

# Perceived Academic Performance as an Indicator of Risk of Attempted Suicide in Young Adolescents

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## Abstract

This study investigated perceived academic performance and self-reported suicidal behavior in adolescents ( $n = 2,596$ ), mean age 13 years, from 27 South Australian high schools. Groups perceiving their academic performance as failing, below average, average and above average were significantly different on measures of self-esteem, locus of control, depressive symptoms, suicidal thoughts, plans, threats, deliberate self-injury, and suicide attempts. Multivariate logistic regression analyses revealed that failing academic performance (compared to above average) is associated with a five-fold increased likelihood of a suicide attempt, controlling for self-esteem, locus of control and depressive symptoms. Teachers should note that a student presenting with low self-esteem, depressed mood and perceptions of failure may be at increased risk for suicidal thoughts and behaviors, and need referral for clinical assessment.

## Keywords

attempted suicide; adolescents; academic performance; self-esteem; locus of control

Youth suicide remains a major public health issue. In Australia between 1991 and 2002, suicide accounted for 25% of total deaths in males and 16% in females in the 15–24 age group, at a peak rate (per 100,000) of 19.3 in 1997, reducing to 12.8 in 2000 (Australian Bureau of Statistics, 2003). In the USA, rates are lower for the same age group and have declined since 1994, to 10.7 per 100,000 in 2000 (Centers for Disease Control and Prevention, 2003); though suicide attempts requiring medical treatment have increased in the same period (Department of Health and Human Services [DHHS], 2001).

Suicidal behavior is a complex phenomenon; it is generally accepted that a continuum exists, from ideation to attempts to completion, and that, although rare in childhood, risk of suicide increases with each year of adolescence (Keinhorst, De Wilde, & Diekstra, 1995). Early recognition of adolescents at risk is important (Malley, Kusk, & Bogo, 1994), and factors associated have been studied extensively (Brent, Baugher, Bridge et al., 1999; Marttunen & Pelkonen, 2000). Beautrais (2000) categorizes risks into domains including social and educational disadvantage; childhood and family adversity;

psychopathology; individual and personal vulnerabilities; exposure to stressful life events and circumstances; and social, cultural and contextual factors. Accurate identification is difficult, however, due to the complexity of contributing clinical, contextual and individual factors (Rudd & Joiner, 1998; Zametkin, Alter, & Yemini, 2001).

Recent strategies for suicide prevention address many of these risk factors (DHHS, 2001). Of interest, are school-based approaches (Leenaars & Wenckstern, 1999). Improvement in the ability of educational staff to identify at-risk suicidal behavior is a U.S. national strategic goal (DHHS, 2001). Non-health care professionals such as teachers are in almost daily contact with adolescents, and are well placed to note distress and mental health problems among students. Yet often they are largely unaware of the signals that indicate a need for further in-depth clinical assessment. A survey of high school teachers found only 9% believed they could identify a student at risk of suicidal behaviors (King, Price, Telljohann et al., 1999). Staff development has been identified as a crucial issue in successful implementation of school-based prevention programs in Australia (Mitchell, 2000).

The literature on suicide risk assessment has been written primarily for health professionals (Nimeus, Alsen, & Traskman Bendz, 2000; Sanchez, 2001). Though self-report questionnaires using validated measures, and individual interviews or assessments may help to identify at-risk adolescents (Gould & Kramer, 2001), their usefulness is limited or inappropriate for the classroom teacher. There is a need for more easily discernible indicators of high risk, amenable to assessment by a teacher, which strongly suggest the adolescent be referred for in-depth clinical assessment.

Although depression is the major risk factor for suicide, not every depressed individual attempts suicide. Personality and cognitive factors such as external locus of control and low self-esteem also contribute (Beautrais, Joyce, & Mulder, 1999). In the school context, a related construct is "perceived academic performance" (PAP). Pinzon Perez and Perez (2001) surveyed tenth graders from 32 Colombian public schools, and univariate analyses revealed significantly lower PAP in those reporting suicidal thoughts or attempts. In other studies, after controlling for psychopathology, trouble at school (failing school work or suspension for disciplinary reasons) was significantly more likely among suicide completers, compared to community controls (Gould, Fisher, Parides et al., 1996). Discrepancy between personal academic standards and actual performance is associated with increased depression levels and lowered self-esteem (Accordino, Accordino, & Slaney, 2000). However, at this time, an extensive literature search revealed no other studies of relationships between perceived and actual academic performance and suicide.

Self-esteem (SE), as an evaluation of global self-worth (Rosenberg, 1979), is also important to consider in relation to suicidal behavior and academic self-perception. Low self-esteem has been found to be associated with suicidal thoughts and behaviors (Pinto & Whisman, 1996; Tomori & Zalar, 2000); depression, delinquency and substance use, (Keefe & Berndt, 1996); poor emotional, behavioral and academic adjustment (Aunola, Stattin, & Nurmi, 2000; DuBois, Bull, & Sherman, 1998); and poor academic outcomes (Filozof, Albertin, Jones et al., 1998). Conversely, consistently high, or moderate and rising SE in community adolescents in grade 6 ( $n = 1160$ )

predicted developmentally healthier outcomes in grade 10 (Zimmerman, Copeland, Shope et al., 1997).

Studies examining relationships between SE and PAP suggest that grade point average and PAP are significant predictors of SE, after controlling for pre-test SE (Filozof, Albertin, Jones et al., 1998; Suk Wai Wong & Watkins, 2001), though SE does not predict actual academic achievement (Ross & Broh, 2000).

Another cognitive construct, locus of control (LOC) describes the extent to which an individual perceives outcomes as being within (internal) or outside (external) their control (Rotter, 1966). External locus of control has been found to be associated with adolescent suicidal thoughts and behaviors (Goldney, 1982; Goldney, Smith, Winefield et al., 1991; Pearce & Martin, 1993) and poor academic performance (Nowicki & Duke, 1983; Pearce & Martin, 1994; Ross & Taylor, 2001). Adolescents from a single Australian school (n=146) with high self-esteem and internal locus of control showed significantly more positive perceptions of their academic performance (DeMello & Imms, 1999).

The aim of the present study is to examine the utility of perceived academic performance as an indicator of risk for suicidal thoughts and behaviors that might prompt teachers to refer students to mental health professionals for detailed clinical assessment. Cognitive covariates self-esteem and locus of control, and depressive symptoms (the major risk factor for suicide), are controlled for in multivariate logistic regression models.

## **METHOD**

The Early Detection of Emotional Disorders program (EDED) was funded by the South Australian Government, and approved by the Department of Education and Children's Services, the Catholic Education Office, the Independent Schools Board and Flinders Medical Centre Ethics Committee on Clinical Investigation. The EDED program was predicated on the fact that suicidality in adolescents begins to rise sharply after age 15; examination of risk factors for suicide behavior beginning at age 13, therefore, might allow prediction of those most vulnerable, followed by relevant preventive measures. School students were assessed on a number of cognitive, behavioral, family and life event constructs on three occasions in consecutive years – a repeated measures longitudinal design. This preliminary study reports on a cross-sectional subset of data from the first year.

### **Participants**

Participants (N = 2,596) were students in Year 8 (mean age 13 years) from 17 government owned and 10 independent schools in the clinical service catchment area, including rural and suburban, lower to upper middle socio-economic areas of South Australia (approximately one-third of the high school population). Of the sample, 44.5% were female (n = 1,154) and 55.5% male (n = 1,442); 92.9% were born in Australia; 96.2% spoke English as the main language at home; 0.9% were of

Aboriginal or Torres Strait Origin; and 72.4% were living at home with both biological parents.

## Procedure

Permission for the project was obtained from participating school principals, and parent teacher councils. Parents received a written explanation of the study, its purpose and procedures to ensure confidentiality. Teachers supervised questionnaire administration in class-time, informing students that participation was voluntary and non-participation would have no adverse consequences. Actively consenting students placed their responses in a sealed container to maintain confidentiality. A group debriefing session followed, and a school counselor was available for any student showing distress. The response rate was 85%.

## Measures

Items of interest reported here form part of a larger composite questionnaire (Martin, Allison, Pearce et al., 1995).

*Perceived Academic Performance (PAP).* A single-item measure asked students to rate their overall academic performance as: “failing,” “below average,” “average,” or “above average.”

*Self-esteem (SE).* Rosenberg’s Self-Esteem Scale (RSE) (Rosenberg, 1979), a 10-item, self-report scale measured students’ current level of self-esteem and global self-worth. Descriptive statements about life and self-satisfaction were rated on a 5-point Likert scale, ranging from 1 (“almost always true”) to 5 (“never true”). Total scores range from 10 to 50, with higher scores indicating higher self-esteem. Hagborg (1993) found the RSE has a strong relationship with global self-worth above that of other self-concept domains. RSE has been shown to have adequate internal consistency and test-retest reliability (Fleming & Courtney, 1984). Scale reliability is excellent,  $\alpha = .87$ .

*Locus of Control (LOC).* The Nowicki-Strickland Locus of Control Scale for Children (CNSIE) (Nowicki & Strickland, 1973), a 40-item measure with yes/no responses appropriate for ages 9–18 years, was used to measure internal and external attributional style. Total scores range from 0 to 40, with higher scores indicating an external attribution style. Internal consistency and reliability values above 0.6 have been frequently reported in studies using the CNSIE (Nowicki & Duke, 1983). In support of convergent validity, the CNSIE correlates significantly ( $r = .31$  to  $.61$ ) with other measures of LOC. Test-retest reliability was .66 for seventh graders, 6 weeks apart (Nowicki & Strickland, 1973). Scale reliability is good,  $\alpha = .74$ .

*Depressive Symptomatology (DS).* The Center for Epidemiological Studies Depression Scale (CES-D) is a self-report 20-item instrument recommended

for use with community samples of adults (Radloff, 1977) and adolescents (Roberts, Lewinsohn, & Seeley, 1991). Respondents rate frequency of depressive symptoms felt in the past week on a 4-point scale (0, "rarely or never"; 1, "some or a little of the time"; 2, "occasionally or a moderate amount of the time"; 3, "most or all of the time"). Radloff (1977) reported high internal consistency for the scale in both community and psychiatric settings. Scale reliability is excellent,  $\alpha = .89$ .

*Suicidal Thoughts and Behaviors.* Assessment of suicidal thoughts and behaviors was based on the work of Pearce and Martin (1994). Items included in this study were: "Have you ever . . . thought about killing yourself?"; ". . . made plans to kill yourself with-out carrying them out?"; ". . . made threats to others that you will kill yourself"; ". . . deliberately tried to hurt yourself?"; and ". . . tried to kill yourself?" Response choices were "never", and "yes" with six options of when it occurred (e.g., last month, more than 12 months ago). We assumed that respondents distinguished deliberately hurting them-selves (i.e., deliberate self-injury [DSI]) from trying to kill themselves (suicide attempt). For this study, responses were collapsed to provide yes/no categorical data. A composite index of suicidality (Pearce & Martin, 1994) was calculated from which a new two-category variable, "suicide risk" was coded. Scores were assigned as follows: suicidal ideation (yes = 1, no = 0); suicidal plans (yes = 2; no = 0); suicidal threats (yes = 3, no = 0); and DSI (yes = 4, no = 0). Pearce and Martin (1994) found a cut-off score of 5 identified attempters from non-attempters with 96% sensitivity and 79% specificity, thus total scores  $>5$  were coded "high" and total scores  $<5$  were coded "low." Internal consistency of the index was sound (standardized item  $\alpha = .84$ ).

## Data Analysis

Statistical analyses were conducted with SPSS v11. The two-stage design of the sampling method, where schools were selected first, and then students from within those schools, indicates that analysis should take account of clustering within schools giving rise to correlated data and under-estimation of standard errors. However, investigations of this effect in this sample (Allison, Roeger, Martin et al., 2001; Roeger, Allison, Martin et al., 2001) with appropriate two-level hierarchical linear models using HLM v5 (Scientific Software International, 2003), have shown the correlation is very small, and unit specific and population average models are very similar. Thus for simplicity, the sample is treated as randomly selected and SPSS results are reported.

Univariate associations were investigated using Pearson chi-square and ANOVA. Logistic regression was chosen (Farrington & Loeber, 2000) to explore multivariate associations between the categorical predictor PAP (independent variable), continuous covariates SE, LOC and DS, and dichotomous outcomes (dependent variables) suicide thoughts and behaviors. Socio-demographic variables were not significantly associated with outcomes. Although gender was a significant confounder, gender times PAP interactions were not significant effect modifiers, and were not included (Hosmer & Lemeshow, 2002). Thus PAP and gender entered regression models directly in step one, then covariates were

entered in step two using the forward stepwise conditional ( $p < .01$ ) method.

Percentages of missing values for PAP, DS, and suicide variables were less than 5%, an acceptable rate for a large sample (Tabachnick & Fidell, 2001). Rates for SE (11.0%) and LOC (20.8%), however, were unacceptably high. Comparison of groups with/without LOC responses on all other measures revealed no significant differences for DS or suicide variables; and small differences for SE,  $F(1, 2308) = 6.96, p < .01$ . For PAP, significantly more respondents without LOC, compared to those with LOC,  $\chi^2(3, N = 2563) = 27.1, p < .001$ , believed they were failing (2.6% vs. 1.3%), or below average (8.7% vs. 6.1%) or average (74.3% vs. 69.1%). Thus the sub-sample with responses to variables of interest may under-represent those with perception of poor or average academic performance. Hence this problem was explored further. Following accepted methods for the treatment of missing data, we chose a conservative solution (Tabachnick & Fidell, 2001), and replaced missing values with the series mean for SE and LOC. This allowed inclusion of cases who had complete PAP, DS and suicide data, but not SE or LOC. Analyses were conducted on both sets of data. Differences noted were small reductions in standard errors resulting in narrower 95% confidence intervals, though substantial differences in odds ratios or levels of significance for PAP onto suicide variables were not evident. We report, therefore, results where missing values for LOC or SE are replaced with the series mean.

## RESULTS

Descriptive statistics of the sample are presented in Table 1.

Significant gender differences are noted for PAP,  $\chi^2(3, N = 2563) = 16.38, p < .001$ . More than a fifth of both boys and girls believed they were above average in academic performance; however, more than twice as many boys believed they were failing, or below average. In contrast, boys compared to girls had significantly higher self-esteem,  $F(1, 2308) = 27.7, p < .001$ ; and lower depressive symptomatology  $F(1, 2419) = 30.11, p < .001$ . Gender differences were apparent also in suicidal thoughts and behavior. For example, significantly more girls reported having suicidal thoughts,  $\chi^2(1, N = 2555) = 29.4, p < .001$ ; and making suicide attempts  $\chi^2(1, N = 2486) = 9.0, p < .01$ .

A trend is apparent, with increasingly positive PAP associated with increased self-esteem, more internal locus of control and decreased depressive symptomatology.

**TABLE 1.** Descriptive Statistics

<b>N (%)</b>	<b>Boys 1442 (55.5%)</b>	<b>Girls 1154 (44.5%)</b>	<b>Total 2596</b>
<b>Perceived academic performance n (%)<sup>a</sup></b>			
Failing	28 (1.9%)	12 (1.0%)	40 (1.5%)
Below average	116 (8.0%)	54 (4.7%)	170 (6.5%)
Average	970 (67.3%)	829 (71.8%)	1799 (69.3%)
Above average	307 (21.3%)	247 (21.4%)	554 (21.3%)
<b>Suicide variables n (%) yes<sup>a</sup></b>			
Thoughts	260 (18.0%)	312 (27.0%)	572 (22%)
Plans	118 (8.2%)	165 (14.3%)	283 (10.9%)
Threats	110 (7.6%)	129 (11.2%)	239 (9.2%)
DSI	213 (14.8%)	202 (17.5%)	415 (16.0%)
Attempts	54 (3.7%)	74 (6.4%)	128 (4.9%)
Risk (high score 5 + ) <sup>b</sup>	131 (9.1%)	164 (14.2%)	295 (11.4%)
<b>Other variables<sup>c</sup> mean (SD)</b>			
Self esteem	40.54 (6.86)	38.97 (7.44)	39.82 (7.17)
Locus of control	13.83 (5.21)	13.92 (5.31)	13.87 (5.25)
Depressive symptoms	11.41 (8.74)	13.65 (11.38)	12.42 (10.09)

*Note.* SD, standard deviation; DSI, deliberate self-injury.

<sup>a</sup>Percentages of total ( $N = 2,596$ ) which includes missing values for variables ranging from 1.3 to 4.2%.

<sup>b</sup>Composite variable score (ideas = 1, plans = 2, threats = 3, DSI = 4).

<sup>c</sup>Scales: Rosenberg Self-Esteem; Nowicki-Strickland, Center for Epidemiological Studies Depression Scale.

Univariate associations between PAP and suicide variables are presented in Table 2.

Students who reported their academic performance as failing were significantly more likely to report suicidal thoughts, plans and threats of suicide, DSI or attempted suicide than students who reported their academic performance as average or above average. Comparative rates of those failing and those above average also increased as the severity of suicidality increased; three times more failing students than above average students had suicidal thoughts; whereas ten times as many reported attempted suicide.

**TABLE 2.** Chi Square Analysis of Perceived Academic Performance with Suicide Variables

	PAP	n (%) yes <sup>a</sup>	$\chi^2(N, df)^{***}$
Suicidal thoughts (yes)	Failing	19 (50.0%)	$\chi^2 (2525,3) = 33.9$
	Below average	52 (31.9%)	
	Average	403 (22.7%)	
	Above average	94 (17.1%)	
Suicidal plans (yes)	Failing	14 (37.8%)	$\chi^2 (2473,3) = 53.3$
	Below average	33 (21.0%)	
	Average	197 (11.3%)	
	Above average	35 (6.5%)	
Suicidal threats (yes)	Failing	8 (22.2%)	$\chi^2 (2483,3) = 23.7$
	Below average	27 (17.5%)	
	Average	165 (9.4%)	
	Above average	36 (6.6%)	
DSI (yes)	Failing	17 (45.9%)	$\chi^2 (2468,3) = 45.5$
	Below average	40 (26.0%)	
	Average	298 (17.2%)	
	Above average	59 (10.9%)	
Suicide attempt (yes)	Failing	12 (33.3%)	$\chi^2 (2454,3) = 74.4$
	Below average	16 (10.5%)	
	Average	83 (4.8%)	
	Above average	15 (2.8%)	

*Note.* df, degrees freedom. DSI, deliberate self injury. PAP, perceived Academic Performance.

<sup>a</sup>Percentage with 'yes' response to suicide variable within PAP category, e.g., 19 out of 38 (50%) failing responded yes to suicidal thoughts.

\*\*\*  $p < .001$ .

Comparisons of self-esteem, locus of control and depressive symptomatology between groups stratified by PAP are presented in Table 3.

**TABLE 3.** ANOVA of Self-Esteem, Locus of Control and Depressive Symptoms with Perceived Academic Performance

	PAP <sup>a</sup>	n	Mean (SD)	F (df, df)**
Self Esteem	Failing	31	27.52 (8.8)	F (3,2278) = 109.69
	Below average	139	34.86 (8.1)	
	Average	1582	39.38 (6.9)	
	Above average	530	43.28 (5.5)	
Locus of Control	Failing	26	19.54 (5.5) <sup>b</sup>	F (3,2030) = 54.32
	Below average	124	17.28 (5.4) <sup>b</sup>	
	Average	1406	14.11 (5.1)	
	Above average	478	11.94 (4.7)	
Depressive Symptoms	Failing	30	27.90 (14.8)	F (3,2390) = 46.72
	Below average	147	17.48 (11.7)	
	Average	1674	12.42 (9.9)	
	Above average	543	10.24 (8.7)	

Note. SD, standard deviation. df, degrees freedom.

<sup>a</sup>Categorical variable Perceived Academic Performance (PAP).

<sup>b</sup>Non-significant difference between these groups.

\*\*\*  $p < .001$ .

### Logistic Regression Models

Logistic regression was used to explore the association of PAP with suicidal thoughts, high risk suicidal behavior (comprising thoughts and DSI, or more than one of plans, threats and DSI), and suicide attempts, in addition to known risk factors and cognitive co-variables (depressive symptoms, self-esteem, locus of control).

A test of the full model – PAP, gender, self-esteem, locus of control, and depressive symptoms – versus a model with intercept only is statistically significant ( $p < .001$ ) for all three suicide variables. Model chi-square values are: suicidal thoughts  $\chi^2(7, N = 2372) = 608.5, p < .001$ ; suicidal risk  $\chi^2(7, N = 2274) = 424.7, p < .001$ ; and suicide attempt  $\chi^2(5, N = 2315) = 215.8, p < .001$ . The Hosmer-Lemeshow goodness-of-fit test was greater than .05 for all models, implying that the models' estimates fit the data at an acceptable level. Nagelkerke  $R^2$  values indicate that the models explain approximately thirty percent of variability in the data (Tabachnick & Fidell, 2001).

Table 4 shows the unadjusted and adjusted odds ratios for PAP and gender onto the three suicide variables. PAP is a categorical variable, with odds ratios estimated relative to the referent category (above average). Thus, an individual who perceives they are failing, compared to one who perceives they are above average academically, has a six-fold increased risk of suicidal thoughts; a fourteen-fold increased risk of high-risk suicidal behavior; and twenty-five fold risk of attempting suicide, controlling for gender. Similarly, girls, compared to boys, had nearly twice the increased risk of suicidal

thoughts, high-risk behavior and suicide attempts, controlling for PAP.

**TABLE 4.** Logistic Regression Models for Suicidal Outcomes Associated with Perceived Academic Performance (PAP) and Gender

Outcome	Predictor	Odds Ratio (95% Confidence Interval)	
		Unadjusted <sup>a</sup>	Adjusted <sup>b</sup>
Suicidal Thoughts	PAP - Failing	6.8 (3.2–14.6)***	ns
	Below average	2.6 (1.8–4.0)***	ns
	Average	1.4 (1.1–1.9)**	ns
	Above average	1.0 (referent)	ns
	Gender - Female	1.7 (1.4–2.0)**	ns
	Male	1.0 (referent)	ns
Suicide Risk	PAP - Failing	14.8 (6.6–33.2)***	ns
	Below average	3.6 (2.1–6.2)***	ns
	Average	1.8 (1.3–2.7)**	ns
	Above average	1.0 (referent)	ns
	Gender - Female	1.6 (1.3–2.1)**	ns
	Male	1.0 (referent)	ns
Suicide Attempts	PAP - Failing	25.3 (10.0–64.3)***	5.2 (1.7–15.5)**
	Below average	4.6 (2.2–10.0)***	2.3 (1.0–5.3)*
	Average	1.9 (1.1–3.4)*	ns
	Above average	1.0 (referent)	1.0 (referent)
	Gender - Female	1.9 (1.3–2.9)**	ns
	Male	1.0 (referent)	ns

*Note.* SE, self-esteem. LOC, locus of control. DS, depressive symptoms.

<sup>a</sup>Unadjusted odds ratios for categorical predictors PAP and gender (direct entry).

<sup>b</sup>Adjusted odds ratios for PAP and gender after forward stepwise conditional entry ( $p < .01$ ) of continuous covariates SE, LOC and DS (thoughts and risk) and DS (attempts).

ns  $p > .05$

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Adjusted odds ratios for PAP are non-significant for thoughts and high-risk suicide behavior, after taking gender, low self-esteem, external locus of control and depressive symptoms into account. For PAP categories of 'failing' ( $p < .01$ ) and 'below average' ( $p < .05$ ), however, adjusted odds ratios remain significant for suicide attempts, after controlling for depressive symptoms, (locus of control and self-esteem making no significant contribution to this latter model).

## DISCUSSION

The findings of this study of a large community sample of young adolescents, suggest that perceived academic performance is related to self-esteem, locus of control and depressive symptoms. All four variables are related to suicidal thoughts and behaviors. Multivariate analysis indicates the association of perceived academic performance with suicide thoughts and high-risk suicide behavior (comprising thoughts and deliberate self-injury (DSI), or more than one of plans, threats, and DSI) is fully mediated by the combined associations of self-esteem, locus of control and depressive symptoms. However, in the model considered, perceived academic performance appears to be independently significantly associated with suicide attempts, controlling for depressive symptoms; locus of control and self-esteem are not significantly associated. Although no other study has investigated these variables together, significant relationships found in this study are consistent with studies investigating subsets of the variables such as Pinzon Perez and Perez (2001), DeMello and Imms (1999), Tomori and Zalar (2000), and Pearce and Martin (1993).

Perceived academic performance is a complex construct which may relate to personality factors, cognitive factors such as a lack of optimism, learning ability to date, and recent experiences of examination results. In our work it appears also to have a strong relationship with self-esteem and attribution style. Despite being a complex construct, it is a simple question for a teacher to ask, unlikely to cause anxiety. A strong belief in past or impending academic failure, especially when actual achievement is good, provides a compelling reason to explore other academic, personal, and family risk factors for mental health problems. This situation may guide a teacher to initiate discussions with a student about life stresses, depressed feelings, reasons for living and possibly suicidal thoughts. We recommend that teachers, generally not trained or skilled in mental health assessment, use this set of simple indicators to raise their level of suspicion about risk for suicidality in a student, and then ensure referral for in-depth clinical assessment.

Practical implications of these results are significant considering the large sample size of a normal population of school adolescents. Many previous studies investigating perceived academic performance, self-esteem and locus of control have had relatively small samples sizes and/or samples from non-normal populations (e.g., DeMello & Imms, 1999; Pinto & Whisman, 1996). Several limitations must be noted. First, the absence of a measure of actual academic performance pre-vents comparison of actual and perceived academic performance; this may be important given that at the day to day level, a student with low perceived academic performance but high achievement may be more likely to have emotional distortion of their perceptions, and be at higher risk.

Second, it is noted that teachers' perceptions of a student may be distorted by characteristics of teachers themselves, such as their own locus of control, self-esteem and extent of teaching experience (Schwartz, Wolfe, & Cassar, 1997).

Finally, the locus of control scale is lengthy (40 questions) and was placed at the end of a lengthy composite questionnaire. As a result, the response rate

was low (79%) compared to the perceived academic performance question (99%). The study could have benefited from use of a shorter measure of locus of control and randomized ordering of questions.

In conclusion, we believe that schools have an important place alongside communities and health systems in responding to the problem of youth suicide (Leenaars, Wenckstern, Appleby et al., 2001). Teachers, in daily contact with students, are well-placed regarding the identification of high risk youth, a generally accepted (amongst others) effective means of prevention= intervention (Eddy, Wolpert, & Rosenberg, 1987). School screening programs are thought by some to be more effective (Shaffer, Scott, Wilcon et al., 2004), although these are not always acceptable to school authorities (Miller, Eckert, Du Paul et al., 1999).

Future research exploring relationships between actual academic performance, perceived academic performance, self-esteem, and suicidality is recommended.

#### AUTHOR NOTE

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