T3. As can be seen, almost all variables were significantly correlated. Using a clinical cutoff of 18 (subtracting 1 from the recommended cutoff of 19 (Kovacs, 1992), as we excluded one item in this study), 8.5%, 10.5%, and 9.7% of students endorsed a level of negative affective problems that seems likely to warrant clinical attention at each of the three time points, respectively.

Several significant differences were found between males and females on study variables, using *t*-tests with Bonferonni corrections (refer to Table 2). Females scored higher than males on the Caring Relations factor at T1, T2, and T3; and on total PSSM at T1. A number of significant differences were also observed among the four schools (analyses are available upon request). As a result, school was included as a control variable in the analyses. Three hierarchical multiple regression analyses were conducted to test the first hypothesis, at T1, T2, and T3, and each analysis was split by gender (refer to Table 3). Each analysis set CDI scores as the criterion. The four schools were dummy coded into three variables (NSW School 1, NSW School 2, and Tasmania School 1; with Tasmania School 2 as the reference category) and included in the first step as a control. In the second step, concurrent scores on the Caring Relations, Acceptance, and Rejection factors were added. After school was controlled, the additional variance accounted for by the PSSM factors ranged from 24% (males at T2) to 50% (females at T3). The standardized beta coefficients at the second step were examined in order to investigate whether each PSSM factor contributed uniquely to the

prediction of CDI scores at each time point for each gender. For females, the Caring Relations, Acceptance, and Rejection factors were significant across all three analyses (T1, T2, and T3). For males, the Acceptance factor contributed uniquely at all three time points, the Caring Relations factor contributed uniquely at T1 and T2, and the Rejection factor contributed uniquely at T1 and T3.

A hierarchical multiple regression analysis was also run to test the second hypothesis (refer to Table 4). CDI scores at T3 were set as the criterion. School was again controlled in the first step, in the same manner as in the cross-sectional analyses. In the second step, CDI scores at T1 were included in order to control for initial negative affective difficulties. In the third step, the three PSSM factors at T2 were added. After school was controlled, the Caring Relations, Acceptance, and Rejection factors at T2 accounted for an additional 8% of variance for males and 13% for females. Examining the standardized beta coefficients at this step reveal that the Acceptance factor uniquely contributed to CDI scores at T3 for both genders, whereas the Rejection factor only contributed to the prediction equation for females. The Caring Relations factor did not uniquely contribute to this equation for either gender.

Discussion

We explored the relations between negative affect and the three PSSM factors in adolescents, with the aim of further informing school belonging interventions that target negative affective difficulties. The Acceptance factor emerged strongly in both cross-sectional and prospective analyses as an important predictor of negative affect for both males and females, even after controlling for prior negative affective symptoms. The Rejection factor also appeared important in cross-sectional analyses for both genders and was important in longitudinal analyses for females. Acceptance and rejection (but not caring) remain unique risk factors for future negative affective problems, controlling for prior negative affective

experiences. Findings may contribute significantly to the further development of interventions aimed at preventing and reducing negative affective symptoms in adolescence.

The first hypothesis, that each of the PSSM factors would contribute uniquely to the prediction of negative affect at three time points, was almost completely supported by results. In the three cross-sectional analyses, the Acceptance factors contributed uniquely to the prediction of negative affect, with lower levels of acceptance associated with higher levels of negative affect, for both males and females. The Rejection and Caring Relations factors contributed uniquely to the prediction of negative affect at two of the three time points for males, and at all three time points for females, with higher scores on the Rejection factor and lower scores on the Caring Relations factor associated with higher levels of negative affect. Overall, these results suggest that school belonging is not an indivisible construct, and provide support for viewing school belonging as a multifactorial construct, as suggested by You et al. (in press).

We had further hypothesized that the three PSSM factors would predict future negative affective problems, even when controlling for previous levels of negative affect. Indeed, the three PSSM factors together explained a significant amount of additional variance (8% for males, 13% for females) in future negative affect, even after accounting for initial negative affect. For females, both the Acceptance and Rejection factors contributed uniquely to this prediction, but the Caring Relations factor did not. For males, only the contribution of the Acceptance factor was significant.

Taken together, these findings highlight the seemingly robust nature of acceptance as an important predictor of current and future negative affective symptoms in adolescents, with predictive ability of at least six months, even after controlling for prior negative affect. Rejection also appears to be important, for females in particular. These findings are consistent with sociometer theory (e.g., Leary, 2005), predicting that perceptions of

acceptance and rejection, as measures of perceived relational value, would influence negative affect. Such results are also consistent with previous research that found related constructs to be associated with negative affect; that is, those investigating teacher support (Murberg & Bru, 2009; Reddy, et al., 2003), perceptions of peer acceptance (King et al., 1996; Kistner et al., 1999; Zimmer-Gembeck et al., 2007), and perceived peer rejection (Lopez & DuBois, 2005). The vicissitudes of relational valuing with its impact on affective functioning would appear indeed to be affected by an admixture of actual and perceived acceptance and rejection. Acceptance and rejection are not simply opposites but are two clearly divisible constructs of important note in negative affective symptoms. This is consistent with research in the area of sociometrics that differentiates between accepted, rejected, and neglected students (e.g., Carlson, Lahey, & Neeper, 1984).

Although we must be tentative in interpreting the gender differences apparent in our results as they were not analysed statistically, they seem worthy of brief discussion. Firstly, the PSSM factors consistently accounted for more variance in negative affect in females than in males. Secondly, there were some gender differences in the order of magnitude and significance of the PSSM factors in the prediction of negative affect in males and females. In particular, the Rejection factor was only significant in predicting subsequent negative affect for females. These differences may reflect the social differences apparent in adolescent females and males. Females appear to be more relationally oriented than males during this developmental period (e.g., Cheng & Chan, 2004; Johnson, 2004; Rueger et al., 2008), which may increase the degree to which relational valuing (and thus school belonging) influences their wellbeing.

Although preliminary, this study highlights that it may be useful to consider which aspects of school belonging are most pertinent to each domain of functioning when planning interventions aimed at influencing specific outcomes. In regards to targeting negative

affective symptoms, focussing predominantly on promoting caring teachers and other adult staff members may provide only limited effect, given caring relations with teachers and other adult staff members tended to have the weakest predictive ability in relation to adolescent negative affective problems. This is a critical finding given interventions that focus on improving the teacher-student relationship in order to enhance the psychological wellbeing of adolescents (e.g., Mihalas, Morse, Allsopp, & McHatton, 2009).

These findings suggest a more comprehensive and multilayered approach might be necessary to address the link between school belonging factors and negative affective symptoms. From a prevention and treatment perspective, an integration of ecological, CBT, and interpersonal approaches may be useful. In the first instance, it would suggest that any ecological interventions to promote a culture of respect and inclusion may best be targeted as a "whole of school" approach (e.g., Rimes, 2004; Shochet & Ham, 2004) and not simply targeted at promoting caring personnel. Every instance of acceptance may add value that each rejection might detract. This is consistent with findings reported by Shochet, Smyth, and Homel (2008), which showed that multiple points of connections (e.g., teachers, counselors, nurses, principals) all added unique variance to the overall sense of connectedness or belongingness. It seems that peers should also be included in this list.

In addition to this whole of school approach, treatment and prevention interventions that target adolescents directly also seem likely to be beneficial. There is significant prior research to show people are prone to interpret neutral social cues as nonacceptance (e.g., Amin, Foa, & Coles, 1998; Leary, Haupt, Strausser, & Chokel, 1998; Vestre & Caulfield, 1986). Similarly, we know that some people have greater "rejection sensitivity" than others (e.g., Berenson et al., 2009). It would appear that in this context of perceived, as opposed to actual acceptance and rejection, cognitive restructuring approaches may have considerable merit. Individuals with high levels of rejection sensitivity may benefit from cognitive

strategies that facilitate their interpreting of neutral feedback in a less distorted manner. Conversely, individuals who are actually rejected or poorly accepted in school community may benefit from interventions that focus on interpersonal skills, in order to give them more experiences of acceptance. Both CBT and interpersonal resilience-based interventions may further buffer those who do suffer rejection. In sum, we suggest that interventions need to operate at the level of promoting respectful and inclusive environments, at helping individuals that might have rejection sensitivity, and promoting coping resources to deal with active rejection and nonacceptance.

Study Limitations

The present study possesses some limitations. The first of these is that our understanding of each PSSM factor is in its infancy. We do not yet have detailed information about the construct validity of each factor and it is therefore difficult to make robust interpretations about what each factor purports to measure. Further research establishing the validity of the PSSM factors is clearly necessary. Additionally, multiple studies have not confirmed the factor structure of the PSSM. Using a self-report measure for negative affect is another limitation, inhibiting our ability to draw conclusions about the association between school belonging factors and specific affective disorders such as depression.

It is also important to note that there is likely to be reciprocal exchanges between negative affective symptoms and school belonging factors. It seems plausible that negative affect may influence actual acceptance and rejection in the school setting, potentially mediated by individuals' behaviors. Negative affect also seems likely to impact upon perceptions of relational value in the school setting, through negative cognitive biases and distortions. We would argue, however, that despite these reciprocal relations, there remains significant value in intervening in this cycle at the level of school belonging.

Implications for Future Research, Policy, and Practice

More research is essential to better understand the complex relation between school belonging and negative affectivity in adolescents, and to continue to refine and develop more effective interventions. Further exploration of the gender differences apparent in these relations seems likely to be valuable. Given age differences are commonly seen in adolescent affective disorders, it may be useful to examine the possible moderating role age plays in the relation between negative affective symptoms and each PSSM factor. Replication of the current study with a wider age range of adolescents may be valuable in this regard. Replication of You et al.'s (in press) factor analysis, as well as research supporting the construct validity of the PSSM factors, would also add substance to the premise of the current study.

More broadly, but also in relation to future research, this study highlights that treating school belonging as a multidimensional construct may allow researchers and practitioners to more clearly understand which aspects of school belonging are most important in predicting a given outcome. We believe this more detailed information will allow the development of specific and tailored interventions for various adolescent outcomes. Rather than adding to the predictive power of school belonging, we believe that conducting school belonging research in this manner may allow us to better understand the significant influence school belonging has on adolescent wellbeing.

With regards to future practice, we believe the results of this study highlight that school belonging based interventions targeting negative affective symptoms in adolescents may be more effective by taking a comprehensive and multilayered approach. It may be beneficial for interventions to target students themselves in addition to school staff. Students who perceive rejection or a lack of acceptance may benefit from different interventions than those who are actually rejected or poorly accepted at school. We suggest interventions that

promote respectful and inclusive environments at a "whole of school" level, as well as more targeted interventions for specific subsets of students.

In summary, the current study found that each of the three PSSM factors played a significant role in the prediction of negative affect, with the Acceptance and Rejection factors emerging as particularly robust predictors of negative affect over time for girls, and the Acceptance factor being a very robust predictor for boys, even with previous negative affective difficulties are controlled. These findings highlight the importance of integrative multilayered interventions that target actual rejection and rejection sensitivity amongst students, as well as continuing to promote inclusive and respectful school environments. More broadly, these findings add weight to the notion that school belonging is a multidimensional construct and that future research may benefit by investigating it in this manner. Given school belonging is associated with such a plethora of important adolescent outcomes, it seems valuable to continue investigating it in this more atomized way.

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Table 1

Means, Standard Deviations, and Correlations (by Gender [a]) among the Study Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. CDI – T1	7.34	6.38	—	-.42**	-.49**	.50**	-.63**	.55**	-.30**	-.45**	.39**	-.51**	.54**	-.24**	-.39**	.40**	-.44**
2. Caring Relations – T1	3.60	0.89	-.38**	—	.47**	-27**	.71**	-.25**	.47**	.28**	-.25**	.43**	-.22*	.41**	.26**	-.16*	.31**
3. Acceptance – T1	3.62	0.75	-.54**	.42**	—	-.40**	.81**	-.33**	.19**	.44**	-.31**	.45**	-.31**	.19**	.43**	-.28**	.38**
4. Rejection – T1	1.95	0.92	.52**	-.26**	-.55**	—	-.70**	.24**	-.09	-.31**	.35**	-.35**	.19**	-.08	-.25**	.35**	-.31**
5. PSSM Total – T1	3.75	0.65	-.64**	.68**	.86**	-.73**	—	-.35**	.34**	.47**	-.40**	.56**	-.32**	.30**	.43**	-.37**	.46**
6. CDI – T2	7.45	7.56	.48**	-.32**	-.30**	.20**	-.36**	—	-.46**	-.63**	.53**	-.67**	.77**	-.41**	-.57**	.51**	-.59**
7. Caring Relations – T2	3.67	0.82	-.25**	.44**	.21**	-.11	.31**	-.36**	—	.52**	-.36**	.69**	-.31**	.58**	.35**	-.34**	.46**
8. Acceptance – T2	3.64	0.73	-.32**	.31**	.33**	-.27**	.41**	-.49**	.44**	—	-.60**	.86**	-.51**	.43**	.67**	-.61**	.66**
9. Rejection – T2	1.96	0.90	.30**	-.16**	-.24**	.40**	-.34**	.29**	-.23**	-.39**	—	-.76**	.51**	-.31**	-.55**	.65**	.-58**
10. PSSM Total – T2	3.74	0.65	-.40**	.40**	.32**	-.31**	.45**	-.55**	.70**	.82**	-.64**	—	-.56**	.54**	.68**	-.64**	.73**
11. CDI – T3	7.26	7.72	.41**	-.21**	-.35**	.24**	-.36**	.54**	-.31**	-.40**	.29**	-.43**	—	-.47**	-.67**	.63**	-.71**
12. Caring Relations – T3	3.67	0.84	-.14*	.49**	.21**	-.12	.34**	-.34**	.62**	.35**	-.24**	.53**	-.33**	—	.58**	-.48**	.74**
13. Acceptance – T3	3.62	0.75	-.20**	.37**	.45**	-.30**	.48**	-.35**	.36**	.59**	-.30**	.56**	-.48**	.49**	—	-.65**	.89**
14. Rejection – T3	2.03	-0.91	.25**	-.16*	-.25**	.36**	-.34**	.23**	-.29**	-.32**	.36**	-.40**	.39**	-.36**	-.46**	—	-.76**
15. PSSM Total – T3	3.74	0.69	-.28**	.43**	.37**	.-28**	.48**	-.38**	.52**	.54**	-.36**	.64**	-.52**	.73**	.78**	-.60**	—

[a] Scores for females are displayed above the diagonal; scores for males are displayed below the diagonal.

* $p < .05$, ** $p < .01$.

Table 2

Summary of t-tests Comparing Males and Females on Study Variables

	Males		Females		t
	M	*SD*	*M*	*SD*	
CDI – T1	7.70	6.44	6.90	6.30	1.41
Caring Relations – T1	3.42	0.90	3.81	0.82	-5.12**
Acceptance – T1	3.56	0.81	3.70	0.67	-2.06
Rejection – T1	2.05	0.94	1.82	0.87	2.86
PSSM Total – T1	3.63	0.68	3.90	0.58	-4.67**
CDI – T2	7.30	7.31	7.67	7.87	-0.58
Caring Relations – T2	3.53	0.83	3.83	0.79	-4.07**
Acceptance – T2	3.61	0.74	3.66	0.72	-0.75
Rejection – T2	1.96	0.84	1.95	0.96	-0.07
PSSM Total – T2	3.68	0.63	3.83	0.67	-2.56
CDI – T3	6.91	7.75	7.69	7.68	-1.14
Caring Relations – T3	3.55	0.83	3.83	0.83	-3.78**
Acceptance – T3	3.57	0.74	3.68	0.76	-1.70
Rejection – T3	2.05	0.85	2.01	0.99	0.47
PSSM Total – T3	3.66	0.66	3.84	0.71	-2.93

* $p < .05$, ** $p < .01$ (after Bonferonni correction).

Table 3

PSSM Factors Predicting Concurrent CDI Scores – Summary of Hierarchical Multiple Regression Analyses

Analysis	Model Summaries		Step 2 Predictors	β	t	Part r
	Step 1[a]	Step 2[b]				
T1						
Males	$R = .29$	$R = .64$	Caring Relations	-.13	-2.47*	-.12
	$R^2 = .08$	$R^2 = .41$; $R^2\Delta = .32$	Acceptance	-.30	-5.01**	-.24
	F = 8.40**	F = 30.77**; $F\Delta = 48.74^{**}$	Rejection	.29	5.11**	.24
Females	$R = .12$	$R = .63$	Caring Relations	-.25	-3.88**	-.20
	$R^2 = .01$	$R^2 = .40$; $R^2\Delta = .38$	Acceptance	-.26	-4.02**	-.21
	$F = 1.04$	$F = 24.54^{**}$; $F\Delta = 46.70^{**}$	Rejection	.34	5.87**	.31
T2						
Males	$R = .21$	$R = .53$	Caring Relations	-.16	-2.81**	-.15
	$R^2 = .04$	$R^2 = .29$; $R^2\Delta = .24$	Acceptance	-.36	-5.86**	-.30
	$F = 4.18^{**}$	$F = 17.97^{**}$; $F\Delta = 20.40^{**}$	Rejection	.10	1.83	.09
Females	$R = .10$	$R = .69$	Caring Relations	-.22	-3.59**	-.18
	$R^2 = -.01$	$R^2 = .48$; $R^2\Delta = .47$	Acceptance	-.40	-5.95**	-.29
	$F = .72$	$F = 33.34^{**}$; $F\Delta = 65.35^{**}$	Rejection	.22	3.59**	.18
T3						
Males	$R = .19$	$R = .53$	Caring Relations	-.07	-1.15	-.06
	$R^2 = .04$	$R^2 = .29$; $R^2\Delta = .25$	Acceptance	-.35	-5.50**	-.28
	$F = 3.50^*$	$F = 17.90^{**}$; $F\Delta = 31.15^{**}$	Rejection	.20	3.31**	.17
Females	$R = .19$	$R = .73$	Caring Relations	-.13	-2.04*	-.09
	$R^2 = .04$	$R^2 = .54$; $R^2\Delta = .50$	Acceptance	-.40	-5.69**	-.26
	$F = 2.66^*$	$F = 42.13^{**}$; $F\Delta = 78.82^{**}$	Rejection	.32	5.05**	.23

[a] Dummy coded school variables added.

[b] Concurrent PSSM factors added.

* $p < .05$, ** $p < .01$.

Table 4

Summary of Multiple Regression Analysis—PSSM Factors (T2) Predicting Subsequent CDI Scores (T3) When Accounting for Prior Depression.

Gender	Model Summaries and Change Statistics			Regression Coefficients			
	Step 1[a]	Step 2[b]	Step 3[c]	Step 3 Predictors	β	t	Part r
Males	$R = .19$	$R = .44$	$R = .52$	Caring Relations	-.10	-1.74	-.09
	$R^2 = .04$	$R^2 = .19; R^2\Delta = .16$	$R^2 = .27; R^2\Delta = .08$	Acceptance	-.20	-3.22**	-.17
	$F = 3.50^{*}$	$F = 16.40^{**}; F\Delta = 53.09^{**}$	$F = 14.52^{**}; F\Delta = 9.88^{**}$	Rejection	.09	1.61	.08
Females	$R = .19$	$R = .56$	$R = .66$	Caring Relations	-.05	-0.81	-.04
	$R^2 = .04$	$R^2 = .31; R^2\Delta = .28$	$R^2 = .44; R^2\Delta = .13$	Acceptance	-.18	-2.53*	-.13
	$F = 2.66^{*}$	$F = 25.28^{**}; F\Delta = 89.96^{**}$	$F = 24.71^{**}; F\Delta = 16.77^{**}$	Rejection	.24	3.81**	.19

[a] Dummy coded school variables added.

[b] CDI – T1 added.

[c] Caring Relations – T2, Acceptance – T2, and Rejection – T2 added.

* $p < .05$, ** $p < .01$.